Volume 68 No. 1 MAY 1999
ISSN 0041-6193

[continued on back cover

THE ULSTER MEDICAL JOURNAL

Published by
THE
ULSTER MEDICAL SOCIETY

The Ulster Medical Journal, Volume 68, No. 1
May 1999

Contents continued from front cover

The Ulster Medical Journal, Volume 68, No. 1, May 1999.

The Ulster Medical Journal

The Journal of the Ulster Medical Society. First published in 1932.
Successor to the Transactions of the Ulster Medical Society (1884-1929), and the Transactions of the Belfast Clinical and Pathological Society (1854-1862)

The Ulster Medical Society was founded in 1862
by the amalgamation of the Belfast Medical Society (founded 1806)
and the Belfast Clinical and Pathological Society (founded 1853)

THE ULSTER MEDICAL JOURNAL

NOTICE TO CONTRIBUTORS

1. Authors are reminded that concise and clearly expressed papers are those most welcomed by readers and the Editorial Board. All manuscripts are independently refereed.

   All manuscripts should be accompanied by a covering letter signed by all the authors agreeing to publication and stating that the work has not been published elsewhere, also stating that they have been actively involved in the preparation of the paper.

2. Manuscripts should be typewritten in double spacing, with wide margins. They should be fully corrected and alterations in proof may be disallowed or charged to the author. A sample typescript showing layout is available on request from the editorial office. Three copies of each manuscript should be submitted, including tables and figures.

3. The text should indicate the purpose of the paper, and should include an introduction, sections on materials and methods, results, and a discussion relevant to the findings. A brief factual summary should be provided at the beginning of the paper.

4. Scientific measurements should be in Sl units *(Units, symbols and abbreviations; a guide for biological and medical editors and authors,* 3rd ed. London: Royal Society of Medicine, 1977). Blood pressure may be expressed in mmHg and haemoglobin concentration as g/dl.

5. Tables must be kept simple and vertical lines should be avoided. Tables and illustrations must be kept to a minimum and data should not be given in both text and tables. Line drawings should be used where possible and symbols must be large enough to be legible when reduced to text size. Where possible, size of illustrations and tables should be planned so that one or more can easily fit the page size of 19·5 x 12·5 cm. Photographs and other illustrations should be unmounted, and authors may be charged for these at cost price. Authors' names and the top of the figure should be marked in soft pencil on the back.

6. References should be restricted to those really necessary and useful. This journal uses the 'Vancouver' style (see British Medical Journal 1982; **1**: 1766 -70 and Lancet 1979; **1**: 429 - 30). Text references are numerical. Each reference should include:

   i) a list of all authors when six or less (when seven or more only the first three should be listed followed by *et al).*

   ii) the title of the article.

   iii) the title of the journal (abbreviated to the form published by Index Medicus).

   iv) the year;

   v) volume number:

   vi) first and last pages.

   eg

   McCoy GF, Dilworth GR, Yeates HA. The treatment of trochanteric fractures of the femur by the Ender method. *Ulster MedJ* 1983; **52**: 136-41.

   Book references should give the author, title, edition, town of publication, name of publisher, year of publication, and, where appropriate, volume and page numbers.

7. Ten reprints of each article will be forwarded free of charge to the corresponding author. Further reprints can be obtained from the printers, Messrs Dorman & Sons Ltd, 1-3 Holmes Street, Belfast BT2 7JG, who should be approached directly.

8. Editorial communications should be sent direct to the Editor who will be pleased to advise on the preparation of manuscripts if requested.

   Fellows and Members of the Ulster Medical Society receive the Journal free. Individuals may subscribe directly (see back page). The journal contents are covered by *Current Contents: Clinical Practice, Index Medicus, Excerpta Medica* and *Science Citation Index.* This publication is available in 16mm and 35mm microfilm and 105mm microfiche from University Microfilms, 300 North Zeeb Road, Ann Arbor, Michigan 48106, USA.

9. For reprint information in the United States contact: International Reprint Corporation, 968 Admiral Callaghan Lane, Apt 268, PO Box 12004, Vallejo, California 94590 USA. Telephone (707) 553-9230, Fax (707) 552-9524.

flowing style and in an easily digestible format. It contains a good deal of useful information, bringing together the principles of advanced life support, and a guide to the diagnosis and management of fractures (occupying five of the 15 chapters). The book also encompasses the epidemiology and control and prevention of injury as separate chapters. The text is written from the perspective of individual injuries, and covers in some detail and in a logical and methodical manner the cause of injury, and assessment and treatment of injured children. Throughout the book the differential diagnosis of non accidental injury recurs and the importance of recognition of history and pattern of injury is emphasised. There is a useful section on child abuse and guidance on the preparation of medico-legal evidence. The book is comprehensively illustrated with tables, line drawings and photographs. However some of the subject matter is based upon individual practice and in particular a section on Bier Block regional anaesthesia for the reduction of limb fractures using Lignocaine at a dose of 3 mg/kg could not be considered standard practice, particularly by an inexperienced SHO.

Since it is clearly aimed at that particular audience, I have gathered the views of my own A&E SHOs. All found the book readable, one describing its style as "like a novel". The consensus view was that the book would be useful in the on-call room as general reading, but not suitable for the white coat pocket. In particular the sections on fracture management were commended as being comprehensive and useful.

This text is a useful resource for those whose practice may involve the assessment or treatment of injured children and as such would be valuable reading for an A&E SHO. Because of its style and size it is not a rapid reference guide but rather should be viewed as preparatory reading. Those contemplating the purchase of this book should also consider Paediatric Emergencies by Beattie, Hendry & Duguid (Mosney Wolfe, 1997: ISBN 0 7234 1673 7).

L A McKINNEY

Endocrine Autoimmunity and Associated Conditions. Edited by Anthony Weetman. 1998 Kluwer Academic Publishers. pp 292. ISBN 0 7923 5042 1.

Autoimmunity owes much to endocrinology for helping to clarify and establish this basic principle of disease pathogenesis which has subsequently been realised to be applicable to many other diseases. Equally, as a concept, it has continued to provide a tantalising research challenge to immunologist, geneticist and clinician alike. Undoubtedly we have come a long way over the last four decades since autoimmunity was postulated as the aetiological agent in experimental and human autoimmune thyroiditis, and since the formal documentation of insulitis in short duration IDDM patients in 1965.

This book seeks to present advances in our understanding of the immunology of endocrine autoimmunity within the framework of a coherent and cohesive text not readily available from other single sources. It deals primarily with two major endocrine disorders: thyroid disease and type 1 diabetes mellitus. Under thyroid disorders, there is an initial chapter on animal models of autoimmune thyroiditis followed by chapters on thyroid autoantigens, autoimmune autoantigens, Graves' disease, postpartum thyroiditis and thyroid-associated exophthalmopathy. Discussion on diabetes focuses around beta cell antigens and the aetiology and pathogenesis of type 1 diabetes. Of considerable interest are 5 remaining chapters on rather more miscellaneous conditions including Addison's disease and related polyglandular endocrinopathies, premature ovarian failure, pituitary autoimmunity, pernicious anaemia and vitiligo. In each chapter, the aetiology, pathogenesis and treatment are discussed in detail. The book clearly highlights some of the more problematic areas such as thyroid exophthalmopathy, treatment of which must be accompanied by elucidation of disease pathogenesis.

Does the book succeed in its goals? It certainly provides an authoritative and informative update on a variety of immunologically mediated diseases by a series of respected national and international authors. Every chapter in the book discusses new developments, but they also clearly define limits of knowledge. Within a single volume it offers information which would only otherwise be obtained with difficulty and much searching of the literature. Perhaps the photographs could have been improved and presented in colour as the quality of micrographs, X-rays and bar diagrams is poor. An additional chapter on methodological pitfalls in interpretation of laboratory assays caused by interfering proteins such as thyroid assays and macroprolactin would have been helpful.

The book is a reference tool for a library or departmental bookshelf rather than perhaps a personal collection. It is one of a planned series of books covering specialist areas of medicine with diseases of immunological importance and aiming to provide a continuous update over a 4 year cycle. It may be that a CD ROM tool would facilitate this learning. I have no doubt however that the editors will succeed in their goals.

DAVID R McCANCE

BOOK RECEIVED

Strength and Compassion in Kidney Failure. Barrie Friedman. Kluwer Academic Publishers. £61. ISBN 0 7923 5235 1. Published 27.08.98.

The Ulster Medical Journal, Volume 68, No. 1, pp. 48, May 1999.

During 1998 the following acted as independent referees:

C K Mulholland, R A J Spence, D C Allen, D P Byrnes, S W Webb, M Scott, G Richardson, E Hodkinson, T R O Beringer, P M Reilly, J A McGuigan, D Brennan, D J King, D R Hadden, J R Hayes, W Thompson, R Ashe, J Morrow, C Hamilton, A Redmond, J D M Edgar, R J Maxwell, T G Parks, M Varma, C Wilson, T Diamond, W M McClelland, A Byrne, A Evans, F Kee, S J Cooper, P McGarry, J T Lawson, L A McKinney, S T Irwin, B Deviin, F Jones, P G Johnston, H Webb, N Mays, W J Primrose, C Hill, P Brennan, E M McIlrath, V E Boston, P V Coyle, A A B Barros D Sa, R J Atkinson, S Cooke.

THE ULSTER MEDICAL SOCIETY

Whitla Medical Building
97 Lisburn Road
Belfast BT9 7BL

If you are not a member of the Ulster Medical Society, we would appeal to you to give the question of joining your consideration. The Society was formed in 1862 through the amalgamation of the Belfast Medical Society (founded in 1806 and revived in 1822) and the Belfast Clinical and Pathological Society (founded in 1853). Meetings are held in the Society's room in the Whitla Medical Building at fortnightly intervals from the autumn to the spring. There is an opportunity to meet informally after each lecture and enjoy a cup of tea. *The Ulster Medical Journal, the official organ of the Ulster Medical Society, is issued to all Fellows and Mernbers free of charge.*

By joining the Ulster Medical Society you will enable us to widen its influence and sphere of usefulness still further. The only requirement is that you should be registered under the Medical Acts. A proposal form will be found overleaf. Your proposer and seconder should belong to the Society. Please contact the Honorary Secretary if you do not know any members. The annual subscription is claimable against income tax.

Anyone may enter their name as a subscriber to *The Ulster Medical Journal,* without joining the Society. See overleaf for details.

J R HAYES, *President*

D R McCANCE, *Honorary Secretary*

M E GRAHAM, *Honorary Treasurer*

MEMBERS **£15.00.**

All medical practitioners registered under the Medical Acts who graduated in medicine less than eight years before the date of their membership application shall be eligible for election as Members. At the end of the eighth year after the date of medical graduation, Members shall become Fellows and shall pay the Fellows' subscription.

FELLOWS **£35.00.**

All medical practitioners registered under the Medical Acts who graduated in medicine eight years before the date of their membership application shall be eligible for election as Fellows.

If a husband and wife are members of the Society they shall, on application, be entitled to pay a joint annual subscription of £40.00.

Ties, cufflinks and brooches bearing the crest of the Society
may be obtained from the Honorary Treasurer.

SUBSCRIPTIONS: Any individual wishing to take out a direct subscription may do so. The cost is £30.00 for one volume (two numbers) of the Journal. Please apply for a banker's order to :

THE HONORARY TREASURER,
ULSTER MEDICAL SOCIETY,
WHITLA MEDICAL BUILDING,
97 LISBURN ROAD,
BELFAST BT9 7BL,
NORTHERN IRELAND.

EXCHANGES: Exchange journals and all relevant correspondence should be addressed to:

ULSTER MEDICAL JOURNAL,
QUEEN'S UNIVERSITY MEDICAL LIBRARY,
INSTITUTE OF CLINICAL SCIENCE,
GROSVENOR ROAD,
BELFAST BT12 6BJ,
NORTHERN IRELAND.

MEMBERSHIP: All Registered Medical Practitioners may apply for Fellowship or Membership of the Ulster Medical Society. Applicants should complete the form below and return it to:

THE HONORARY SECRETARY,
ULSTER MEDICAL SOCIETY,
WHITLA MEDICAL BUILDING,
LISBURN ROAD,
BELFAST BT9 7BL,
NORTHERN IRELAND.

APPLICATION FOR FELLOWSHIP OR MEMBERSHIP
OF THE ULSTER MEDICAL SOCIETY

Please enter your full name as recorded by the GMC *This form may be photocopied.*

Forenames _____ Surname _____

Address _____

_____ Postcode _____

Degrees _____ Date of Graduation _____

Proposer (Print) _____ Seconder (Print) _____

Your proposer and seconder should be Fellows or Members of the Ulster Medical Society. Please contact the Honorary Secretary if you have difficulty in finding a proposer or seconder.

The Ulster Medical Journal, Volume 68, No. 1, May 1999.

Editorial

The impact of Clinical Governance on Continuing Medical Education and Continuing Professional Development

The Government's commitment to clinical governance has been established in the White Paper entitled "A First Class Service: Quality in the new NHS". There are several definitions of clinical governance but the simplest I have seen is in the paper on Clinical Governance in Northern Ireland "Corporate Accountability for clinical performance". In Northern Ireland we are being allowed to lag behind the introduction of clinical governance in England and Wales which occurred on 1st April, 1999.

The British Association of Medical Managers has produced a paper on Clinical Governance in which it highlights the very important role of Continuing Medical Education (CME) and Continuing Professional Development (CPD) in assuring the quality of medical care. The GMC has just announced that it intends to have five-yearly reviews of specialists' continuing competence to practise but it has not made clear how this will be achieved. The Royal Colleges have for some years past been recording the CME activities of their fellows and members but none has made any serious impact on the ability of non-compliant practitioners to continue to practise. Questions have been raised about the current system of "clocking" up the hours with no assessment as to their effectiveness.

There have been conflicts between general practice and hospital staff in view of the fact that a lecturer (often a hospital specialist) may get no recompense but the listener (if a general practitioner) can receive additional remuneration.

Methods of keeping up to date are protean; personal reading, attendance at grand rounds, clinical presentations, journal clubs, standard setting and audit meetings, lectures, local meetings of specialist societies, college based educational activity at both regional and national level, national and international conferences, distance based learning, videoconferencing and the internet. For a busy practitioner to attend such meetings takes him away from the bedside, outpatient clinic and operating theatre or procedure room. Participation in education can lead to clinical activity and may add to waiting lists. There is also a financial cost to such activity. For a National Health Service consultant on National Terms and Conditions of Service, there is an allowance for leave for study and professional development of 30 days in any three-year period, with pay and expenses. The Department of Health, both at national and regional level, accepts that "all reasonable expenses" associated with an approved period of study-leave should be funded. The British Medical Association have recently been successful in supporting members who have not been reimbursed.

In the context of business management which pervades our current health service, it is accepted that the money for CME must come from somewhere. The Department of Health in its guidance on contracting has stated that CME/CPD is a "quality" issue and as such is a legitimate additonal price which can be charged to commissioners. The commissioners for their part accept this principle but state they have to live within tightly constrained budgets and that, if more of their funding goes for CME/CPD, there will be less available for treating patients. The Government has a political objective to reduce waiting lists and wishes to see any additional funding they are providing going directly to increased activity.

We have a particular problem on our small island, namely the high cost of travel to meetings. A survey in 1995 by the NICSC gave firm evidence that hospital trusts were not reimbursing consultants with the full cost of attending national and international conferences. There was considerable reliance on the pharmaceutical industry to attain CME 'points' and questions of probity are obvious.

Some trusts have adopted a system of a "ring-fenced" allocation per head of consultant and if any of this funding remains unused it can be carried over to the next financial year.

The time is right for the Government adequately to fund the CME/CDP activities of career-grade hospital staff. (This should include part-time staff. A doctor who works half time must not be half trained). In view of the travel distance involved, the costs of courses, and the rising cost of hotel accommodation, I suggest that more realistic funding might be achieved by the provision of funding of £100 per CME point obtained for courses outside Northern Ireland and a lesser sum for local courses depending on the distance of the Trust from Belfast.

AILBE BEIRNE,
Chairman, Medical Staff at Altnagelvin Area Hospital. Former Chairman, Northern Ireland Consultants and Specialists Committee.

Why the NHS should fund infertility services

One in six couples is infertile (Lower, 1993). Of these, in Northern Ireland, approximately 1400 make use of assisted reproductive technologies annually. Currently in Northern Ireland, no public funding is available for in vitro fertilisation (IVF) or intracytoplasmic sperm injection (ICSI), (College of Health Report, 1997/8). Treatment, therefore, depends solely on the couple's ability to contribute financially towards the costs incurred.

Pressure to ration and prioritise treatments within the NHS is significant. The 1995 House of Commons Health Committee report on priority setting in the NHS stated that the NHS must remain responsive to shifting public concerns and debate. Bowling (1996) randomly sampled the views of the British population. Out of twelve possible health priorities interviewees ranked 'treatments for children with life threatening illnesses' first and 'treatment for infertility' eleventh, just above 'treatment for people aged 75 and over with life threatening illnesses'. However, when the public is asked, in isolation, if infertility treatments should be funded by the NHS their answer is different. For example, 84% of medical students at Queen's University felt that infertile couples should not fund their own infertility treatment. (Moore *et al*, 1998) Caldwell *et al* (1998) in another study reported similar findings.

In dealing with the issue of infertility, there is, amongst the community at large, a lack of understanding of the associated stresses. Diana, Princess of Wales famously remarked when she was patron of 'Birthright', a research charity of the Royal College of Obstetricians and Gynaecologists, that "infertility was not a disease and people should get on with their lives". In Northern Ireland particularly, the situation is further confounded by an active fundamentalist religious lobby which sees assisted reproduction as immoral.

In other areas of health service provision there are nationally set minimum numbers of treatments purchased: no such requirements exist for infertility. In a publication entitled "Effective Health Care – the Management of Subfertility" (University of Leeds, 1992) it was proposed that 40 IVF treatment cycles should be purchased per 100,000 population. Taking the Northern Health and Social Services Board as an example within Northern Ireland, they should fund 160 treatment cycles per year for a population of 400,000 Bull and Lyons, (1994). *They fund no cycles.*

Currently, in Northern Ireland all assisted reproduction treatments are provided at the Regional Fertility Centre, Belfast. The cost, to a couple, of a single cycle of IVF is £945.00 and ICSI £1500.00. These are amongst the cheapest prices in the United Kingdom. However, this does not include the cost of drugs as, over the years there has been a considerable amount of good-will from general practitioners who have written the necessary prescriptions. Where they will not, the couple can expect to pay up to £1,000 extra.

In many other health service regions financial provision is made for assisted reproduction, resulting in a 'baby-by-postcode' scenario. However, in these areas funding is often severely limited. For example, couples over 35 years old are often excluded as are those where one or other partner already has a child. This system of funding is not equitable either. If there must be funding restrictions, and this seems inevitable as there is no area of medicine with unlimited funding, perhaps it would be better if authorities decided to spend an annual sum on the provision of

Some trusts have adopted a system of a "ring-fenced" allocation per head of consultant and if any of this funding remains unused it can be carried over to the next financial year.

The time is right for the Government adequately to fund the CME/CDP activities of career-grade hospital staff. (This should include part-time staff. A doctor who works half time must not be half trained). In view of the travel distance involved, the costs of courses, and the rising cost of hotel accommodation, I suggest that more realistic funding might be achieved by the provision of funding of £100 per CME point obtained for courses outside Northern Ireland and a lesser sum for local courses depending on the distance of the Trust from Belfast.

AILBE BEIRNE,
Chairman, Medical Staff at Altnagelvin Area Hospital. Former Chairman, Northern Ireland Consultants and Specialists Committee.

Why the NHS should fund infertility services

One in six couples is infertile (Lower, 1993). Of these, in Northern Ireland, approximately 1400 make use of assisted reproductive technologies annually. Currently in Northern Ireland, no public funding is available for in vitro fertilisation (IVF) or intracytoplasmic sperm injection (ICSI), (College of Health Report, 1997/8). Treatment, therefore, depends solely on the couple's ability to contribute financially towards the costs incurred.

Pressure to ration and prioritise treatments within the NHS is significant. The 1995 House of Commons Health Committee report on priority setting in the NHS stated that the NHS must remain responsive to shifting public concerns and debate. Bowling (1996) randomly sampled the views of the British population. Out of twelve possible health priorities interviewees ranked 'treatments for children with life threatening illnesses' first and 'treatment for infertility' eleventh, just above 'treatment for people aged 75 and over with life threatening illnesses'. However, when the public is asked, in isolation, if infertility treatments should be funded by the NHS their answer is different. For example, 84% of medical students at Queen's University felt that infertile couples should not fund their own infertility treatment. (Moore *et al*, 1998) Caldwell *et al* (1998) in another study reported similar findings.

In dealing with the issue of infertility, there is, amongst the community at large, a lack of understanding of the associated stresses. Diana, Princess of Wales famously remarked when she was patron of 'Birthright', a research charity of the Royal College of Obstetricians and Gynaecologists, that "infertility was not a disease and people should get on with their lives". In Northern Ireland particularly, the situation is further confounded by an active fundamentalist religious lobby which sees assisted reproduction as immoral.

In other areas of health service provision there are nationally set minimum numbers of treatments purchased: no such requirements exist for infertility. In a publication entitled "Effective Health Care – the Management of Subfertility" (University of Leeds, 1992) it was proposed that 40 IVF treatment cycles should be purchased per 100,000 population. Taking the Northern Health and Social Services Board as an example within Northern Ireland, they should fund 160 treatment cycles per year for a population of 400,000 Bull and Lyons, (1994). *They fund no cycles.*

Currently, in Northern Ireland all assisted reproduction treatments are provided at the Regional Fertility Centre, Belfast. The cost, to a couple, of a single cycle of IVF is £945.00 and ICSI £1500.00. These are amongst the cheapest prices in the United Kingdom. However, this does not include the cost of drugs as, over the years there has been a considerable amount of good-will from general practitioners who have written the necessary prescriptions. Where they will not, the couple can expect to pay up to £1,000 extra.

In many other health service regions financial provision is made for assisted reproduction, resulting in a 'baby-by-postcode' scenario. However, in these areas funding is often severely limited. For example, couples over 35 years old are often excluded as are those where one or other partner already has a child. This system of funding is not equitable either. If there must be funding restrictions, and this seems inevitable as there is no area of medicine with unlimited funding, perhaps it would be better if authorities decided to spend an annual sum on the provision of

assisted reproduction services, for example to cover the drugs budget. Then, all patients would be expected to provide top-up sums to pay for the remainder of treatment costs. However, this should be standardised across not only Northern Ireland but the whole of the UK, to remove the baby-by-postcode phenomenon.

Whilst there is no funding for assisted reproduction in Northern Ireland, the government does fund the initial assessment of the infertile couple by the general practitioner and subsequent referrals to both local and regional centres for further investigation. In the hospital setting everything from semen analysis to laparoscopy is funded as are all surgical interventions. Even reanastomosis of the fallopian tubes following a change of mind after tubal sterilisation is funded in most of Northern Ireland. The inconsistency is particularly obvious in severe tubal disease where although *evidence based criteria* show surgery is not a sensible option it is fully funded whilst IVF is not.

There are also hidden costs with assisted reproduction. Couples who are personally investing heavily in assisted reproduction are keen to maximise their chances of pregnancy and, therefore, often ask for three embryos (the maximum number legally allowed) to be transferred. In Belfast, and increasingly in the rest of the United Kingdom this is not policy and three embryos are only transferred in exceptional circumstances (Levene M I *et al*, 1992). But, where couples have to bear the costs of treatment one can understand their wish to maximise success even at the risk of a higher order multiple pregnancy. All over the world assisted reproduction is responsible for a large increase in multiple births. These are associated with high rates of neonatal complications and higher costs after discharge due to chronic health problems and developmental disabilities (Neumann *et al*, 1994; Callahan T L *et al*, 1994).

As Davey and Popay stated in 1993: "Health care should be delivered according to each person's need for it without discrimination on the grounds of the means to pay, age, sex, social class, place of residence, ethnic status or any other socio-demographic characteristic of the recipient." In line with this, we feel that NHS funding of infertility services in Northern Ireland, especially assisted reproductive technologies, should be reviewed. The inconsistencies in funding should be addressed in an aim to provide the best *evidence-based* medicine in this highly charged and emotive area of medical care. For many unfortunate couples IVF or ICSI is the only effective treatment option.

REFERENCES

1. Bowling A. Health care rationing: the public's debate. *Br Med J* 1996; **312**: 670-4.
2. Bull A, Lyons C. Purchasing (and rationing) an in vitro fertilisation service. *Br J Obstet Gynaecol* 1994; **101**: 759-61.
3. Callahan T L, Hall J E, Ettner S L, Christiansen CL, Greene M F and Crowley W F. The economic impact of multiple-gestation pregnancies and the contribution of assisted reproductive techniques to their incidence. *N Engl J Med* 1994; **331**: 244-9.
4. College of Health. *Report of the fifth national survey of the funding and provision of infertility services.* London: 1997.
5. Davey B, Popay J. *Dilemmas in health care.* Rev edn. Buckingham: Open University Press.
6. Levene M I, Wild J and Steer P. Higher multiple births and the modern management of infertility in Britain. *Br J Obstet Gynaecol* 1992; **99**: 607-13.
7. Lower A M, Setchell M E. Should the NHS fund infertility services? *Br J Hosp Med* 1993; **50**: 509-12.
8. Neumarm P J et al, The cost of a successful delivery with in vitro fertilisation. *N Engl J Med* 1994; **331**: 239-43.
9. University of Leeds *Effective Health Care – The Management of Subfertility.* Leeds: University of Leeds, 1992.

PERSONAL COMMUNICATIONS

Caldwell R et al. *Science meets ethics.* Reproductive Technology, Special Study Module 7 Queen's University of Belfast. 1998.

Moore S et al. *Students' attitudes to infertility.* Reproductive Technology, Special Study Module, The Queen's University of Belfast, 1998.

P A BYRNE, S E M LEWIS,
A I TRAUB, N McCLURE

The Queen's University of Belfast Department of Obstetrics and Gynaecology and The Regional Fertility Centre, Belfast.

Correspondence to Neil McClure.

The Ulster Medical Journal, Volume 68, No. 1, pp. 4-11, May 1999.

William Drennan, his Medical Life

Presidential Address to Ulster Medical Society delivered on 15 October 1998

Randal Hayes, MD, BSc, FRCP, FRCPI

Across the country this year many groups are involved in commemorating the bicentenary of the Rebellion of 1798. It seems appropriate that we recall the life of Dr William Drennan, one of the founders of the United Irishmen and in 1808 the third president of the Belfast Medical Society, a forerunner of this organisation.

William Drennan (Fig 1) was born in Belfast in 1754, the youngest of nine children of whom only three survived. His father, Thomas Drennan, was then Minister of the First Presbyterian Church in Rosemary Street. Although only 12 when his father died, the ideas of Thomas Drennan and his contemporaries had a considerable influence on the development of William's political thought.

Thomas Drennan was one of a number of dissenting ministers, educated in Glasgow, who formed a distinct group and through which political ideas were developed and articulated. Drennan was related by marriage to Francis Hutcheson and went in 1720 to assist him in a Dissenting school in Dublin. It was Hutcheson, who returned to Glasgow as Professor of Moral Philosophy, who was to provide the basis for the teaching espoused by this group and which was to influence the development of William Drennan's political thinking. Hutcheson believed that political and social questions were ultimately moral ones and that the system which provided for "the greatest happiness for the greatest number" was the moral framework within which all relationships were to operate. It was his view that in every sort of government, the people governed had the right of defending themselves against the abuse of power. This thinking, taken by a generation of emigrants to the American colonies, was to provide the impetus for that struggle for independence and was subsequently through William Drennan and his colleagues to stimulate the formation of the United Irishmen.

In 1769 at the age of 15 Drennan went to Glasgow University, graduating MA in 1771; subsequently he enrolled in the Medical School of Edinburgh

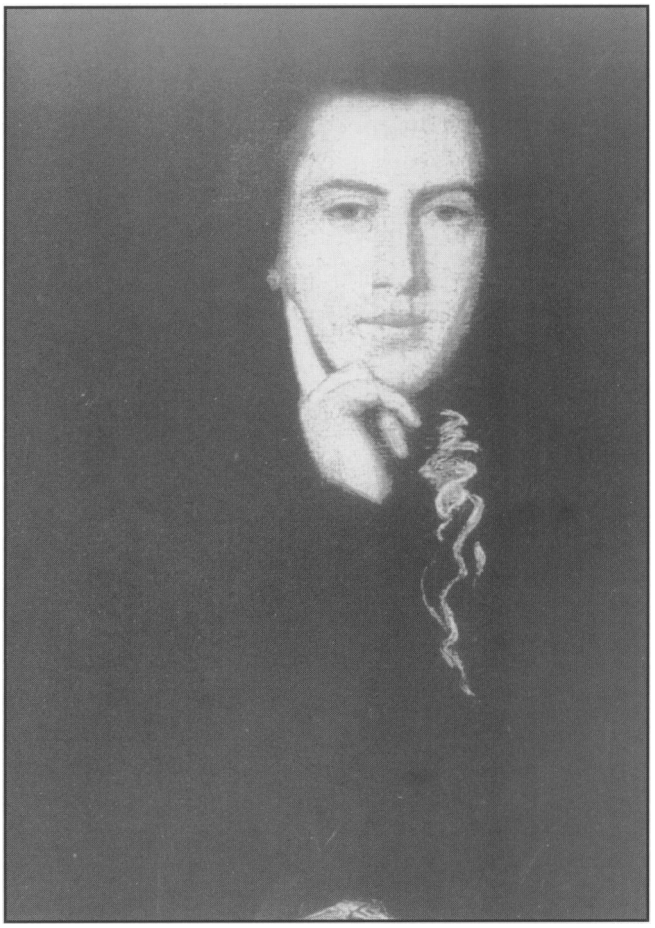


Figure 1

University. One of the areas which I have found interesting is to try to look at the concepts which supported medical thinking at that time and it is these which I shall share with you in this next section. The seventeenth century had seen the beginning of observation and experimentation, the work of Harvey, Willis and Sydenham, the results of which were to challenge the traditional view handed down from Galen and Hippocrates. It was said that the "ancient practitioners existed in an unenlightened state and all was mere conjecture". In the eighteenth century during that movement of the mind we have come to call the enlightenment reason was to create a better future. Science would give man control over nature and

the conquest of disease would follow. For some, the application of mathematics and physics to physiology saw human activity as a series of mechanical chain reactions. This reductionist philosophy was challenged by others who felt that the body was more than the sum of its parts and that purposive human activity required the guidance of something else, the soul, which was both the controller of physiological processes and the agent of consciousness. Herman Boerhave who occupied a series of chairs in Leiden in the early eighteenth century was of the view that man possessed a physical body, analysable in terms of mathematics and physics, and an immortal soul. It was in Leiden that Alexander Monroe, the first of three generations to be professors of anatomy in Edinburgh trained, and the philosophy promoted by the early Edinburgh school and its emphasis on clinical teaching owes much to that background.

Drennan had as teachers some eminent physicians. Included among them were Black and Cullen. Black had moved to Edinburgh from Glasgow as Professor of Chemistry where he had a reputation as an experimenter. He identified "fixed air" which was later shown to be carbon dioxide, established that it was present in expired air and that although non-toxic would not support life. Cullen also came to Edinburgh from Glasgow but had little aptitude for experimentation. He gathered together new medical knowledge, tried to evaluate its worth and to incorporate it into his medical thinking. While many of his views paralleled those of Boerhave he differed in that his belief was that the nervous system and not the vascular system was the key physiological regulator. The origin of life lay in the response of the nervous system to environmental stimuli. These provoked sensations, some conscious, through actions on irritable tissue in the organism. This nervous power, the provider of life, was also the basis of heat, light, electricity and magnetism. Cullen also believed that progress in medicine had lagged behind that of other sciences through lack of a classification of disease. He produced his own classification of diseases and with typical Scottish parsimony reduced them to four. Cullen believed most diseases were due to external influences and that these same factors were capable of causing different diseases, the different manifestations in individuals being dependent on the state of excitement of the nervous system. These theories were extended by his pupil and later rival John Brown who insisted that there was only one disease and that its manifestations depended on whether irritability was exaggerated or decreased. A disease was sthenic if excitement was increased and asthenic if diminished. The advantage of this view was that it offered a therapeutic rationale, treatment being the provision of either sedatives or stimulants depending on where on the "excitement" scale you judged your patient to be.

Brown seemed to be a popular lecturer and developed an excited and rowdy following among the Edinburgh students. Before starting his lectures he would take laudanum mixed into a glass of whiskey and would repeat this several times during the lecture. He became addicted to both and eventually died in 1788 in London having taken too large a dose of laudanum before going to bed. Drennan by temperament was much more a follower of Cullen than of Brown and his respect for the former is shown in the fact that he brought his sister Matty to see him in St Andrews in 1782. It was in Edinburgh that he began to write to his sister Matty and it is through this correspondence, some 1400 letters now in the Public Records Office in Belfast that we know so much of Drennan and his time. It is through these letters that I would like to provide insights into the life of a medical student and subsequently on some aspects of medical practice.

In the latter half of the eighteenth century Edinburgh was attracting approximately 200 medical students per year of which one third were from Ireland. Relations between town and gown were not good. Drennan writes "a student of medicine is a term of contempt but an Irish student of medicine is the very highest complication of disgrace". Indeed on one occasion, the populace believing that an outbreak of fever arose from the Infirmary attacked several students and one of them died. The letters betray the usual student preoccupation with money. "My expenses have been great as usual – I'm not certain whether I have received the worth of the money but I hope you have not utterly thrown it away on me". However Drennan seems to have been a diligent and abstemious student. "I rise a little after six in the morning. After preparing for classes, at about 8.00 o'clock if it be a good morning I will give stretch to my legs for half an hour in the meadow which lies near my lodgings – I return to take my breakfast of bread and milk and then issue out to the labours of the day. From

nine until one I am tossed about with the wind of doctrine through different parts of the University; from nine till ten at the practice; from ten till eleven at the University; from eleven till twelve Materia Medica, a class which treats on medicines, their use and application; from twelve to one at the Infirmary. From one till three I make it a rule to walk and chew on what I have heard. After dinner I seldom have more than one hour's attendance at College. Then I idle away an hour at a coffee house, call on my friends and in the evenings have some select friends whom I make as drunk as they can be on tea and warm water". As the end of his studies approaches he describes himself as "neither very nervy nor very grave on the matter of the examination, but just in that golden mean which will secure me a kind of bashful assurance, an appearance I would imagine the most recommending of all others, to my examiners. I thank heaven I have never known what it was to be terrified by such examinations as I have underwent; I think I rather feel a degree of callous indifference over spreading my mind just before the period of trial". Later he says "the examination is indeed severe, but less so than is said. The first, for there are three examinations, lasts always an hour where the candidate is examined singly by four professors - if he passes this fiery trial he enters into a second along with other candidates some days previous to the day of election. The third is a matter of form". Eventually he writes, "I was examined fairly and genteelly by every one of the Professors. It is a trial when every lad may have sufficient room to show his acquisitions in physic, though at the time I believe many can pass without very great knowledge in the study". He also observes "you must be surprised that I could stay at this University so long and be so little known by the Professors, but scarcely any of these students are known even by a name to them."

Part of the examination involved presentation of a thesis. Drennan's thesis was on venesection and its role in the treatment of fever. Venesection was a practice which had its roots in ancient medicine. Galen who described his work as perfecting the legacy of Hippocrates advocated vigorous blood letting to restore humoral balance. Fevers he believed followed from an excessive build up of blood for which venesection was an obvious corrective and which would result in cooling of the body. The practice seems to have continued uncritically well into the nineteenth century. Drennan seemed well aware of the consequences of excessive withdrawal of blood. He describes fainting, the development of oedema with ascites and pleural effusion and in addition recognised that there was sometimes excessive exudation of fluid into the bronchi which resulted in the sudden death of the patient. His dilemma was to provide a rationale for a therapy which he recognised as dangerous but which was also promoted by his teachers. He struggled to find criteria by which the method could be used to assist natural mechanisms. There seemed to be a reasonable rationale in what he described as inflammatory fevers which from the characteristics of the pulse described we might recognise as high output states. With regard to other situations he was generally cautious but recognised that in some situations it was better to bleed unnecessarily than to refrain deliberately. There is one statement which has echoes for my own practice when the evidence base is weak, "doubtful hope is better than despair and a two edged remedy is better than none".

A strength of the Edinburgh School was its emphasis on clinical training and practice in the Infirmary. What were the skills taught to physicians at that time? Diagnosis did not depend on physical examination, what counted most was interpretation of the history – thus the common practice of postal diagnosis was deemed to be perfectly respectable. The clinician needed to obtain the history by astute questioning. Benjamin Rush from Pennsylvania, a student at Edinburgh just before Drennan, and who returned to Philadelphia to found a Medical School, described the process as follows:- "endeavour to get the history from the patient himself. How long has he been sick? When attacked and in what manner? What are the probable causes, former habits and dress; likewise the diet for the week before, especially in acute diseases. In chronic diseases enquire their complaints far back and the habits of life – patients often conceal the cause of their disease, therefore interrogate them particularly when you suspect intemperance as a cause".

That Drennan was schooled in these arts is demonstrated by a later letter to his sister about an acquaintance of hers who was complaining of shortness of breath, "her inability to rest, but on one side, her difficulty in breathing, particularly her sense of suffocation at night, seem to prove that the cause of her complaint lies in her chest and I might say perhaps water in her chest if any

other symptom of dropsy appeared. But to know anything of the matter a number of questions must be resolved, whether during her feverish complaint she had any symptoms of even slight inflammation of the lungs, such as pain in the breast and side, short dry cough or much difficulty in breathing. Has she a cough at present and of what kind, dry or loose, is her difficulty in breathing greatest in lying and does the sense of suffocation come on soon after falling asleep, awakening with a start and in much anxiety. Is there any swelling of the limbs, has she any numbness in one arm, is she troubled with palpitations or have you heard anything extraordinary about her pulse." Such a history relating to cardiac failure, its possible aetiology and differential diagnosis would do well even today. However although history taking seemed to be a well developed skill, physical examination was in its infancy. Physicians were expected to use their five senses, to feel the pulse, sniff for gangrene, taste the urine, listen for breathing irregularity and observe the skin and eye colour.

Rutherford, an Edinburgh physician of the mid eighteenth century advised his students to carefully observe the face but this careful inspection did not extend to other body parts. And what of therapy? Hardly any eighteenth century advance helped heal the sick directly. The concept of health as a natural balance meant that therapy centred on temperance and hygiene, good air, diet, evacuations, sleep, exercise and equanimity; not too far removed from practice at the diabetic clinic today. However restoring the balance often involved bleeding and purging. For most conditions prescription was also necessary. It was easier for the practitioner to charge for pills than for attendance and advice alone. The sixth Edinburgh pharmacopeia published in 1788 differed from its predecessors in that wood lice and bezoar, a concoction found in the stomach of ruminants had gone while newly included were castor oil, magnesium, tartrate of iron and liquid opium. This latter Drennan prescribed for cardiac failure. Digitalis, discovered by Withering in 1775 entered the Edinburgh pharmacopeia in 1785. Although as we have seen Drennan possessed reasonable clinical skills he had no great love of hospital medicine. He did not like the Infirmary, "I am grown perfectly callous to the distress of the Infirmary – I cannot say, that I have yet arrived at that pitch of scientific insensitivity that Monroe recommends to his students when he defines surgery to be performing a piece of dissection on a living body". His sister Matty advised him, "you should study and practice midwifery and for that purpose attend some hospital". The male midwife or accoucheur was a development of the mid-eighteenth century. Male mid-wives with their medical knowledge strangely seemed to be less interventionist, but they did possess surgical instruments and in particular the new forceps for use in difficult deliveries. We find the letters indicate he practised all forms of medicine but he did seem to specialise in obstetrics and we can get some insight into the difficulties of that art. In several letters we learn of the risks not only to the infant but to the mother. He describes the care of a Mrs Browne, "one of the smallest women you ever saw, and a little distorted who was delivered of two exceedingly large children, a boy and a girl. I was sure she would have died of the consequences, but I left her tolerably well this morning and I trust that her complaint will not return. How fragile is our professional character; had she died at this time I should not perhaps have one patient more in this town. So sensible is the female mind to unfavourable impressions when any fatal accident happens – want of good luck is sufficient." Later while in Dublin he describes how he sat two nights with a woman who had previously lost two babies. This time there was a successful outcome but Drennan related, "I experienced more uneasiness by 100 degrees than upon my trial".

Nevertheless in some ways he was ahead of his time. Writing to his sister about the proposal to build a Lying-in hospital in Belfast he established himself as "against all hospital institutions – the very puerperal fever generally takes its rise in hospitals and kills more than are saved by accoucheurs is the greatest objection - if a house be established the greatest advice is cleanliness and frequent washing. Simple water is the sovereign remedy against all infectious disease when frequently and properly used." This was some 50 years before Oliver Wendell Holmes in America and Semelweiss in Vienna emphasised the importance of clean hands in preventing the spread of puerperal fever.

Drennan had other interests in prevention. In 1782 he produced a plan for the inoculation of those admitted to the Poor House of the Belfast Charitable Society and in several letters comments both relating to the effects of the natural disease

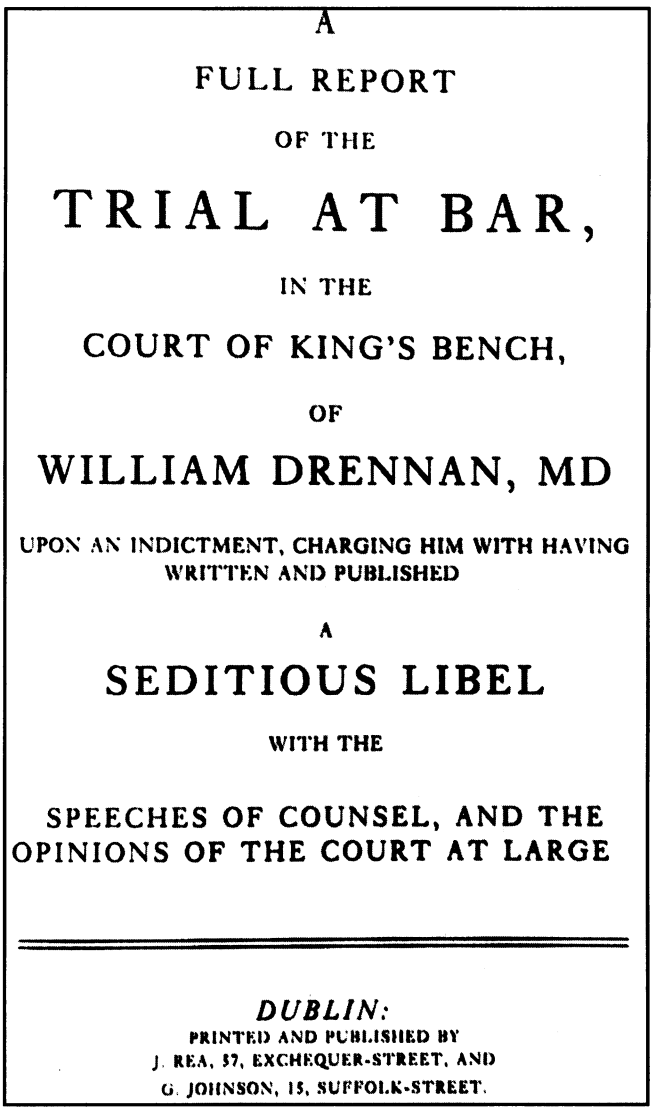
and the response to inoculation are recorded. Smallpox inoculation was introduced to the British Isles by Lady Mary Wortley Montagu, the wife of the British Ambassador in Constantinople who saw Turkish women being inoculated and had the procedure carried out on her son. In this procedure a fresh pustule was punctured and a thread pulled through the pustule. Material was transferred to the inoculated subject by drawing the thread several times under the skin of the arm. In 1722 under the direction of Hans Sloane, prisoners in Newgate were inoculated although whether this was therapeutic or experimental is not recorded. In the following year the first inoculation in Ireland was performed. Inoculation of material from smallpox pustules in order to provide immunity was not without risk, but by the late eighteenth century was well established. In 1796 Edward Jenner made his observation that inoculation with cowpox provided immunity from smallpox as well. He submitted these observations in a paper to the Royal Society in 1797 but this was rejected and he had it published privately in the following year. By 1802 Drennan was an advocate of inoculation using cowpox writing "the practice is now established to conviction of the most incredulous, at least there is scarcely a medical man who has doubt as to its efficacy". His son William was vaccinated with little apparent illness except for a little uneasiness for one night.

Beyond his interest in the prevention of smallpox we know little of life in Belfast on his return from Edinburgh. Living in the same town as his sister, there was no need for correspondence and it is only when he moves to Newry in 1782 that the letters again provide the insights into the medical life I have quoted above. Of the reasons behind his move to Newry we know nothing. Perhaps Belfast was already oversupplied with medical practitioners. Newry at that time had a population roughly the same size as Belfast and was a thriving commercial centre being the fourth busiest port in Ireland. The letters give some insight into the difficulties encountered by a new physician and of the organisation of medical practice. Medicine was practised not only by those with a university training and medical degree – they were the élite. Apothecaries and surgeons had a training which involved an apprenticeship of at least five years after which they acquired a licence to practise. The competition in Newry involved all of these professions. Shortly after his arrival he came into contact with a surgeon, "a decent lad, who treated me the doctor with all possible deference and respect", a relationship which has changed somewhat in the subsequent 200 years. In addition there were six apothecaries in Newry and it was these whose advice was usually first sought by the populace. It was a market-regulated practice, success depending on a capacity to satisfy the public, and that depended on a variety of factors, cost being one of the more important. Drennan was upset that apothecaries took so great a part of the available practice, leaving to those with medical qualifications the more difficult cases. "My profits here will never be great. Apothecaries fill up so great a part of the practice and leave us the bad cases. When these grow serious, then a physician is called – much too much for form's sake". There was one other doctor with a university degree but relations between the two were not good. On occasions he employed as his assistant one who sat beside Drennan as a student in Glasgow for his degree of Master of Arts. Drennan said of him "I can assure you with a safe conscience, he did not answer a single question except two and in those I prompted him. He got his degree." In this environment there was considerable competition for fees. Drennan arrived in Newry with the ambition to achieve a salary of £250 per year and on that he would have lived comparatively well given that the cost of his lodging was £16 per year and his horse cost eight guineas. However there was a belief in Newry that you deserved value for money. At one stage Drennan observed with some bitterness "that reward in this town is only to accompany success". In his third year in Newry his income was only £160 per year but in 1787 he made £290. In spite of this modest success he moved to Dublin in 1789, drawn to the cultural and political excitements of the capital and in spite of warnings from his friends that competition in Dublin would be great, there being many locally trained doctors who had established connections in the city.

I now want to return to his political life: I've already commented on the influence of Hutcheson and his contemporaries on the development of Drennan's political ideas. Although in Scotland they had full civil rights, in Ireland Presbyterians were subject to a series of restrictions. They could not stand for election to Parliament, they were not eligible for government employment and they were prevented from attending Trinity College, the only University in Ireland. For many

the answer to this discrimination by an unrepresentative government in Ireland lay in emigration to America and in 1776 when the colonists rose in rebellion Drennan's sympathies lay very much on the side of the revolutionaries. Large numbers of troops were withdrawn from the Irish Garrison to serve in America. The vacuum was filled by the creation of a volunteer force, raised as a local defence force or militia in order to defend the country against the possibility of invasion by the French. Drennan became an enthusiastic supporter of the volunteer movement and along with six other Irish students was receiving military instruction from a sergeant in Edinburgh Castle while in his final year. Returning to Belfast he entered the volunteer movement with enthusiasm recognising that here was now a powerful citizen army with the possibility of putting pressure on government to institute reform. However while some changes were made there was little that was radical and Drennan became disillusioned by the retreat of the volunteer movement by the mid 1780's from its earlier political goals. He was a writer of political pamphlets and in a pamphlet 'Orrellana an Irish Helot', he tries to reinvigorate the patriot enthusiasm generated by the volunteer movement. He urges the reform of parliament, preaches the unity of all Irishmen in a common patriotism and pleads for the unity of the sects, Catholics and Dissenters to break the power of the ascendancy. He was already proposing a secret inner circle of reformers within the volunteer movement which anticipated by six years the formation of the United Irishmen. His move from Newry to Dublin put him close to the centre of Irish politics and he became acquainted with many of the leading figures of the day. In May 1791 five months before the founding of the first society of United Irishmen in Belfast Drennan wrote to his brother-in-law urging the establishment of "a benevolent conspiracy – a plot for the people – the Brotherhood its name – the rights of man and the greatest happiness of the greatest number its end – its general end real independence to Ireland."

This Brotherhood became the Society of United Irishmen and in November 1791 the Dublin Society of United Irishmen became the second group. Drennan occupied a central position holding the office of president at intervals through 1792 and 1793. It was Drennan who devised the oath taken by each member in which they promised to "forward a brotherhood of affection, an identity of interests and the union of power among Irishmen of all religious persuasions". In 1792 the Privy Council, alarmed at the formation of a new, armed volunteer movement issued a proclamation forbidding the volunteers to parade with arms. The Dublin Society produced a counter proclamation published in the radical newspaper The Northern Star signed by Drennan and calling on all active citizen soldiers to stand to arms. The volunteers backed down but Drennan, accused of being the author of the address, was later arrested in 1794 and tried for sedition. The address had also resulted in the arrest and prosecution of his friend Archibald Hamilton Rowan of Killyleagh. He was sentenced to two years imprisonment and Drennan must have anticipated a similar fate. Several accounts of his trial have been published (Fig 2). He was defended by the celebrated James Philpot Curran who secured his acquittal by his


A

FULL REPORT

OF THE

TRIAL AT BAR,

IN THE

COURT OF KING'S BENCH,

OF

WILLIAM DRENNAN, MD

UPON AN INDICTMENT, CHARGING HIM WITH HAVING WRITTEN AND PUBLISHED

A

SEDITIOUS LIBEL

WITH THE

SPEECHES OF COUNSEL, AND THE OPINIONS OF THE COURT AT LARGE

DUBLIN:

PRINTED AND PUBLISHED BY
J. REA, 57, EXCHEQUER-STREET, AND
G. JOHNSON, 15, SUFFOLK-STREET.

Figure 2

skilful destruction of the chief prosecution witness. During the trial Drennan wrote to his sister "I write this on my knee but my heart does not tremble though my hand does". Following this he seemed to lose much of his enthusiasm for politics. He did not abandon his interest completely but it was now expressed in pamphlets and verse and not in direct political action. He tried to revive his dwindling medical practice and by 1798 was an observer only and not an active participant.

His practice in Dublin had never achieved the income he had managed in Newry and he believed probably correctly, that "dabbling in politics had done me much harm". He had become a licentiate of the College of Physicians in Dublin in 1790 but was never admitted to the Fellowship. Through his association with the College he became interested in a scheme which was to attempt the organisation of medical practice. The country was to be divided into eight districts, each with a physician whose task was to bring about the regulation and licensing of medical practitioners. The salary was to have been £500 per year but he recognised that "how it will depend on the leading fellows of the College of Physicians in Dublin of whom most will be dilatory about a business not interesting to themselves". The scheme came to naught and it must have been with some relief that in 1807 he inherited a small estate and was able to return to Belfast achieving an ambition expressed in Newry that he would not return until he had a fortune large enough to keep him above what he described "professional servility".

On his return to Belfast he seems immediately to have been accepted into local society and to achieve a position and influence which had been denied him in Dublin. He became an influential member of the Belfast Medical Society, a forerunner of this organisation and was one of a committee of six appointed to look after the affairs of the Society and to purchase its books.

What I would now like to do is to look at the role of two medical contemporaries of Drennan in the events of the time. The first of these is Dr James MacDonnell, born in 1763 in Cushendun and trained in Edinburgh, graduating six years later than Drennan in 1784. While not himself a political activist he was friendly with many who had radical political views including Henry Joy McCracken, Thomas Russell and Wolfe Tone. MacDonnell's thesis in Edinburgh had been on drowning and he had some novel ideas on resuscitation. Thus when Henry Joy McCracken was hanged his sister sent for MacDonnell to try to revive the corpse. MacDonnell himself did not come, sending his brother instead. This prudence is also seen in his dealings with Thomas Russell, a man immortalised in the poem "The Man from God Knows Where". Russell lodged with MacDonnell for a period when he would have been most active in the organisation of the United Irishmen and they went together on geological and botanical field trips across Ulster. In 1795 MacDonnell proposed Russell for the post of Librarian of the Belfast Society for the Propagation of Knowledge, a forerunner of the Linenhall Library. Russell was arrested and imprisoned in Newgate and spent the revolutionary year interned in Fort George in Scotland. MacDonnell and Russell continued to correspond. Russell was released in 1802 and joined a group of exiles in Paris, one of whom was Robert Emmet. He returned to Belfast as Emmet's emissary, the rising in 1803 was a failure, and MacDonnell was persuaded to subscribe £50 to a reward of £500 for the capture of Russell. Almost immediately he came to regret it, losing the friendship of many close acquaintances. Drennan sent a poem "Epitaph on the Living", to his sister some weeks after Russell's execution in Downpatrick. One verse is as follows:

"Here lives a man who could subscribe
To hang a friend at last
Whom future history will describe
The Brutus of Belfast"

A second contemporary was Dr Alexander Halliday who was very much Drennan's mentor. Halliday studied in Glasgow in the 1740's and on his return to Belfast developed a thriving medical practice. Over the years he became one of the city's most respected and influential citizens. He became a leader in the volunteer movement, becoming the right-hand man of Lord Charlemont in the latter's dealing with the Belfast Volunteer companies. Neither man was comfortable with the more radical views of Drennan and his contemporaries. Nevertheless Halliday remained sufficiently enthusiastic about the aspirations of the Volunteer Movement to organise in Belfast a civic commemoration of the French Revolution on Bastille Day 1791. This seems to have been a splendid affair with a parade of uniformed volunteers through the streets of the city ending

with a dinner for 350 at a single table in the White Linen Hall. His views were to change with the beginning of the executions and the reign of terror in Paris and he became opposed to the use of force for political ends. Although his approach to political progress differed from Drennan, particularly in the late 1780's, they remained friends and it was Halliday who attended Drennan during an almost fatal episode of typhus when he was in Newry.

Drennan did not practise medicine on his return to Belfast but was made an Honorary Physician to the Fever Hospital in 1810. He helped found the Belfast monthly magazine and became involved in the foundation of the Belfast Academical Institution and this remained a considerable interest for the rest of his life. He died in 1820 and in his will requested that his coffin might be carried by six Protestants and six Catholics. He was buried in the old Clifton Street cemetery where his epitaph written by his son reads,

> *"Pure, just, benign; thus filial love would trace*
> *The virtues hallowing this narrow place.*
> *The Emerald Isle may grant a wider claim,*
> *And link the Patriot with his Country's name.*

In the past 25 years members of this society have also been active in politics. They have shown considerable courage and within their respective parties have been voices for moderation and reason. I think Drennan would have approved of their efforts.

ACKNOWLEDGEMENT

I am grateful to Mr Hume Logan MCh, FRCS, for material relevant to this lecture.

SOURCES

Porter, R. "The Greatest Benefit to Mankind". Harper Collins, 1997.

Stewart, ATQ. "A Deeper Silence". Faber & Faber, 1993.

McBride, Ian. "William Drennan and the Dissenting Tradition". In: The United Irishmen, ed Dickson D, Keogh D and Whelan K. Lilliput Press Ltd. 1993.

Rice, A. "The Lonely Rebellion of William Drennan". In: The Poets Place, ed Dawe G and Foster J W. Inst Irish Studies, QUB, 1991.

Vance, N. "Irish Literature, a Social History" Basil Blackwell, 1990.

The Ulster Medical Journal, Volume 68, No. 1, pp. 12-16, May 1999.

Cochlear implantations in Northern Ireland: An overview of the first five years

G John, J G Toner

Accepted 12 March 1999

SUMMARY

During the last few years cochlear implantation (CI) has made remarkable progress, developing from a mere research tool to a viable clinical application. The Centre for CI in the Northern Ireland was established in 1992 and has since been a provider of this new technology for rehabilitation of profoundly deaf patients in the region. Although individual performance with a cochlear implant cannot be predicted accurately, the overall success of CI can no longer be denied. Seventy one patients, 37 adults and 34 children, have received implants over the first five years of the Northern Ireland cochlear implant programme, which is located at the Belfast City Hospital. The complication rates and the post-implantation outcome of this centre compare favourably with other major centres which undertake the procedure. This paper aims to highlight the patient selection criteria, surgery, post-CI outcome, clinical and research developments within our centre, and future prospects of this recent modality of treatment.

INTRODUCTION

Experiments by Volta were the first recorded attempts at electrical stimulation of the auditory system. More recent efforts at electrical stimulation of the auditory nerve began in 1957 by Djourno and Eryies.[1] In 1964 Blair Simmons working at California placed a 6-electrode array in the modiolus of a human volunteer.[2] At the same time clinical prototypes developed into clinically applicable devices and then in 1984, the US food and drug administration (FDA) approved the use of the House-3M single-channel implant system for routine clinical use. This was followed by the approval of Nucleus 22-channel implant for adults in 1985 and then for children in 1990. In the United Kingdom a clinical programme at University College Hospital, London was established in 1984. The Royal National institute for the Deaf developed the UCH/RNID single-channel implant and the Department of Health sponsored programmes in selected centres in 1990. At present over 15,000 CIs have been done world wide.

A multichannel cochlear implant consists of two parts, a receiver stimulator implanted in the temporal bone consisting of a receiver coil with an electrode array inserted into the cochlea, and an external device. The three main components of the external device are the microphone, speech processor and a transmitter coil conveying signals from the processor across the skin to the electrode array (Fig 1). The microphone picks up sounds and transfers them to the speech processor. These sound signals are analysed and converted to a form suitable for transmission by the processor. In most devices these transformed signals reach the electrodes by radio-frequency transmission from the transmitter coil resting on the head to the implanted receiver coil.

Profound deafness in the majority of cases results from damage to the sensory cells in the 'Organ of Corti' in the inner ear, due to various causes. CI helps this group of patients since it bypasses the damaged part of the auditory pathway and stimulates the surviving spiral ganglion cells directly with electrical signals. Early CI systems were mostly single-channel; with the advent of

N.I. Regional Cochlear Implant Centre, Middle Dufferin, Belfast City Hospital, Lisburn Road, Belfast BT9 7AB.

G John, MS, FRCSI, Visiting Fellow.

J G Toner, FRCS, Consultant Otolaryngologist

Correspondence to Mr Toner.

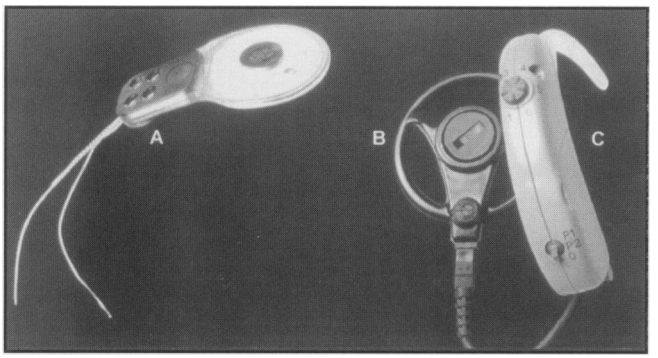


Fig 1. Cochlear brand "Nucleus" cochlear implant device with the recent 'ear level' speech processor.
(a) Receiver coil and electrode.
(b) Transmitter coil.
(c) Microphone and ear level speech processor.

multi-channel systems the progress in this field took a quantum jump. The aim of this was to simulate the activity of normal cochlea, by stimulating the tonotopically arranged surviving neural elements. In practical terms this resulted in a significant improvement in the speech perception capability.

Between 1992 and 1997 of 189 patients assessed, 71 were implanted with a multichannel device. Speech perception and communication skills vary widely between implanted subjects. At the present time no single factor is capable of accurately predicting the outcome prior to CI. However, based on previous experience, beneficial guidelines have evolved to select ideal candidates for this procedure (Table 1).

TABLE I

Guidelines on selection criteria for CI in adults and children.

Post lingually deaf adults	*Pre-lingually/Congenital deaf children*
Age	Age at presentation
Duration of deafness	Educational setting/support
Motivation/Expectations	Aetiology of deafness
Psychological factors	Psychological factors
Communication mode (oral/sign language)	Communication mode (oral/sign language)
General health	General health

Methods

One hundred and eighty nine patients were referred to the CI centre during the first five year period from 1992 to 1997, for consideration of a cochlear implant. A preliminary screening based on the guidelines mentioned in Table I was carried out to exclude those who would not benefit much from the cochlear implant programme. According to our protocol, following screening each patient has a routine ENT examination. Audiological tests are performed to confirm profound bilateral sensorineural hearing loss, without useful residual hearing even with the use of an optimal hearing aid. A high resolution computerised tomogram (HRCT) is also performed to establish patency of the cochlea.[3] Additionally magnetic resonance imaging (MRI) scan and promontory stimulation tests are performed to assess the integrity of the auditory pathways in selected cases. These

TABLE II

Age range of patients implanted

Age group (years)	*Total*
0-5	16
6-10	17
11-20	3
21-40	6
41-50	14
51-60	9
>60	6

TABLE III

Aetiology of deafness

Aetiology	*Total*
Congenital	31
Meningitis	10
Head injury	9
Ototoxicity	2
Meniere's syndrome	2
Accustic Neuroma	1
Idiopathic	16

investigations help to confirm the indications for CI as well as determining the most suitable ear for surgery. In this study a review of the case notes of all the seventy-one patients who received an implant during this period was carried out. With the exception of one case surgery for all the patients was carried out by one principal surgeon.

Data regarding age and aetiology of deafness of the study group are shown in Tables II and III respectively.

Surgery

Hypotensive general anaesthesia is widely used for CI surgery in adults and children. A few adult patients considered to have "high risk" for hypotensive general anaesthesia have been successfully implanted by employing a local anaesthetic protocol developed in our centre.[4] Following a standard skin preparation a post-auricular curvilinear incision measuring about 7 cm is placed. An anteriorly based musculo-periosteal flap is raised to provide cover for the implant. The next step is to perform a cortical mastoidectomy and posterior tympanotomy to gain access to the round window region.[5-7] The part of the device to be implanted is placed in a bony recess drilled over the squamous temporal area. The opening into the cochlea (cochleostomy) is performed through the promontory anterior to the round window niche.[7,8] The electrode array passes through the posterior tympanotomy into the middle ear and then into the cochlea through the cochleostomy. An intra-operative assessment of stapedial reflex is used to test the device in all paediatric cases. The implant is secured in place and the wound is closed in layers. A digital x-ray image is taken post-operatively to confirm good positioning of the implant.[9] As a rule patients go home the day after surgery.

Results

The outcome of all the adults and children implanted during the first five year period was assessed. In adults the Bench Kowal Bamford (BKB) sentence tests were used to assess speech perception. Routinely assessments are carried out at 1, 9 and 24 month intervals post-operatively. Of the 37 adults implanted one patient was lost for follow up and another patient died due to unrelated causes before the 9 month assessment. Figure 2 shows the mean results of the remaining 35 adults implanted.

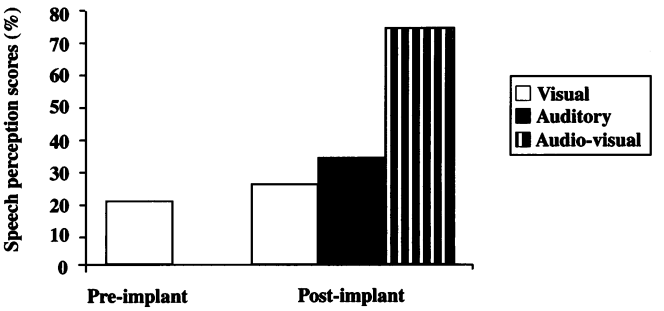


Fig 2. The 9 month post-implantation mean speech perception scores of 35 adult patients. The white bar represents the speech recognition scores with lip reading (visual mode) only; the black bar represents the auditory mode only and the striped bar represents the audio-visual mode scores. In all the patients visual mode only could be obtained pre-implant.

Unlike the standardised tests available for the assessment of post-lingually deaf adults implanted, testing of the pre-lingually deaf children implanted is more difficult and complex. Early post-implant assessment of children initially concentrates on detection of environmental sound followed by the identification of the sound source. Parental report is a valuable source of information during this listening period. Discrimination of environmental sounds is assessed before the child progresses to speech sounds. As the children make further progress, tests on comprehension and expression can be undertaken. The children are assessed after a period of 3 and 6 months and then at 1, 2, 3 and 5 years according to the test involved. All the children in the study group developed environmental sound awareness and a variable degree of sound discrimination. A significant number of children achieved comprehension of spoken language and expressive language development. These results are in agreement with the study by Moog and Geers who concluded that "Evidence from our longitudinal study of pre-lingually deafened children using cochlear implants in the oral education programme at the central institute for the deaf indicates that the expectations [expressed in the proposition that implants should be used to help deaf children to learn to talk] have a great deal of validity".[10]

DISCUSSION

The role of CI for the rehabilitation of the profoundly deaf is now established beyond doubt. All the prospective candidates can be grouped under four categories, namely pre-or post-

lingually deaf adults or children. Previous experience has revealed that post-lingually deaf adults perform better following Cl than pre-lingually deaf adults.11, 12 Therefore pre-lingually deaf adults are not considered to be suitable candidates for CI. In the case of children the post-CI progress between pre- and post-lingually deaf children is less pronounced.[13-15] This raises the issue of the upper age limit for a successful implantation in the pre-lingually deaf children. In our series of CI in the older children (>7 years) promising results have been obtained in the areas of auditory perception and expressive language development.

In the earlier days of CI, placement of the device necessitated elevation of large scalp flap. This approach resulted in a significant number of flap-related complications sometimes associated with implant extrusion. To overcome this without compromising the results, a much smaller post-auricular curvilinear incision was adapted in our centre in 1994. This approach helped to avoid the psychological trauma of partial head shave especially in children, and resulted in more rapid healing of the surgical incision with good cosmetic result.

The report by the MRC institute of Hearing Research on the evaluation of the national cochlear implant programme confirmed that the occurrence of major complications was acceptably low.[16] In our series of 71 cases, only one case needed removal of the implant. A child suffering from KID (keratosis, ichthiosis and deafness) syndrome had partial extrusion of the implant which necessitated explanation. In one adult case, only partial insertion of the electrode array was possible due to obliterated cochlea. Functioning of the implant was poor and it had to be explanted. Successful reimplantation was performed in the other ear which resulted in optimum functioning of the device and satisfactory results. Slippage of the electrode occurred in one case on the first post-operative day. Exploration of the mastoid and re-positioning of the implant resulted in a successful outcome. Of the minor complications, one case had a non-healing wound over the implant site secondary to trauma, and another case developed a cyst in the incision scar. The first case was managed by wound debridement and resuturing, while the second case had an excision biopsy of the cyst which was reported as keloid. Both these cases had an uneventful recovery. The successful outcome of surgery is dependent on a number of factors, one of the most important being the correct placement of the electrode array. To assess this post-operatively the digital radiography technique is used. In contrast to the plain x-ray and CT scan this produces a clearer image at a much reduced radiation dose to the patient.[9] Although the digital imaging technique was being utilised in some disciplines of medicine, its role in imaging post-CI patients was developed in our Centre in collaboration with the department of radiology at Belfast City Hospital.[9]

Implantation of the device is only the first step for a patient entering into the CI programme. The next two important phases are the rehabilitation and maintenance. A month following implantation initial tuning and *"switch on"* of the device is performed. Initially the patients make regular visits to ensure good functioning and optimal tuning of the device to meet individual needs. Professional help in the form of speech and hearing therapy is given to improve communication skills. This phase which lasts about a year in adults is much prolonged in children, and lasts at least 3 years. This is followed by the maintenance phase which lasts as long as the device is being used by the patient. Routinely, 6 monthly visits for adults and 3 to 6 monthly visits for children are arranged.

CONCLUSION

In the present era of 'evidence based medicine', for a health technology to be concluded as beneficial it must be supported by outcome data. The main report by the MRC Institute of hearing research on the evaluation of the national cochlear implant programme in the UK confirms with relevant data the benefits of CI for the rehabilitation of deaf patients.[16] All the 71 patients in this study developed environmental sound awareness and a variable degree of expressive language and speech discrimination. CI research is developing rapidly, presently an 'ear level' multi-channel processor is available similar in appearance to a behind-the ear-hearing aid. As further progress is made and we edge towards the millennium, it is hoped that a completely implantable device with improved speech processing technology will soon be available.

ACKNOWLEDGEMENTS

The authors thank Mr J E T Byrne, consultant otolaryngologist for his advice and comments, also Ms Brannigan for her help with data collection. Thanks also go to the staff of Regional Cochlear Implant Centre, Belfast for their valuable help in this study.

REFERENCES

1. Djourno A, Eryies C. Prosthese auditive par excitation electrique a sistance du nerf sensoriel a l'aide d'un bobinage inclus a demeure. *Presse Med.* 1957; **65**: 1417.
2. Simmons F B. Electrical stimulation of the auditory nerve in man. *Arch. Otolaryngol.* 1966; **84**: 2-54.
3. Phelps P D, Annis J A D, Robinson P J. Imaging for cochlear implants. *Br J Radiol* 1990; **63**: 512-6.
4. Toner J G, John G, McNaboe E J. Cochlear implantation under local anaesthesia, the Belfast experience. *J Laryngol Otol.* 1998; **112**: 533-6.
5. Luxford W M, House W F. House 3M cochlear implant: surgical considerations. *Ann Otol Rhinol Laryngol* 1987; **96 (Suppl 128)**:1 2-14.
6. Graham J M, East C A, Fraser J G. UCH/RNID single channel cochlear implant: surgical technique. *J Laryngol Otol* 1989; **103 (Suppl 18)**: 14-19.
7. Clark G M, Cohen N L, Shepherd R K. Surgical and safety considerations of multichannel cochlear implants in children. *Ear Hear* 1991; **12 (Supp 4)**: 15S-24S.
8. Gantz M D, McCabe B F, Tyler R S. Use of multichannel cochlear implants in obstructed and obliterated cochleaes. *Otolaryngol Head Neck Surg* 1988; **98**: 72-81.
9. Lawson J T, McNaboe E J, Cranley K, Toner J G. Digital imaging in the post-operative assessment of cochlear implantation. *Br J Radiol* 1996; **69 (Suppl 9).**
10. Moog J S, Geers A E. Rehabilitation and Educational issues in children. Abstracts of the 100th NIH Consensus Development Conference: Cochlear Implants in Adults and Children. National Institutes of Health: Washington, DC. Pp 71-73.
11. Tyler R S. Cochlear implants and the deaf culture. *Am J Audiol* 1993; **2**: 26-32.
12. Hinderink J B, Mens L H M, Brokx J P L, Van den Broek P. Performance of prelingually and postlingually deaf patients using single-channel or multichannel cochlear implants. *Laryngoscope* 1995; **105**: 618-22.
13. Gantz B J, Tyler R S, Woodworth G G, Tye-Murray N, Fryauf-Bertschy H. Results of multichannel cochlear implants in congenital and acquired prelingual deafness in children: five-year follow up. *Am J Otol* 1994; **15 (Suppl 2)**: 1-7.
14. Dowell R C, Blamey P J, Clark G M. Potential and limitations of cochlear implants in children. *Ann Otol Rhinol Luryngol* 1995; **104 (Suppl 166)**: 324-7.
15. Snik A F M, Vermeulen A M, Greelen C P L, Brokx J P L, Van den Broek P. Speech perception performance of children with a cochlear implant compared to that of children with conventional hearing aids. Part 2. results of prelingually deaf children. *Acta Otolaryngol (Stockh)* 1997; **117**: 755-9.
16. Summerfield A Q, Marshall D H. *Cochlear implantation in the UK 1990-1994.* Report by the MRC institute of hearing research on the evaluation of the national cochlear implant programme. 1995; Pp 63-89, 171-85.

The Ulster Medical Journal, Volume 68, No. 1, pp. 17-21, May 1999.

Pathology of Rectal Adenocarcinoma following Preoperative Adjuvant Radiotherapy and Chemotherapy

D C Allen, L J Fon, J J A McAleer, S T Irwin

Accepted 18 October 1998

SUMMARY

The study group comprised 13 patients (mean age 68 years) with clinically fixed and biopsy proven moderately differentiated rectal adenocarcinoma (8 high rectal, 5 low-mid rectal) who received synchronous courses of preoperative combination chemotherapy and pelvic radiotherapy (radiotherapy alone in 3 cases) over a period of 8-20 weeks prior to surgical resection. All cases showed varying degrees of mural and mesorectal fibrosis. Three cases did not differ otherwise from usual rectal adenocarcinoma while 4 had a 20-30% diminution in expected tumour area. In 6 cases tumour could not be definitely identified grossly – 1 showed a 50% reduction in tumour bulk while 5 had only residual microscopic foci from 0.6 - 4 mm in maximum dimensions. Only 3 cases had involvement of the mesorectal circumferential radial margin. Four involved lymph nodes in 2 cases were partially hyalinised and calcified. Preoperative combination adjuvant therapy can produce marked regressive morphological changes in rectal adenocarcinoma. The implications of this are discussed.

INTRODUCTION

Early work by Papillon[1] illustrated the preservative and curative potential of locally applied irradiation in the treatment of limited cancers of the rectum and anus. Stevens *et al*[2] reported that preoperative radiotherapy decreased local pelvic recurrence and increased 5 year survival in 97 patients with recto-sigmoid adenocarcinoma. Of these the tumour field was sterilised in nine cases and there were only residual microscopic foci in another three. Others have noted preoperative radiotherapy to give decreased local recurrence rates[3,7] (although this is not universally accepted[8]), increased 5 year survival,[13,7] improved resectability[5,6,9] and facilitation of local excision in medically unfit patients.[10] Regression of disease in involved lymph nodes producing "down staging" has also been reported.[3,4,7] It appears that radiotherapy is more effective when combined with chemotherapy[6,11] although there is some debate as to whether preoperative or post operative treatment is better.[6] These potential benefits are presumably as a result of regression in the tumour tissue induced by the adjuvant therapy. Morphological aspects of this are described in this paper.

METHODS

The 13 patients (9 male) aged between 48 and 84 years (mean 68) had biopsy proven rectal adenocarcinoma (8 high rectum, 5 low-mid rectum) and clinically fixed, tethered lesions (2 had evidence of liver metastases). In all cases potential for curative surgical resection was considered clinically to be either borderline or not possible. After diagnosis they received pelvic radiotherapy comprising 40 Gray in 20 fractions over a period of 4 weeks. Three patients were unfit for chemotherapy with one having had a recent myocardial infarct. Three received concomitant chemotherapy comprising folinic acid with 5-Fluorouracil as a bolus and infusion

Histopathology laboratory and Surgical Unit, Belfast City Hospital.

Dr D C Allen, MD, FRCPath, Consultant Pathologist.

Mr L J Fon, FRCS, Specialist Surgical Registrar.

Dr J J A McAleer, MD, FRCP, FRCR, Consultant Clinical Oncologist.

Mr S T Irwin, MD, FRCS, Consultant Surgeon.

Correspondence to Dr Allen.

over 48 hours[12] as 2-3 cycles at 2 week intervals. The remaining patients had a 5 day infusion of 5-Fluorouracil (1 gm/m^2) during the first 5 days of radiotherapy. All proceeded to operative resection at 18-20 weeks after starting radiotherapy. The resection specimens were opened, immersed in 10% formalin and fixed for 48 hours. Serial transverse sections of the tumour, bowel wall and mesorectum were obtained according to Quirke *et al*[13] and any mesenteric lymph nodes sampled (mean of 8 per case). The sections were stained with haematoxylin and eosin for microscopy and tumour graded as well, moderately or poorly differentiated. Two dimensional measurements of the tumour and distances to the mesorectal circumferential radial margin and serosa were assessed grossly and verified using the microscope stage Vernier scale. An approximate estimate of the percentage of residual tumour was determined from the gross and histological measurements; these were assessed in combination with the amount of replacement fibrosis and/or granulation tissue seen along the expected tumour front which was extrapolated between residual tumour foci. Information on pre-treatment tumour dimensions for comparison against actual residual tumour size was not available. A Dukes' stage was derived from the depth of invasion and the lymph node status.

RESULTS

On biopsy and resection specimens the tumours were all moderately differentiated rectal adenocarcinoma, not otherwise specified. They did not show any de-differentiation in the resection specimens and were ulcerated on gross inspection. The maximum histological dimensions ranged from 0.6 mm to 50 mm and distances to the mesorectal circumferential radial margin 0 mm to 25 mm (Table). All showed evidence of mural and mesorectal fibrous reaction and in 3 cases (2 received no concurrent chemotherapy) the tumour did not differ otherwise from usual adenocarcinoma. In cases 1- 4, 7 and 13 tumour could not be confidently identified on gross examination - histology in 5 of these cases showed an ulcer base of thickened, inflamed fibromuscular connective tissue with a partially re-epithelialised surface (Figure 1). This was due to therapy induced regression in the tumour tissue: case 3 showed an approximate 50% reduction in tumour bulk while in cases 1, 2, 4, 7 and 13 carcinoma was only identifiable microscopically (maximum dimensions 0.6 - 4 mm). Residual foci were seen in various layers of the bowel wall from the submucosa to the mesorectum associated with chronic inflammation, fibrosis, tumour necrosis and calcification (Figure 2). There were also foci

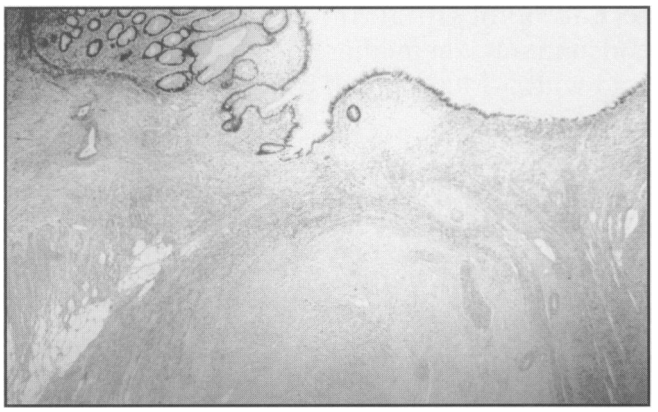


Fig 1. An ulcer base of thickened, inflamed fibromuscular connective tissue and a re-epithelialised surface. No residual tumour.

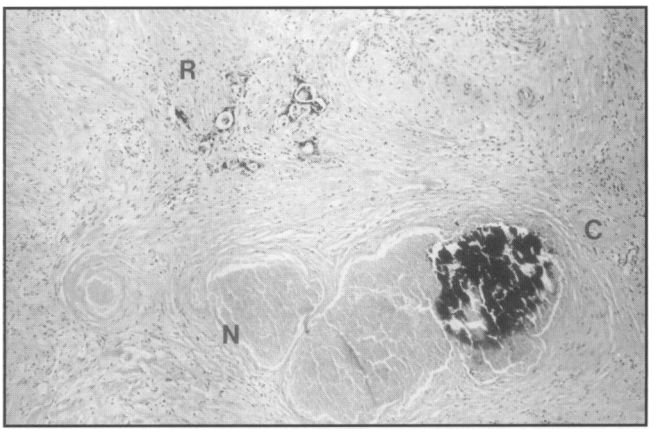


Fig 2. Case 1 Mesorectal reaction with residual microscopic carcinoma (R), tumour necrosis (N) and dystrophic calcification (C).

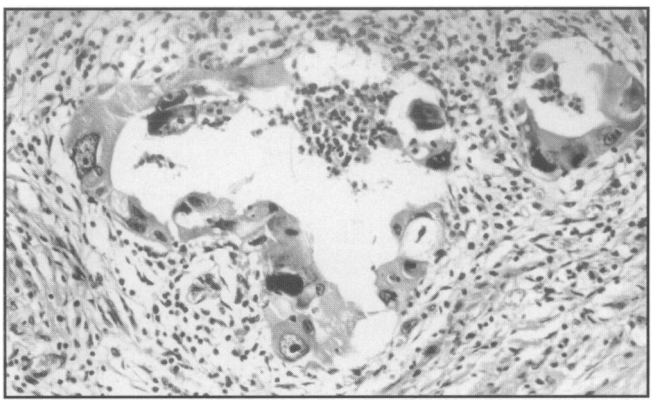


Fig 3. Residual submucosa tumour foci. The tumour cells show bizarre nucleoli– and nucleomegalic degenerative radiotherapy type changes, necrosis and apoptosis.

of partially degenerate tumour acini encased in an inflammatory and fibrous reaction with constituent epithelium showing bizarre nucleolo – and nucleomegalic degenerative radiotherapy type changes, necrosis and apoptosis (Figure 3). In addition 2 cases showed hyalinisation and calcification in 4 involved lymph nodes. Carcinoma involved (to within 1 mm) the mesorectal circumferential radial margin of resection in 3 cases.

The bowel adjacent to the tumours showed variable degrees of low grade mucosal chronic inflammation – presumably radiotherapy related. Some of the mesorectal vessels were also thickened.

TABLE

Rectal Adenocarcinoma receiving preoperative adjuvant therapy

Case	*Gross (mm)*	*Tumour Histology*		*Stage*	*Comment*
		Maximum Dimension (mm)	*Distance (mm) from serosa (s), deep Radial Limit (l)*		
1	Ulcer 13 x 10	0.6	1 (s) 15 (l)	C_1	Tumour necrosis/calcification
2	Ulcer 30 x 30	4	2 (s) 20 (l)	D	Tumour gland atypia. Regressive changes in 2 involved nodes
3	Ulcer 30 x 15	14	9 (l)	C_1	50% tumour viable. Regressive changes in 2 involved nodes
4	Ulcer 30 x 30	4	1 (s) 6 (l)	B	Healing ulcer
5	Ulcer 45 x 40	45	1 (l)	C_1	Tumour viable
6	Ulcer 50 x 30	50	5 (s) 25(1)	B	Tumour viable
7	Ulcer 40 x 30	1	8 (s) 10 (l)	B	2 microscopic (1 mm) foci at muscular/mes orectum junction
8	Ulcer 32 x 32	32	0 (l)	C_2	Tumour viable
9	Ulcer 37 x 30	27	2 (s) 0 (l)	B	70-80% tumour viable
10	Ulcer 40 x 35	33	4 (s) 7 (l)	B	70-75% tumour viable
11	Ulcer 40 x 30	25	15 (l)	A	60-70% tumour viable
12	Ulcer 40 x 40	35	5 (s) 15 (l)	D	80-90% tumour viable
13	Ulcer 8 x 8	2	3 (l)	C_2	2 microscopic (< 1 mm) foci at mucosa and mesorectum

NOTE: Dukes' Stage

A = tumour confined to the wall
B = tumour through the wall
C_1 = tumour in regional lymph nodes
C_2 = tumour in the regional suture tie limit node

DISCUSSION

This study demonstrates that preoperative combination adjuvant therapy can potentially produce marked morphological changes of regression in the bowel wall involved by rectal adenocarcinoma. Presumably this is the basis for the suggestion that it results in improved 5 year survival and decreased local recurrence rates[2-7, 11] and is therefore, currently, the subject of large, standardised international trials. Tumour regression has been previously described in rectal adenocarcinoma receiving either preoperative radiotherapy alone[2, 4] or in combination with chemotherapy.[9] These authors noted significant changes in the majority of lesions with total or sub-total regression in a minority. The effects were more noticeable in Dukes A/B tumours but particularly if they were exophytic, mobile and well to moderately differentiated[4] where a flat, well demarcated ulcer with a re-epithelialised surface resulted.[9] The extent of residual tumour could not be assessed by endoluminal ultra-sound or gross examination but only by microscopy which showed viable, degenerate and necrotic tumour associated with mucin pools. Adjuvant therapy did not induce any de-differentiation in the tumour and preoperative biopsy histology could not reliably predict which tumours would respond to treatment or give an accurate determination of stage of disease.[9] Two issues of practical importance have tentatively emerged. Firstly, Marks *et al*[10] suggested that tumour response to preoperative radiotherapy could facilitate full thickness disc or hemi-circumferential local excision in select patients who were either not medically fit for radical surgery, or, where radical surgery offered limited benefits but for whom sphincter preservation was important. Thirteen of 14 patients retained good sphincteric control and had three year actuarial local recurrence and survival rates of 23% and 61% respectively. Similarly, others have noted the benefit of sphincter preservation[5, 6] and improved local resectability.[5, 6, 9] The most important indicator of local recurrence and prognosis is involvement of the mesorectal circumferential radial margin of resection[13] and improved clearance can be obtained by meticulous surgical technique with excision of an intact mesorectum.[14] However Schaldenbrand *et al*[9] also noted preoperative combination therapy to improve resectability in 4 out of 13 clinically fixed and tethered lesions. Furthermore 4 out of 6 cancers not resected for cure had no viable residual tumour in the marginal mesorectal fibrosis – it is of note that only 3 of our clinically fixed cases involved the circumferential radial resection margin. Secondly, adjuvant therapy diminishes the size and harvest of normal mesorectal lymph nodes but, as in breast cancer,[15] can also induce regression in those involved by tumour.[4, 9] In the present study 2 cases had 4 involved nodes which showed partial hyalinisation and calcification. Horn *et al*[4] noted "down staging" of disease with lymph node involvement in 18.4% of irradiated cases versus 27.5% of controls. Overall prognosis was not changed but they postulated a potential role for preoperative treatment in transferring node positive patients to a better prognostic category. Others have also reported a decreased incidence of involved nodes.[3, 7]

Preoperative combination adjuvant therapy can induce marked morphological regression of rectal adenocarcinoma and possibly even involved lymph nodes in some patients. This has obvious implications for the pathologist in surgical reporting. Surgeons submitting these specimens should inform the pathologist about preoperative adjuvant therapy. It may also facilitate improved local surgical resection – the biological significance of so-called "down staging" requires more extensive study. Further investigations should also address why there is a spectrum of complete, partial and non-response of rectal carcinoma to neo-adjuvant therapy.

ACKNOWLEDGEMENTS

The authors wish to thank Mr R Spence, Dr V Loughlin and Dr R Houston for their permission to include some of the clinical details.

REFERENCES

1. Papillon J. Place de l'irradiation dans le traitement conservateur dans cancers limites du rectum et de l'anus. *Acta Gastro-Enterologica Belgica* 1968; **31**: 211-27.
2. Stevens K R, Allen C V, Fletcher W S. Preoperative radiotherapy for adenocarcinoma of the rectosigmoid. *Cancer* 1976; **37**: 2866-74.
3. Mendenhall W M, Bland K I, Rout W R, Pfaff W W , Million R R , Copeland E M. Clinically resectable adenocarcinoma of the rectum treated with preoperative irradiation and surgery. *Dis Colon Rectum* 1988; **31**: 287-90.

4. Horn A, Morild I, Dahl O. Tumour shrinkage and down staging after preoperative radiation of rectal adenocarcinomas. *Radiother Oncol* 1990; **18**: 19-28.
5. Gerard J P. The use of radiotherapy for patients with low rectal cancer – an overview of the Lyon experience. *Aust NZ J Surg* 1994; **64**: 457-63.
6. Molls M, Fink U. Perioperative radiotherapy +/– chemotherapy in rectal cancer. *Ann Oncol* 1994; **5** (suppl 3): 105-13.
7. Swedish Rectal Cancer Trial. Improved survival with preoperative radiotherapy in resectable rectal cancer. *N Engl J Med* 1997; **336**: 980-87.
8. Holm T, Cedermark B, Rutqvist L E. Local recurrence of rectal adenocarcinoma after 'curative' surgery with and without preoperative radiotherapy. *Br J Surg* 1994; **81**: 452-5.
9. Schaldenbrand J D, Siders D B , Zainea G G, Thieme E T. Preoperative radiation therapy for locally advanced carcinoma of the rectum. clinicopathologic correlative review. *Dis Colon Rectum* 1992; **35**: 16-23.
10. Marks G, Mohiuddin M M, Masoni L, Pecchioli L. High-dose preoperative radiation and full-thickness local excision. a new option for patients with select cancers of the rectum. *Dis Colon Rectum* 1990; **33**: 735-9.
11. Moertel C G. Chemotherapy for colorectal cancer. *N Eng J Med* 1994; **330**: 1136-42.
12. Johnson P W M, Thompson P I, Seymour M T. A less toxic regimen of 5-fluorouracil and high-dose folinic acid for advanced gastrointestinal adenocarcinomas. *Br J Cancer* 1991; **64**: 603-5.
13. Quirke P, Durdey P, Dixon M F, Williams N S. Local recurrence of rectal adenocarcinoma due to inadequate surgical resection. histopathological study of lateral tumour spread and surgical excision. *Lancet* 1986; **ii**: 996-8.
14. MacFarlane J K, Ryall R D H, Heald R J. Mesorectal excision for rectal cancer. *Lancet* 1993; **341**: 457-60.
15. Aktepe F, Kapucuoglu N, Pak I. The effects of chemotherapy on breast cancer tissue in locally advanced breast cancer. *Histopathology* 1996; 29: 63-7.

The Ulster Medical Journal, Volume 68, No. 1, pp. 22-26, May 1999.

Initial experience with breast reconstruction using the transverse rectus abdominis myocutaneous flap: a study of 45 patients

E Andrews, J Bond, S Dolan, S Kirk

Accepted 4 February 1999

SUMMARY

Breast conserving surgery for breast cancer has led to an increased interest in reconstruction following mastectomy. The transverse rectus abdominis myocutaneous flap has been proven to give good results in terms of restoration of body symmetry with near normal contour and consistency. Furthermore, immediate reconstruction has the advantage of a single procedure with less psychological morbidity, and reduction in hospital stay and overall complication rate. The aim of this study was to review our experience with the transverse rectus abdominis myocutaneous flap procedure an initial series of 45 patients. The overall complication rate of 27% is similar to that reported in the literature, with no total flap loss and nine patients with partial flap loss. There was no delay in commencement of adjuvant chemotherapy or radiotherapy and we believe our ability to detect local recurrence has not been compromised. We consider that immediate breast reconstruction is now an integral part of the surgical treatment of breast cancer.

INTRODUCTION

The change in emphasis in breast cancer surgery towards breast conservation has, paradoxically, produced a greater awareness of the needs and benefits of breast reconstruction following mastectomy. So much so, that the concept, and provision (if required), of breast reconstruction following mastectomy is now an established component of breast cancer management.[1] The goals of reconstruction are both functional and aesthetic, aiming to restore body symmetry and to achieve as near normal breast contour and consistency as possible. This should be achieved without compromising immediate or subsequent treatment of cancer.

Reconstruction may be performed at the time of the initial surgery for cancer (immediate) or at a later date (delayed). Immediate reconstruction has advantages over delayed reconstruction.[2,3,4] These include a lower incidence of postoperative psychological morbidity with less disruptions of body image,[5,6,7] and the avoidance of a secondary procedure with reduction in total hospitalisation and overall complication rate. This can be achieved without compromise of the aesthetic result or subsequent adjuvant therapy for the treatment of the cancer.[8,9] Many reconstructive procedures using autologous tissue, prosthetic materials or a combination of both, have been described.[10,11,12] However, whilst it is a major procedure, the transverse rectus abdominis myocutaneous (TRAM) flap is now recognised as the "gold standard" reconstructive procedure. Many large series from specialty units have demonstrated the efficacy and relative safety of the TRAM flap.[13,14,15] The purpose of this study was to assess our experience with the TRAM procedure in a specialist Breast Unit and to compare our results with those of the major published series.

Department of Surgery, Ulster Hospital, Dundonald BT16 1RH.

E Andrews, MB, BCh, Senior House Officer.

J Bond, Medical Student.

S Dolan, MD, FRCS, Specialist Registrar.

S Kirk, MD, FRCS, Consultant.

Correspondence to Mr Kirk.

MATERIALS AND METHODS

The case notes of patients who had undergone the TRAM procedure between December 1993 and May 1998 were reviewed. In addition to demographic data, details of the operative procedure and post operative follow up were recorded. Complications were categorised as (1) general, (2) flap associated or (3) abdominal.

Flap-related complications were classified as total or partial flap loss. Partial flap loss was defined as any amount of skin loss, with or without subcutaneous tissue loss (fat necrosis). Fat necrosis was identified early in the post operative period clinically. Late fat necrosis (occurring after 30 days) was confirmed by clinical and cytological assessment. The abdominal wound was examined for infection, hernia formation and abdominal laxity.

Patient Selection

Following diagnosis of breast carcinoma, patients were selected for reconstruction after consultation by the Consultant Surgeon and Specialist Breast Care Nurse. The major criterion in determining suitability was requirement for mastectomy. Other criteria used to determine suitability included age (< 60 years), body habitue (Body Mass Index < 30), smoking status (non- smoking desirable) and patient motivation. Previous abdominal surgery did not exclude reconstruction. Patients with stage IV disease were deemed unsuitable.

Surgical Technique

On the day prior to surgery markings are made to identify the area of skin to be excised at mastectomy and to assess the dimensions of the flap. In immediate reconstruction, initially a mastectomy is performed, in combination with axillary node clearance as indicated. The surgical team then rescrubs and the patient is redraped prior to mobilisation of the abdominal flap.

This next phase of the operation involves mobilisation of the rectus abdominis muscle together with a lower abdominal subumbilical transverse island of overlying fat and skin. Following dissection of the skin island down to the fascia of the anterior abdominal wall, the lateral parts of the flap are dissected free extending medially to the borders of the rectus abdominis muscles. The entire width of the rectus abdominis muscle which is to carry the flap (usually the contralateral muscle) is dissected from its fascial sheath. The inferior epigastric vessels are divided at their origin and protected to allow for supercharging-of the pedicle if required. The abdominal skin with the subcutaneous fat above the flap is dissected from the abdominal wall fascia and mobilised at least to the inferior costal margin. An appropriately sized, oblique, subcutaneous tunnel is created between the mobilised abdominal skin and the mastectomy wound.

If necessary the lateral ends of the skin and fat islands are excised and discarded as dictated by the segmental vascular division of the flap. The flap pedicle, with the rectus abdominis muscle still attached to its origin, is then delivered into the mastectomy wound defect via the fascial tunnel, to lie in the transverse plane. The in-situ flap is now shaped, sized and contoured on the chest wall, the aim being to match the other breast, build the axillary fold, infraclavicular groove, and the inferior bulk of the breast. This is achieved by trimming and sculpting of fat in combination with de-epithelisation.

The rectus fascia is approximated with interrupted non-absorbable sutures and if required a polypropylene mesh is used to realign the abdominal wall and reduce tension. The umbilicus is reimplanted, the wounds are drained and closed in two layers. Following surgery patients are nursed semi-recumbent with their knees flexed but are mobilised on the fourth post-operative day.

Follow up

Patients were reviewed in the Breast Clinic at one month, then at intervals of three months for the first year, four months for two years and six monthly for five years. The TRAM flap was assessed for flap complications, cosmesis and evidence of local recurrence. Mammography was performed at yearly intervals.

RESULTS

In the study period 45 patients have undergone TRAM procedure in this unit. In 37 patients immediate reconstruction was undertaken concurrently with mastectomy and axillary clearance. The average age at operation was 44 years (range 26 to 57). Length of stay ranged from 6 to 26 days (mean 9). The duration of operation (varying from 3 hours 45 minutes to 7 hours depending on the procedures performed), averaged 5 hours 30 minutes. Eleven patients underwent simultaneous contralateral reduction

mammoplasty; average operating time in this group was six hours.

Forty-four patients remain under regular review. One patient has died as a result of disseminated carcinoma. Systemic disease, relapse or loco-regional recurrence has not been identified in any of the remaining 44 patients. Tumour pathology is as shown (Table I).

TABLE I

Histological diagnoses in patients who underwent TRAM procedure

Invasive ductal carcinoma	34
Invasive lobular carcinoma	6
Ductal carcinoma in situ (DCIS)	2
Invasive mixed ductal/lobular	1
Mucinous carcinoma	1
Tubular carcinoma & DCIS	1

Nine patients developed varying degrees of partial flap loss. In three of these patients the loss was confined to skin only. The extent varied from 5% to 30% of the total TRAM area, 14% on average. The skin necrosis was noted to be exclusively on the medial aspect in six cases. One patient had necrosis also on the lateral aspect. Six of these nine patients were smokers and two had had previous radiotherapy. Following skin healing four of these developed focal modularity due to underlying fat necrosis. Four patients early in the series, and one more recently, required a second wound toilet procedure (all performed under local anaesthetic) for excision of skin and tissue necrosis; one patient required two procedures. One required refashioning of the flap five months after the initial procedure.

Fat necrosis (late) occurred in the TRAM flap in only two cases independent of skin necrosis. This was minor in both cases and required no further treatment once the diagnosis was confirmed. In one case fat necrosis developed following a wound infection. We have not experienced any total flap loss to date.

There were no cardiopulmonary complications in the series. Two patients developed confirmed uncomplicated urinary tract infections early in the post-operative period. There was one wound infection which involved the abdominal wound. There have been no abdominal herniae reported by the patients or detected at review on clinical examination. One patient suffered a minor granuloma of the umbilicus which resolved with application of silver nitrate. One patient has required a minor revision (excision of dog ears) of the abdominal scar. Two patients complained of abdominal tightness early in the postoperative period but this settled spontaneously.

There were no reported complications with the reduced breast in the eleven patients who underwent contralateral mammoplasty. No augmentations were required on the reconstructed side, and none of the contralateral reductions or mammoplasties have needed augmentation or revision.

TABLE II

Flap-specific complications following TRAM procedure

Total flap necrosis		0
Partial flap necrosis:	skin necrosis only	3
	skin and fat necrosis	6
Wound infection		1
Late fat necrosis		2
Total		12/45 (27%)

Additional non-surgical treatment was administered in 39 patients post-operatively. Tamoxifen only was given to 16 patients, tamoxifen combined with chemotherapy in 14 cases and chemotherapy only in five patients. Two patients were given electron therapy to the skin flaps above the TRAM followed by chemotherapy. Two patients had a combination of electron therapy, chemotherapy and tamoxifen. Reconstruction has not led to a delay in commencement of treatment of any patient.

At follow-up (median 29 months (range 1 - 51 months)) 42 patients have had a satisfactory cosmetic result with good symmetry. Two patients have TRAM flaps which are approximately 30% smaller than the contralateral breast. In one patient this was due to flap loss. One patient gained 15 kg, the gain to the TRAM flap being disproportionate to the other breast. This patient required reduction of the TRAM flap.

These results are similar to other published series (Table III).

TABLE III

Comparision of present study with published series

	Rosen et al[15]	*Elliott et al*[13]	*Wilkins et al*[8]	*Andrews et al*
Total patients	41	128	53	45
Type of TRAM flap				
Immediate	41	128	73	38
Delayed	0	0	0	7
Pedicled	41	86	46	38
Free	0	40	27	0
Average age (years)	46	47	46	44
Days in hospital	N/A	6.5	6.6	9
Operative time (hours)	4	4.8	7.6	5.5
Total flap loss (%)	0	2	0	0
Total flap complication rate (%)	24	28	29	27

DISCUSSION

As the benefits of breast reconstruction at the time of or at a later date following mastectomy have become more widely known by the general public, the demand for reconstruction from women undergoing mastectomy has increased.[16] Recent public debate concerning problems with the use of silicone implants[17, 18, 19] has led to greater emphasis on reconstructive procedures which use autologous tissue.[12, 20] If patients are suitable, the TRAM flap offers the best reconstructive results in terms of breast shape, size and consistency.[14, 17] In addition, if it is performed at the time of mastectomy, it has the advantages of a single procedure, decreased hospitalisation, and comparable cosmetic results to delayed reconstruction.[21]

In our series the flap-related complication rate of 27% compares favourably to that of other authors. The nine cases of partial flap loss have had a satisfactory outcome in all but one patient. This patient required further surgery on the TRAM flap and as a result the overall cosmetic appearance was suboptimal. Seven of these patients were early in the series and such early problems have been described by other groups.[8, 20] Furthermore, six of these patients were smokers and two had had previous radiotherapy. We would now regard smoking as a relative contraindication and of more significance than age or BMI as indirect prognostic variables.

Our total complication rate of 36% is equivalent to that of other series of TRAM reconstruction.[16] It is also well below the complication rate reported for mastectomy alone.[3]

Our hospitalisation time is slightly longer than in other groups. A number of factors are involved in this. One patient stayed 26 days. Of the nine whose stay was 12 days or longer, seven were those who developed areas of skin necrosis and required in-hospital treatment for this. We would now manage these patients on an outpatient basis thus reducing length of stay.

Our average operating time is 5 hours 30 minutes which is longer than that of other published series.[13, 15, 22] However, in these series the surgical oncologist, performing the mastectomy, and the reconstructive surgeon, commencing the flap procedure, work in tandem at the beginning of the operation thereby reducing the operating time. Both our procedures are performed by a single surgical team.

There is no evidence that the risks to patients undergoing the combined procedure of TRAM flap and contralateral mammoplasty are higher than those of the two procedures performed separately,[23] this is confirmed by our figures.

Our low rate of abdominal wound complications is equivalent to that experienced elsewhere. The use of mesh repair, as is our practice, is known to reduce the rate of abdominal hernia formation.[24]

Tightening of the abdominal girth post-operatively is a secondary benefit with which most patients are content.

Local treatment and adjuvant therapy are not compromised by immediate reconstruction. No patients had their adjunctive therapy delayed or altered as a consequence of undergoing the TRAM procedure. Electron therapy (to non-flap skin) has not affected the flap outcome. With a mean follow-up of 29 months there have been no incidences of loco-regional recurrence. This low rate is in keeping with other series.[25] We do not feel that reconstruction has compromised our ability to detect loco-regional recurrence.

The findings of our study demonstrate that immediate breast reconstruction does not compromise patient treatment or outcome. Although the numbers are small there does not appear to be any difference in outcome between immediate and delayed reconstruction. The technique is well tolerated by the patient.

In conclusion, our initial experience with TRAM flap reconstruction has demonstrated that we can produce an aesthetic, effective and safe means of breast reconstruction with a complication rate equivalent to that of the other major published series, without compromising the treatment of breast cancer. We therefore feel that immediate reconstruction should be considered an integral part of the surgical treatment of breast cancer.

REFERENCES

1. Bostwick J, Vasconez L O, Jurkiewicz M J. Breast reconstruction after a radical mastectomy. *Plast Reconstr Surg* 1978; **61**: 682-93.
2. Noone R B, Murphy J B, Spear S L, Little J W. A 6-year experience with immediate reconstruction after mastectomy for cancer. *Plast Reconstr Surg* 1985; **76**: 258-69.
3. Vinton A L, Traverso L W, Zeuring R D. Immediate breast reconstruction following mastectomy is as safe as mastectomy alone. *Arch Surg* 1990; **125**: 1303-8.
4. Johnson C H, van Heerden J A, Donohue J H et al. Oncological aspects of immediate breast reconstruction following mastectomy for malignancy. *Arch Surg* 1989; **124**: 819-824.
5. Stevens L A, McGrath M H, Druss R G, Kister S J, Gump F E, Forde K A. The psychological impact of immediate breast reconstruction for women with early breast cancer. *Plast Reconstr Surg* 1984; **73**: 619-28.
6. Schain W S, Weillisch D K, Pasnau M D, Landsverk J. The sooner the better: a study of psychological factors in women undergoing immediate versus delayed breast reconstruction. *Am J Psychiat* 1985; **142**: 40-6.
7. Dean C, Chetty U, Forrest A P M. Effects of immediate breast reconstruction on psychosocial morbidity after mastectomy. *Lancet 1983*; **1**: 459-62.
8. Wilkins, E G, August D A, Kuzon W M, Chang A E and Smith D J. Immediate transverse rectus abdominis musculocutaneous flap reconstruction after mastectomy. *J Am Coll Surg* 1995; **180**: 177-83.
9. Mansel R E, Horgan K, Webster D J et al. Cosmetic results of immediate breast reconstruction post-mastectomy: a follow-up study. *Br J Surg* 1986; **73**: 813-6.
10. Schneider W J, Hill H L, Brown R G. Latissimus dorsi myocutaneous flap for breast reconstruction. *Br J Plast Surg* 1977; **30**: 277-81.
11. Drever J M. Total breast reconstruction. *Ann Plast Surg* 1981; **7**: 54-61.
12. Bostwick J, Carlson G W. Reconstruction of the breast. *Surg Oncol Clin N Am* 1997; **6**: 71-89.
13. Elliott L F, Eskenazi L, Beegle P H et al. Immediate TRAM flap breast reconstruction: 128 consecutive cases. *Plast Reconstr Surg* 1993; **92**: 217-27.
13. Hartrampf, C R. The transverse abdominal island flap for breast reconstruction: a 7-year experience. *Clin Plast Surg* 1988; **15**: 703-16.
15. Rosen P B, Jabs A D, Kister S J, Hugo, N E. Clinical experience with immediate breast reconstruction using tissue expansion or transverse rectus abdominis musculocutaneous flaps. *Ann Plast Surg* 1990; **25**: 249-57.
16. Crespo L D, Eberlein T J, O'Connor N, Hergrueter C A, Pribaz J J, Eriksson Postmastectomy complications in breast reconstruction. *Ann Plast Surg* 1994; **32**: 452-6.
17. Melmed E P. Silicone implants: aesthetic triumph or surgical disaster? *Plast Reconstr Surg* 1996; **98**: 1071-3.
18. Noone R B. A review of the possible health implications of silicone breast implants. *Cancer* 1997; **79**: 1747-56.
19. FDA requests moratorium on silicone breast implants. FDA Medical Alert 1992; MDA92- 1.
20. Hartrampf C R, Bennett G K. Autogenous tissue reconstruction in the mastectomy patient, a critical review of 300 patients. Ann Surg 1987; 205: 508-19.
21. Kroll S S. Immediate breast reconstruction. a review. *Ann Chir Gynaecol* 1997; **86**: 5-12.
22. Bunkis J, Walton R L, Mathes S J, Krizek T J, Vasconez L O. Experience with the transverse lower rectus abdominis operation for breast reconstruction. *Plast Reconstr Surg* 1983; **72**: 819-27.
23. Stevenson T R, Goldstein J A. TRAM flap breast reconstruction and contralateral reduction or mastoplexy. *Plast Reconstr Surg* 1993; **92**: 228-33.
24. Kroll S S, Marchi M. Comparison of strategies for preventing abdominal-wall weakness after TRAM flap breast reconstruction. *Plast Reconstr Surg* 1992; **89**: 1045-51.
25. Eberlein T J, Crespo L D, Smith B L, Hergrueter C A, Douville L, Eriksson E. Prospective evaluation of immediate reconstruction after mastectomy. *Ann Surg* 1993; **218**: 29-36.

The Ulster Medical Journal, Volume 68, No. 1, pp. 27-29, May 1999.

Acute medical bed usage by nursing home residents

T R O Beringer, P Flanagan

Accepted 10 January 1999

ABSTRACT

An increasing number of elderly patients in nursing home care appears to be presenting to hospital for acute medical admission. A survey of acute hospital care was undertaken to establish accurately the number and character of such admissions. A total of 1300 acute medical beds was surveyed in Northern Ireland in June 1996 and January 1997 on a single day using a standardised proforma. Demographic details, diagnosis and length of admission were recorded.

A total of 84 patients over the age of 65 (mean 79.5 years) admitted from nursing home care was identified in June 1996 and a total of 125 (mean 83.3 years) in January 1997. A total of 88 (70%) of admissions in 1997 were accompanied by a general practitioner's letter. The assessing doctor judged that 12 (9.6%) of admissions in 1997 could have had investigations and or treatment reasonably instituted in a nursing home. The proportion of acute medical beds occupied by nursing home residents was 6% in June 1996 rising to 10% in January 1997.

The study accurately identifies the significant contribution of nursing home patients to acute medical admissions and the low proportion in whom admission was unnecessary. Closure of long stay hospital facilities should be accompanied by investment in community medical services and also reinvestment in acute hospital care for elderly people.

INTRODUCTION

The pattern of care for elderly people in Northern Ireland has changed, with a reduction of hospital long-term care and an increase in care delivered in the independent nursing home sector, and with enhanced community care at home.[1] Prior to the expansion of nursing home care almost all continuing nursing care was hospital-based, elderly patients receiving medical care under the supervision of a consultant physician with expertise in care of elderly people. This enabled considerable levels of acute care to be provided in situ. Patients only left these hospital units for specialist care when needed, such as abdominal emergencies or repair of hip fracture.

The rise in hospitalisation of nursing home residents has been reported[2] with rates strikingly higher for intermediate rather than skilled levels of care,[3] and with reports of both appropriate[4] and inappropriate rates of transfer to acute care hospitals.[5]

Northern Ireland geriatricians have anecdotally noted that the growth of nursing home care in place of hospital based nursing care has been paralleled by an increasing number of acute medical admissions of elderly nursing home residents.

It was considered important to establish the number of these patients so that more informed arrangements for the acute medical care of nursing home patients could be made as the reduction in hospital delivered continuing care continues. The pattern of increasing emergency medical admissions[6] may therefore be due in part to changing delivery of long term care in addition to demographic and other factors.

METHODS

A proforma to gather patient details including age, date of birth, date of admission, presence of accompanying general practitioner's letter and diagnosis was constructed. This proforma was circulated to a nominated geriatrician working in every hospital in Northern Ireland receiving acute medical admissions. The nominated co-ordinating doctor ensured that in June 1996 and January 1997 all acute medical patients were surveyed by

Royal Victoria Hospital, Belfast BT12 6BA.

Timothy Beringer, MD, FRCP, FRCPI, Consultant Physician in Care of the Elderly.

Braid Valley Hospital, Ballymena BT43 6HH.

Peter Flanagan, MD, FRCP, Consultant Geriatrician.

Correspondence to Dr Beringer.

a medical practitioner and proformas completed on a single day, allowing patients admitted for medical care from nursing homes to be identified. Subjects admitted from residential care were not surveyed. At the time of the second survey additional information was sought as to whether in the judgement of the assessing doctor the patient could reasonably have received the investigations or treatment in a nursing home. A total of approximately 1,300 acute medical hospital beds in Northern Ireland was included in the surveys. The number of available nursing home beds was identified from records held by the Registration and Inspection Units, and the Health Board population figures obtained.[7]

RESULTS

A total of 84 patients over the age of 65 years (mean age 79.5) admitted from nursing home care was identified as receiving acute medical care in June 1996, and a total of 125 patients (mean age 83.3 years) in January 1997 (Table). The returned proformas contained complete data for each of the 209 subjects identified by the assessing doctors. The total number of available nursing home beds was 9,218 representing 44.5/1000 population over the age of 65 years in Northern Ireland.

TABLE

Details of Nursing Home Patients Admitted for Acute Hospital Care in Northern Ireland.

	June 1996	*January 1997*
Number of patients	84	125
Males/Females	22/62	48/77
Mean Age (years)	79.5	83.3
Mean Length of Stay (days)	23	11.2
– No accompanying letter (%)	–	37 (30%)
– Admission deemed unnecessary (%)	–	12 (9.6%)
% Nursing home patients in acute medical care	0.91%	1.36%
% Acute medical beds occupied by nursing home residents	6.5%	9.6%

The cost of the acute care for these patients in the 15 hospitals surveyed throughout Northern Ireland was calculated using an average standard cost of £150 per day. In 1996 a total of 84 hospital beds was assumed to be continuously occupied for 365 days, resulting in total expenditure of £4.6 million per annum. In 1997 the total cost of 125 beds if occupied throughout the year by patients admitted from nursing home care would equate to an expenditure of £6.8 million per annum. The cost of the nursing home beds was calculated at £96 million per annum using a net cost of £200 per week as an approximation of the non-recoverable cost of nursing home care after benefits and pensions were deducted. The calculated acute hospital costs represent an additional 4.8% to the ongoing nursing home costs in 1996, rising to 7.1% in 1997.

In 1997 88 (70%) of admissions were accompanied by a general practitioner's letter. A large range of diagnoses were recorded, chest infection and stroke being the commonest. The assessing doctor judged that a total of 12 (9.6%) of surveyed admissions in 1997 could have had investigations and/or treatment reasonably instituted in the nursing home setting. The proportion of acute medical beds occupied by nursing home residents rose from 6% (June 1996) to 10% (January 1997).

DISCUSSION

This study describes the significant contribution of nursing home patients to acute medical admissions and bed occupancy at two points in time (June 1996, January 1997) in Northern Ireland. Although it is probable that the higher number of hospital beds (10%) occupied in the winter months, was due primarily to seasonal variation, there is concern that admissions from nursing homes are indeed rising. The movement of long term care from hospital to nursing home setting may have contributed to an increase in medical admissions, and this is further supported by the finding in Edinburgh of a higher rate of re-admission to acute hospital care from nursing home care (48%) than from NHS long stay care (16%) over a 3-year period.[8] The continued reduction in hospital based long-term care is likely to result in a further disproportionate increase in acute hospital admissions as the dependency of the cohort of patients now being transferred to nursing home care is much greater than the initial cohort admitted to nursing home care.

A considerable number of patients (30%) are admitted from the nursing home sector without

an accompanying medical letter. However, the proportion of admissions deemed unnecessary was similar in those with an accompanying medical letter (10%) as in those without a letter (8%). The provision of medical care to nursing home patients requires further investigation and undoubtedly investment will be required to assist general practitioners in providing appropriate medical support to frail, elderly patients outside hospital. The cost of such additional medical and supportive care has not been appropriately addressed in the transfer of patients from long-term hospital care to nursing home care. The high proportion (90%) of patients in whom admission was considered necessary, and care within the nursing home inappropriate, reflects concern regarding the ability at present to deliver alternative care outside hospital. Closure of hospital long-term care facilities should result in both enhanced investment in the community services including medical care but also reinvestment in acute hospital care for elderly people.

ACKNOWLEDGEMENTS

We gratefully acknowledge the assistance of the following members of the Northern Ireland branch of the British Geriatrics Society.

Dr A Beirne, Dr J McElroy, Altnagelvin Hospital, Londonderry.

Dr A Sarkar, Dr M Varghese, Antrim Hospital, Antrim.

Dr K Fullerton, Dr M Rea, Dr H Taggart, Professor R W Stout, Dr P Passmore, Belfast City Hospital.

Dr F Tracey, Dr P Gilmore, Coleraine Hospital, Londonderry.

Dr P McCaffrey, Dr T O'Malley, Craigavon Area Hospital, Craigavon.

Dr H McDowell, Daisy Hill Hospital, Newry.

Dr C Jack, Downe Hospital, Downpatrick.

Dr J Kelly, Erne Hospital, Enniskillen.

Dr S P Gawley, Lagan Valley Hospital, Lisburn.

Dr E Hunter, Dr L Walker, Mid-Ulster Hospital, Magherafelt.

Dr D H Gilmore, Royal Victoria Hospital, Belfast.

Dr A Jones, South Tyrone Hospital, Dungannon.

Dr E Hodkinson, Tyrone County Hospital, Omagh.

Dr I C Taylor, Dr M Power, Dr G McConnell, Dr J Mathai, Ulster Hospital, Dundonald.

Dr E Byrne, Dr J Gilmore, Whiteabbey Hospital, Newtownabbey.

(Copies of the questionnaire proforma may be obtained from T.R.O.B)

REFERENCES

1. Department of Health and Social Services. People First, Community Care in Northern Ireland for the 1990's. London: HMSO, 1990.
2. Leach D., Turnberg L. Coping with emergency admissions. Royal College of Physicians of London March 1997.
3. Barker W H, Zimmer J G, Hall W J, Ruff B C, Freundlich C B, Eggert G M. Rates, patterns, causes and costs of hospitalisation of nursing home residents: a population-based study. *Amer J Publ Hlth* 1994; **84**: 1615-20.
4. Bergman H, Clarfield A M. Appropriateness of patient transfer from a nursing home to an acute-care hospital: a study of emergency room visits and hospital admissions. *J Am Geriat Soci* 1991; **39**: 1164-68.
5. Kayser-Jones J S, Wierner C C, Barbaccia J C. Factors contributing to the hospitalisation of nursing home residents. *Gerontologist* 1989; **29**: 502-10.
6. Kendrick S. The pattern of increase in emergency hospital admissions in Scotland. *Health Bull* 1996; **54**: 169-83.
7. Annual Report of the Chief Medical Officer Department of Health and Social Services, N. Ireland 1995.
8. Cantley P M, Smith R G. Are private nursing home beds a drain or a gain for the acute sector? *Age and Ageing* 1998; **27**: 83.

The Ulster Medical Journal, Volume 68, No. 1, pp. 30-32, May 1999.

Case Report

Breast cancer metastasising to the uterine cervix

C A Bryson, R H B de Courcy-Wheeler, R J Wallace

Accepted 28 January 1999

CASE REPORT A 47-year-old mother of two was seen in the colposcopy clinic in November 1994 with a history of two abnormal smears. The first in June 1993 showed severe inflammation, and the repeat smear a year later showed atypical glandular cells. She had been post- menopausal for two years and had no gynaecological symptoms. In June 1993, a left mastectomy with axillary node sampling had been performed for a well-differentiated, infiltrating ductal carcinoma of the breast (T1 N0 M0). There was extension to the pectoralis major muscle but no lymph node involvement. She had been on Tamoxifen 20 mg daily since the operation.

At colposcopy the vagina was atrophic, and the epithelium was sloughing. The cervix felt hard and irregular. There was a large iodine-negative area but no evidence of cervical inter epithelial neoplasia. She was admitted for examination under anaesthesia and cervical biopsy. The uterus and adnexae were unremarkable and no induration could be felt beyond the cervix. A 1 x 0.5 cm biopsy showed extensive involvement of the cervix with well-differentiated adenocarcinoma and lymphatic permeation. A computerised tomography scan of the chest, abdomen and pelvis was normal as were a bone scan, magnetic resonance imaging of the pelvis and liver function tests.

A total abdominal hysterectomy and bilateral salpingo-oophorectomy were performed in January 1995. Histology confirmed metastatic breast carcinoma confined to the cervix. Post operative recovery was complicated by a lower respiratory tract infection which responded to antibiotics. She received 22 fractions of radiotherapy to her anterior, posterior, right lateral and left lateral pelvis (4400 centiGray), followed by six courses of chemotherapy consisting of 5-fluouracil, epirubicin and cyclophosphamide. She remains well to date almost 4 years after operation.

DISCUSSION

The cervix is not usually suspected of being a potential site for metastatic disease, is less likely to be examined at post-mortem, and adenocarcinoma metastatic to the uterine cervix is rare. The reasons for its rarity are that the cervix is a small target organ with a small blood supply and only an afferent Lymph drainage system. Further, the fibromuscular tissue of the cervix is a poor culture medium. The response of the cervix to metastatic disease is fibrous proliferation and an inflammatory cellular reaction which may explain the findings in this case of an expanded, indurated cervix.

Most extragenital metastases to the cervix arise from primary tumours of the gastrointestinal tract.[1] Other primary sites include lung, pancreas, melanoma, urethra and breast. Breast cancer often metastasises to the ovary but rarely to the cervix. It has been estimated that only 4.5% of cervical secondaries arise from breast primaries.[2]

Breast cancer is one of the most common tumours affecting women, representing about 30% of all female malignancies. In 1941, 34 of 59 (58%) cases of carcinoma metastatic to the uterus and cervix originated in the breast.[3] Regrettably these

Department of Obstetrics and Gynaecology, Craigavon Area Hospital, 68 Lurgan Road, Portadown BT63 5QQ.

Caroline Bryson, MRCOG, Specialist Registrar in Obstetrics and Gynaecology.

R J Wallace, FRCOG, Consultant Obstetrician Gynaecologist.

Department of Obstetrics and Gynaecology, Daisy Hill Hospital, Newry BT35 8DR.

R H B de Courcy-Wheeler, MD, MRCOG, Consultant Obstetrician Gynaecologist.

Correspondence to Dr Bryson.

TABLE

Details of 27 cases of breast cancer metastasising to the uterine cervix.

Case No.		*Reference*	*Age*	*Interval months*	*Symptoms*	*Survival months*
1	9	Cruz 1954	47	60	menorrhagia	alive
2	10	Wallach & Edberg 1957	73	6	facial palsy	0.5
3	11	Song 1963	45	0	smear + IMB	alive
4		,,	49	0	IMB	alive
5		,,	51	48	smear+ IMB	4
6	12	Dance & Fullmer 1970	63	48+	smear + nodules	alive
7	13	Cohan & Kaplan 1984	74	12	PMB	alive
8	14	Di Bonito et al 1985				
9		,,	–	108	–	108
10		,,	–	–	PVB	?
11		,,	–	12	PVB	12
12		,,	–	5	PVB	5
13		,,	–	36	none	36
14	5	Lemoine & Hall 1986	45	36	PMB	1.5
15		,,	60	58	PMB	4
16		,,	39	-2	IMB	6
17		,,	71	58	PMB	14
18	15	Way 1980	49	2	PVB	155
19	16	Korhonen & Stenback 1984	63	8	smear + PMB	alive
20	6	Yazigi et al 1988	49	0	PVB	14
21		,,	49	42	PVB	2
22		,,	38	0	breast lump	15
23	17	Taylor & Torode 1990	84	444	PMB	1
24		,,	50	33	IMB + polyp	alive
25	18	Campora et al 1991	57	83	abdominal pain	6
26	4	Fiorella et al 1992	54	0	smear + PMB	6
27		Current case	47	17	smear	alive

Interval = interval between diagnosis of primary breast cancer and secondary cervical cancer
IMB = intermenstrual bleeding. PMB=post-menopausal bleeding. PVB=peri-vaginal bleeding.
Alive = alive at time of report

cases were poorly documented, and no differentiation was made between the cervix and the body of the uterus. Since then a further twenty-seven cases of breast carcinoma metastasising to the cervix (including this one) have been reported in the literature. Age at presentation, interval between primary and secondary diagnosis, presenting symptoms and survival are summarised in the Table.

Most cases presented with abnormal vaginal bleeding. Seven cases had abnormal cervical cytology but only the current case presented solely with an abnormal smear. Atypical glandular cells in a cervical smear suggest endometrial carcinoma, but they may represent any adenocarcinoma primary. The cytological appearances, in particular the absence of a tumour diathesis, may indicate an extragenital site.[4] In one case the cervical metastasis was detected two months before the breast cancer could be identified. However, the average interval between primary and secondary diagnosis was 44.5 months. In comparison to other primaries the relatively long interval for breast disease has already been highlighted.[5]

In most reports there were multiple metastases. In this case and in one other report [6] the cervix was the only site of secondary disease. On initial presentation it is easy to mistake cervical metastases as primary disease because of the common presentation of abnormal vaginal bleeding, abnormal cervical smear and an abnormal-looking cervix. The histological diagnosis of a secondary deposit makes an important difference to treatment. This patient had adjuvant radiotherapy and chemotherapy which would not have been usual management for a primary adenocarcinoma of the cervix.

Had the cervix had been normal, the atypical glandular cells in the smear might have indicated an adenocarcinoma further up the genital tract. The annual incidence of endometrial carcinoma at ages 55-84 in Europe is 0.5 per 1000, which is doubled after two years of tamoxifen medication and approximately quadrupled after five years of tamoxifen.[7] Abnormal vaginal bleeding in women taking tamoxifen needs rigorous investigation but the benefits of screening asymptomatic women for endometrial carcinoma with transvaginal ultrasound or hysteroscopy have yet to be determined.[8]

We suggest that any woman with a history of breast carcinoma who presents with gynaecological symptoms should be screened both for the iatrogenic effects of tamoxifen therapy on the endometrium and for metastatic disease of the cervix. Investigation of extragenital sites is particularly relevant if adenocarcinoma of the cervix is suspected.

REFERENCES

1. Mazur M T, Hsueh S, Gersell D J. Metastases to the female genital tract. analysis of 325 cases. *Cancer* 1984; **53**: 1978-84.
2. Ng A B, Teeple D, Lindner E A, Reagan J. The cellular manifestations of extrauterine cancer. *Acta Cytol* 1974; **18**: 108-17.
3. Charache H. Metastatic carcinoma in uterus. *Amer J Surg* 1941; **53**: 152-7.
4. Fiorella R V, Beckwith L G, Miller L K, Kragel P J. Metastatic signet ring carcinoma of the breast as a source of positive cervicovaginal cytology. a case report. *Acta Cytol* 1992; **37**: 948-52.
5. Lemoine N R, Hall P A. Epithelial tumours metastatic to the uterine cervix. *Cancer* 1986; **57**: 2002-5.
6. Yazigi R, Sandstad J, Munoz A K, Breast cancer metastasing to the uterine cervix. *Cancer* 1988; **61**: 2558-60.
7. Early Breast Cancer Trialists' Collaborative Group. Tamoxifen for early breast cancer: an overview of the randomised trials. *Lancet* 1998; **351**: 1451-67.
8. Bissett D, Davis J A, George W D. Gynaecological monitoring during tamoxifen therapy. *Lancet* 1994; **344**: 1244.
9. Cruz P. Metastatic carcinoma with metastasis to the cervix uteri. *Delaware Med J* 1954; **26**: 304-5.
10. Wallach J B, Edberg S. Carcinoma metastatic to the uterine cervix. Am J Obstet Cyzzecol 1959; 77: 990-5.
11. Song J. Metastatic carcinoma of the uterine cervix from primary breast cancer. *JAMA* 1963; **184**: 498-500.
12. Dance E F, Fullmer C D. Extrauterine carcinoma cells observed in cervico-vaginal smears. *Acta Cytologzca* 1970; **14**: 187-91.
13. Cohan I, Kaplan A L. Postmenopausal bleeding secondary to metastatic disease in the endocervix from carcinoma of the breast. *Gynaecol Oncol* 1984; **17**: 133-6.
14. Di Bonito L, Patriarca S' Alberico S. Breast carcinoma metastasizing to the uterus. *Eur J Gynaecol* 1985; **6**: 211-7.
15. Way S. Carcinoma metastatic in the cervix. *Gynecol Oncolo* 1980; **9**: 298-302.
16. Korhonen M, Stenbäck F. Adenocarcinoma metastatic to the uterine cervix. *Gynecol Obstet Invest* 1984; **17**: 57-65.
17. Taylor W G, Torode H W. Metastatic breast carcinoma in the pelvis. Br J Clin Pract 1990; 44: 205-6.
18. Campora E, Serra G E, Nicolo G, Gatteschi B, Rosso R. Endocervical metastases secondary to breast carcinoma: a Case Report. *Eur J Gynaecol Oncol* 1991; **12**: 103-6.

The Ulster Medical Journal, Volume 68, No. 1, pp. 33-35, May 1999.

Case Report

Mesenteric venous thrombosis in Protein S deficiency: case report and literature review

L L Lau, A H McMurray

Accepted 4 February 1999

CASE REPORT

A 31-year-old woman presented with a two day history of sudden onset severe constant epigastric pain associated with nausea and coffee-grounds vomiting. She had a long history of heartburn treated by her general practitioner with intermittent omeprazole. There was no history of melaena, peptic ulcer or gallstone disease. However she had had pulmonary embolism post-partum six years before and had been on warfarin for six months. Apart from intermittent omeprazole, she was not on any regular medication or oral contraceptive prior to admission. On physical examination she was tender in the epigastric and peri-umbilical regions with some guarding. The remainder of the examination was unremarkable. Haematological and biochemical investigations were normal except for an increased WCC of 28 x 10^9/L and ESR of 50 mm/hr. Ultrasound scan of abdomen was unremarkable. Barium meal and gastroscopy confirmed the presence of a large hiatus hernia with linear reflux oesophagitis but no peptic ulcer. She was re-commenced on omeprazole regularly which settled her symptoms quickly and she was discharged. She was readmitted two days later as an emergency with relapse of her symptoms. Repeat examination showed a mildly distended abdomen with guarding and rebound tenderness. Plain abdominal radiographs showed mildly dilated loops of small bowel. A laparotomy was performed and a long segment of small bowel infarction involving the jejunum was found. There was thrombus in the superior mesenteric vein but the mesenteric arteries were patent. The infarcted small bowel was resected to healthy margins and intestinal continuity restored with end-to-end anastomosis. Her post-operative recovery was complicated by adult respiratory distress syndrome requiring prolonged endotracheal intubation and tracheostomy in the intensive care unit. Thrombophilic screens carried out in the first and second postoperative week before commencement of warfarin therapy

TABLE

Classification of the causes of mesenteric venous thrombosis

Primary (30 per cent)
Antithrombin III deficiency
Protein C deficiency
Protein S deficiency
Platelet disorders
Myeloproliferative disorders
Splenectomy
Polycythaemia rubra vera
Pregnancy
Puerperium
Contraceptive pills
Secondary (60 per cent)
Intra-abdominal sepsis
Pancreatitis
Inflammatory intestinal disease
Trauma
Portal hypertension
Sclerotherapy of varices
Malignancy
Idiopathic (10 per cent)

Surgical Unit, Antrim Hospital, Bush Road, Antrim.

L L Lau, FRCS, Specialist Registrar.

A H McMurray, BDS, FRCS, Consultant Surgeon.

Correspondence to Mr Lau, Department of Surgery, Institute of Clinical Science, Royal Victoria Hospital, Grosvenor Road, Belfast BT12 6BA.

confirmed protein S deficiency (free protein S level measured by ELISA was less than 30%) with normal levels of antithrombin III and protein C. She was started on long-term therapy with warfarin and she made a gradual recovery. She remains well at six-month review. Screening of her first-degree relatives shows no evidence of familial thrombophilia. However her father had died in his forties of vascular disease and had most probably deep venous thrombosis, as he had suffered from venous ulceration of the lower limbs.

DISCUSSION

Mesenteric venous thrombosis (MVT) is an uncommon but distinct clinical entity. More cases have been cited in the literature over the last two decades. It is estimated to account for up to 20% of all cases of intestinal infarction. Its incidence, or at least its recognition, appears to be increasing.[1] Acute, subacute and chronic forms of MVT are currently recognised.[2] These forms may differ in the symptoms they produce, the methods by which they are diagnosed, and the treatment they may require. Acute MVT has a more insidious and unpredictable course than other forms of visceral ischaemic syndromes. It tends to affect younger patients, and the mortality rate is as high as that of the arterial counterpart. The most frequent presenting symptoms are non-specific abdominal pain, anorexia and diarrhoea. These symptoms are present for longer than 48 hours in 75% of the cases in some series.[3] Often the diagnosis was delayed and over 60% of these cases underwent a surgical procedure. Despite the increased awareness of the condition, the mortality remains high (more than 30%) and has not improved in the last 20 years. The long term survival rate is significantly worse in the acute form of MVT than that of the chronic disease and there is also a higher recurrence rate. The prognosis is directly related to the degree of intestinal infarction and the underlying cause.

Bradbury *et al* classified MVT into primary, secondary and idiopathic according to the cause of the disease (Table[4]). Primary MVTs are due to inherited or acquired thrombophilia such as protein S deficiency, as in this case report. Previous history of thromboembolism or family history is usually present and it is important to obtain a detailed past medical and family history. With increasing sophistication of haematological tests, more idiopathic cases will be identified as primary MVT. Secondary MVTs are usually due to intra-abdominal pathology such as sepsis or inflammatory process. Despite the various possible causes, MVT remains as a rare occurrence.

The diagnosis of MVT remains a challenge to the clinicians. Symptoms and signs are usually non-specific and the hallmark is pain that is out of proportion to the physical findings. Despite the advance of imaging techniques, pre-operative diagnosis is made only in 10-15% of cases.[4] A high index of suspicion is paramount in respect of diagnosis and improved clinical outcome. Ultrasonography and duplex scan may provide information about the blood vessels concerned. Contrast enhanced computed tomography (CT) has proved to be useful in demonstrating venous thrombus, ascites, intestinal wall thickening, intestinal dilatation and pneumatosis intestinalis.[5] It has established the diagnosis of MVT in up to 90% of cases in some series.[6] Mesenteric angiography is probably still the investigation of choice but false negative studies are frequent when thrombosis involves only segmental veins. With improvement of imaging techniques, contrast enhanced CT may soon replace angiography as the first-line investigation. The role of MRI in MVT has not been fully explored but its availability and expense will probably limit its use.

There is no defined standard for treatment of MVT, and various modalities have been described.[7,8] Treatment usually involves a combination of surgical procedures, thrombolysis and anticoagulation. In the presence of an acute abdomen, laparotomy is usually necessary to exclude or to excise necrotic bowel. Second-look operation may be required if viability of bowel is questionable. Successful conservative management with efficacious anticoagulant therapy and careful follow-up imaging has also been reported.[6] Whatever type of treatment is used, prompt diagnosis and institution of treatment are crucial to the improved outcome. The possibility of an underlying hypercoagulable state should always be searched for as MVT could be the first manifestation of the disease. If this is the case, long term anticoagulation should be used and the first- degree relatives should be screened as they are at a high risk of developing thromboembolism.

Protein S (PS), a vitamin-K dependent glycoprotein, is a protein C cofactor which is

necessary for the full anticoagulant effect of activated protein C. In plasma, PS is partly free and partly bound to C4b- binding protein. Only free PS functions as a cofactor for activated PC in the inactivation of Factor Va and Factor VIIIa. Many laboratories prefer to express free PS antigen levels as a percentage of 'normal' free PS levels. This practice is acceptable but each laboratory must establish its own normal ranges for total and free PS antigen. In our laboratory, the normal range for free PS antigen is 7-140% (the free PS antigen level was 27% in this reported case).

Protein S deficiency is an autosomal-dominant inherited disorder of coagulation, either homozygous (purpura fulminans at neonatal age) or heterozygous. However acquired deficiencies of PS have been described recently in several conditions such as malignancy, pregnancy, nephrotic syndrome and acute phase reactions. The true prevalence of inherited PS deficiency is unknown as not all the individuals with the inherited PS deficiency will necessarily develop thrombosis. Some studies have indicated a frequency of 2-5% in patients with deep venous thrombosis or pulmonary embolism. This is as prevalent as protein C deficiency (5-8%) but less common than antithrombin III deficiency (12-15%).[9] Patients with phenotypic PS deficiency have a 50% chance of developing recurrent thrombosis before age 45.[10] However MVT is a rare manifestation of this inherited disorder. Frequently these thrombotic events are accompanied by some precipitating factors such as intake of oestrogen-containing oral contraceptives and pregnancy. In the present case however, no such triggering factors were identified.

The importance of warfarin therapy in hereditary thrombophilia cannot be over-emphasised. However the duration of therapy remains controversial. In patients with recurrent thromboembolism, particularly affecting the cerebral or splanchnic circulation (as in this case), long-term anticoagulant therapy is essential. In asymptomatic patients or those with only a single episode of thromboembolism, prophylactic treatment to cover high risk events such as pregnancy or surgery may be adequate.

With the history of recurrent thromboembolism in a young patient, hereditary and acquired thrombophilia must be considered and the importance of early implementation of anticoagulant therapy should not be underestimated.

REFERENCES

1. Inderbitzi R, Wagner H E, Sieler C, Stirnemann P, Gertsch P. Acute mesenteric ischaemia. *Eur J Surg* 1992; **158**: 123 -6.
2. Ellis D J, Brandt L J. Mesenteric venous thrombosis. *Gastroenterologist* 1994; **2**: 293 -8.
3. Rhee R Y, Gloviczki P, Mendonca C T, Petterson T M, Serry R D, Sarr M G, Johnson C M, Bower T C, Hallett J W Jr., Cherry K J Jr. Mesenteric venous thrombosis: still a lethal disease in the 1990s. *J Vasc Surg* 1994; **20**: 688-97.
4. Bradbury A W, Brittenden J, McBride K, Ruckley C V. Mesenteric ischaemia: a multidisplicinary approach. *B J Surg* 1995; **82**: 1446-59.
5. Kim J Y, Ha H K, Byun J Y, Lee J M, Yong B K, Kim I C, Lee J Y, Parks W S, Shinn K S. Intestinal infarction secondary to mesenteric venous thrombosis: CT-pathologic correlation. *J Comp Ass Tomogr* 1993; **17**: 382-5.
6. Rahmouni A, Mathieu D, Golli M, Douek P, Anglade M C, Caillet H, Vasile N. Value of CT and sonography in the conservative management of acute splenoportal and superior mesenteric venous thrombosis. *Gastrointest Radiol* 1992; **17**: 135-40.
7. Rhee R Y, Gloviczki P. Mesenteric venous thrombosis. *Surg Clinics N America* 1997; **77**: 327- 38.
8. Poplausky M R, Kaufman J A, Geller S C, Waltman A C. Mesenteric venous thrombosis treated with urokinase via the superior mesenteric artery. *Gastroenterology* 1996; **110**: 1633-5.
9. Finazzi G, Barbui T. Different incidence of venous thrombosis in patients with inherited deficiencies of antithrombin III, protein C and protein S. *Thromb Haemost* 1994; **71**: 15-8.
10. Borgel D, Gandrille S, Aiach M. Protein S deficiency. *Thromb Haemost* 1997; **78**: 351-6.

The Ulster Medical Journal, Volume 68, No. 1, pp. 36-37, May 1999.

Case Report

Sponge Bezoar: a rare cause of abdominal pain

M G McAlinden, S R Potts

Accepted 13 March 1999

A $2^1/_2$ year old boy presented with a 24-hour history of an acute abdomen. At appendicectomy, a number of polyurethane pieces were found to be occluding the terminal ileum. The polyurethane foam, the stuffing of a sofa, had been swallowed repeatedly. Ingestion of such a substance is not without risk.

Unlike inhaled foreign bodies, ingested foreign bodies rarely cause clinical problems. This case illustrates that repeated ingestion of a common substance, polyurethane sponge, can cause intestinal obstruction in the young.

CASE REPORT A $2\ ^1/_2$ year old boy presented to the accident and emergency department of the Royal Belfast Hospital for Sick Children with a four-month history of vague lower abdominal pain and pain on defecation. In the 24 hours prior to presentation his pain had increased and was localised in the right flank. It was associated with non-bilious vomiting. His bowels had opened the previous evening.

On examination his temperature was 37.6°C. His abdomen was minimally distended and was tender with guarding in the right flank. Bowel sounds were normal. Rectal examination was unremarkable.

The patient's white cell count was elevated at 15.8 x 10^9/L.[3] A plain supine film of abdomen showed only a few dilated loops of ileum, but there was air throughout the bowel (Fig.). A presumptive diagnosis of acute appendicitis was made.

A Lanz incision was made. The small bowel was noted to be distended and the distal ileum contained several hard foreign bodies, one of which had occluded the terminal ileum 10 cm from the ileo-caecal valve. It could not be milked forward. The material was removed through a longitudinal enterotomy, which was closed transversely. The appendix was removed. On inspection, the foreign bodies were found to consist of polyurethane foam. The largest particle was 2 cm x 3 cm. Histopathology showed a fibrillary eosinophilic material in which vegetable material was embedded. Many bacterial organisms were identified. Recovery was uneventful and he was discharged six days later.

Figure Plain abdominal X-ray showing a few dilated loops of bowel, but with air clearly visible in the rectum.

Department of Paediatric Surgery, The Royal Belfast Hospital for Sick Children.

M G McAlinden, FRCS, Registrar.

S R Potts, FRCS, Consultant.

Correspondence to Mr McAlinden, Orthopaedic Research Unit, Musgrave Park Hospital, Stockman's Lane, Belfast.

On review, four weeks later, the patient had made a full recovery from the operation. The sponge ingestion was thought to be opportunistic and no specific behavioural therapy was instigated. At latest review, 59 months following surgery, he remained well with no recurrence of his problem.

DISCUSSION

Intestinal obstruction due to ingested foreign substances is relatively rare but is recognised. Vegetable material, swallowed metallic objects, and semi-solid substances such as white paraffin have all been implicated.[1-4] A foreign body (or bezoar) usually passes through the bowel, but if its progress is arrested, this is most likely in the stomach, ileo-caecal region or, in the older population, in the recto-sigmoid.[1] Such ingestion is more likely in the young, the demented or mentally retarded.[1,2] Obstruction may be complicated by perforation, regardless of whether the bezoar is sharp or smooth.[5]

Excessive ingestion of polyurethane foam has been described in an intellectually impaired adult resulting in aspiration and acute respiratory failure, but no gastrointestinal complications were reported.[6]

Further questioning of the family revealed that the child had been habitually eating foam from a settee, over a period of several months. Such a delay between ingestion and onset of symptoms is not uncommon.[1] What is unusual in this case is that the substance implicated in the obstruction is compressible, rather than solid. While in the digestive tract, it seems that the foam absorbed water and food matter to form the obstructing bezoar. Radiology was of little help in reaching a diagnosis. So far as we know, no other similar cases involving foam have been reported. We would stress that such a common and widely available substance as polyurethane foam can represent a potentially serious threat to health when ingested.

REFERENCES

1. McCanse D E, Kurchin A, Hinshaw J R. Gastrointestinal foreign bodies. *Amer J Surg* 1981; **142**: 335-7.
2. Holmes T W, Polybezoar and gastrointestinal foreign bodies: total surgical experience in a large state hospital. *Amer J Surg* 1962; **103**: 487-93.
3. Goh D W, Buick R G. Intestinal obstruction due to ingested Vaseline. *Arch Dis Childhood* 1987; **62**: 1167-8.
4. Banerjee A K, Fletcher C D M, McKee P H, Jackson B T, Thompson R P H. Obstruction of the colon by an impacted seed. *Br J Clin Pract.* 1985; **39**: 454-5.
5. Durdey P. Intestinal obstruction and perforation due to an ingested Brazil nut. *J Roy Coll Surg Edinb* 1985; **30**: 395.
6. Wager G C, Williams J H. Flexible bronchoscopic removal of radi occult polyurethane foam, with pneumonitis in a hyperventilated lobe. *Am Rev Resp Dis* 1990, **142**: 1222-4.

The Ulster Medical Journal, Volume 68, No. 1, pp. 38-39, May 1999.

Case Report

Pseudomyxoma Extraperitonei: A rare presentation mimicking an iliacus abscess

W K Edrees, R J Hannon

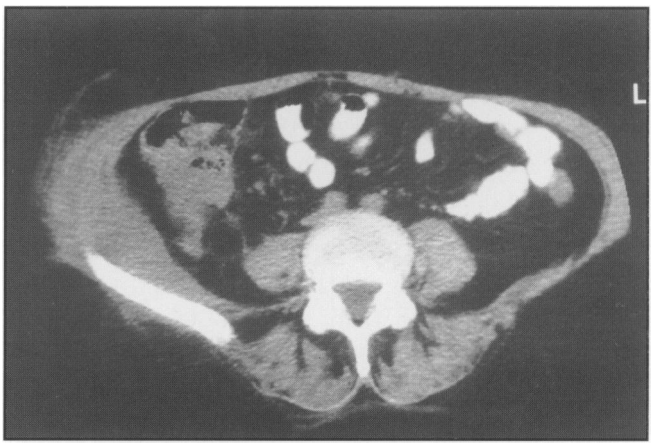
Accepted 23 March 1999

Mucoceles of the appendix are very rare lesions and are occasionally associated with *pseudomyxoma peritonei,* a gelatinous ascites that arises from intraperitoneal rupture or degeneration of the mucocele. Rupture of a retroperitoneal mucocele of the appendix is extremely rare; *pseudomyxoma extraperitonei* has been previously reported in only five patients. We report a new case of pseudomyxoma extraperitonei due to mucinous adenocarcinoma of the appendix which presented initially as pyrexia of unknown origin followed by the appearance of an abdominal mass mimicking an iliacus abscess. This appears to be the first case reported as presenting in such a manner.

CASE REPORT A 53-year-old lady presented to the haematology clinic with pyrexia of unknown origin for four weeks. Physical examination revealed no abnormality apart from a gently undulating pyrexia between 37.4 and 38.5°C. WCC was 15.9 x 10^9/L. A chest X Ray, blood film and bone marrow biopsy were normal. A CT scan of the chest and abdomen showed a fluid-filled cavity in keeping with an abscess within the iliacus muscle with displacement of the caecum (figure).

She was referred for a surgical opinion. We felt the abscess was secondary to appendicitis and managed her conservatively with antibiotics (cefuroxime and metronidazole). Her temperature settled down and she was booked for interval appendicectomy.

At review in three weeks' time, a firm, non-tender mass was felt in the RIF. Ultrasound scan showed a heterogeneous appearance of the mass, barium enema showed non-filling of the appendix, and colonoscopy revealed normal caecal mucosa.



A CT scan showing a mass in the region of the iliacus muscle with enhancement in keeping with an abscess with displacement of the caecum.

A biopsy was taken through an extraperitoneal approach and the presence of mucinous adenocarcinoma of bowel origin was confirmed.

At laparotomy, a retrocaecal appendix was found to be replaced by a gelatinous tumour extending into the retroperitoneal space and infiltrating in between the muscle fibres. Right hemicolectomy and debulking of the tumour was carried out. The pathology confirmed the diagnosis of mucinous adenocarcinoma of the appendix. The patient received postoperative chemotherapy. She is still alive after a year.

Level 5, Belfast City Hospital, Lisburn Road, Belfast BT9 7AB.

W K Edrees, FRCS, Specialist Registrar.

R J Hannon, MD, FRCS, Consultant Surgeon.

Correspondence to Mr Edrees.

DISCUSSION

Malignant neoplasms of the appendix are very rare tumours and are rarely diagnosed preoperatively. Mucinous adenocarcinomas constitute 8% of all malignant neoplasms of the appendix with an estimated incidence of 0.2 per 100.000 population per annum. Other malignant neoplasms of the appendix are carcinoid 85%, adenocarcinoma 4% and adenocarcinoid 2%. 70% of cases present with a picture mimicking acute appendicitis. Even at operation the correct diagnosis is made in less than half the cases. Most of the remaining cases present with a mass in the RIF.[1] Appendiceal mucocoeles are encountered only in 0.2-0.3% of appendicectomies. They may be due to retention cysts (18%), mucosal hyperplasia (20%), cystadenomas (52%) and cystadenocarcinomas (10%).[2] Only 6% of appendiceal mucocoeles will be associated with intraperitoneal accumulation of gelatinous ascites ie *pseudomyxoma peritonei*. Rupture of a retroperitoneal mucocoele of the appendix is extremely rare,[3] resulting in a condition termed *pseudomyxoma extraperitonei*,[4] only reported in five cases.[3, 4, 5, 6, 7]

Ultrasound and CT scan may contribute to the diagnosis of pseudomyxoma peritonei. The typical findings of ascites, localised fluid collection throughout the abdomen and pelvis, omental thickening and deformity of the liver surface by extrinsic pressure of the peritoneal tumour implants (hepatic scalloping) suggest the diagnosis.[8, 9] However, the diagnosis of pseudomyxoma extraperitonei is very difficult, with the pre-operative diagnosis possible in only one previously reported case.[7] The appearance of a homogeneous mass of water density in the retroperitoneal space may mimic a variety of other retroperitoneal conditions such as an abscess, or a hydronephrotic kidney.[5] Pseudomyxoma peritonei significantly decreases survival of patients with cystadenocarcinoma of the appendix. The survival rate is only 25% at five years. The survival of patients with pseudomyxoma extraperitonei is not known due to the small number of cases but as it is a manifestation of extracoelimic spread, the prognosis is likely to be poor.[10]

Right hemicolectomy is the treatment of choice for all lesions with invasion beyond the mucosa. Aggressive debulking of any extracolonic extension, omentectomy, drainage of mucin collections, oophorectomy and multiple surgical procedures are often needed and are associated with better survival rate.

The role of adjuvant therapy is not known. Various treatment modalities using radiotherapy and chemotherapy both intravenously and intraperitoneally have been tried in pseudomyxoma peritonei,[11, 12] but their role has not yet been clearly defined due to the paucity of reports.

REFERENCES

1. Deans G T and Spence R A J. Neoplastic lesions of the appendix. *Br J Surg* 1995; **82**: 299-306.
2. Landen S, Bertrand C, Madden G J, *et al.* Appendiceal mucoceles and pseudomyxoma peritonei. *Surg Gynecol Obstet* 1992; **175**: 401-4.
3. Bonann L J, Davis J G. Retroperitoneal mucocele of the appendix. A case report with characteristic roentgen features. *Radiology* 1948; **51**: 375-82.
4. Moran C G and Morgan R H. Pseudomyxoma extraperitonei. *J Roy Soc Med* 1988; **81**: 668-9.
5. Mor Y, Leibovitch I, Garniek A, Avigad I, Jonas P and Goldwasser B. Pseudomyxoma extraperitonei: an unusual presentation mimicking a huge hydronephrotic kidney. *Clin Radiol* 1996; **51**: 221-2.
6. Kendall S, Early K S, Stephenson D V, Davis W C. Giant retroperitoneal mucocele simulating pseudomyxoma peritonei and mucinous adenocarcinoma. *Am J Surg* 1968; **116**: 439-43.
7. Bready M B, Ewing R H, Robinson A E and Dowling E A. Flank mass and pain in a 72-year-old man. *Invest Radiol* 1986; **21**: 419-23.
8. Yeh H, Shafir M K, Slater G, *et al.* Ultrasonography and computed tomography in pseudomyxoma peritonei. *Radiology* 1984; **153**: 507-10.
9. Seshul M B, Coulam C M. Pseudomyxoma peritonei: computed tomography and sonography. *Am J Roentgenol* 1981; **136**: 803-6.
10. Nitecki S S, Wolff B G, Schlinkert R and Sarr M G. The natural history of surgically treated primary adenocarcinoma of the appendix. *Ann Surg* 1994; **219**: 51-7.
11. Sugarbaker P H. Cytoreductive surgery and intraperitoneal chemotherapy with peritoneal spread of cyto-adenocarcinoma. *Eur J Surg Suppl* 1991; **561**: 75-82.
12. Sugarbaker P H, Kern K, Lack E. Malignant pseudomyxoma peritonei of colonic origin; natural history and presentation of a curative approach to treatment. *Dis colon Rectum* 1987; **30**: 772-779.

The Ulster Medical Journal, Volume 68, No. 1, pp. 40-42, May 1999.

Case Report

A late complication from a self-inflicted stab wound

R J Kennedy, W D B Clements, D G Mudd

Accepted 6 April 1999

Rupture of the diaphragm following penetrating injuries to the lower chest and upper abdomen is reported in as many as 10-15% of victims. The diagnosis may not be clinically apparent in the acute phase and routine investigations are often inadequate to identify any defect. Failure to detect the injury at the time of presentation may result in herniation of the abdominal contents into the chest cavity with significant associated morbidity and mortality. We report a case of large bowel obstruction presenting three years following the initial injury, and review the relevant literature.

CASE REPORT A 24-year old man was admitted as an emergency with a 48 hour history of increasing lower abdominal pain, distension, faeculent vomiting and absolute constipation. On examination he was dehydrated with signs of acute intestinal obstruction. Examination of all other systems was unremarkable.

The patient suffered from chronic schizophrenia and three years previously had been treated for a self-inflicted stab wound to the anterior aspect of his left chest at the level of the costal margin. As a consequence of this injury he developed a left sided pneumothorax which was successfully treated with a chest tube and underwater seal drain. Other relevant history included a positive family history of colorectal carcinoma in two first-degree relatives.

A plain abdominal film showed distended large bowel proximal to the splenic flexure consistent with an obstruction at this site (Fig 1). A left-sided pulmonary effusion was evident on chest x-ray (Fig 2). In an attempt to confirm the nature and site of the obstruction an urgent gastrograffin enema was performed (Fig 3). This demonstrated a complete obstruction at the level of the splenic flexure and subsequently he underwent a laparotomy. A segment of transverse colon had herniated through the diaphragm and become incarcerated within the thoracic cavity. The bowel was reduced and the defect repaired. His post-operative recovery was uncomplicated.

Fig 1. Supine abdominal x-ray showing distended large bowel proximal to the splenic flexure, consistent with obstruction at this site.

Department of Surgery, Antrim Area Hospital, 45 Bush Road, Antrim, BT41 2RL.

R J Kennedy, FRCS, Senior House Officer.

W D B Clements, MD, FRCS, Senior Registrar.

D G Mudd, MD, FRCS, Consultant Surgeon.

Correspondence to Mr Mudd.

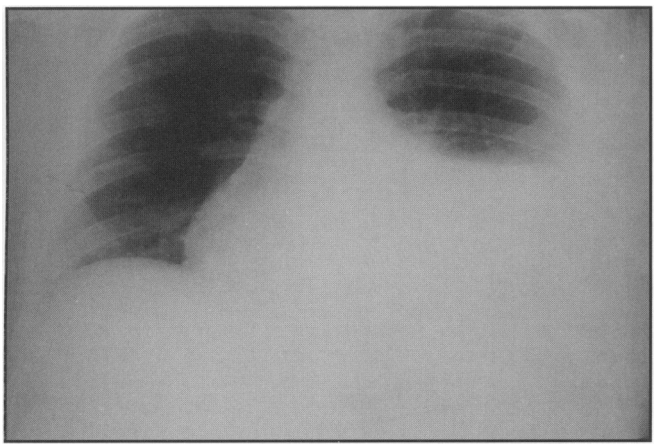


Fig 2. Erect chest film reveals an opacified left basal pulmonary zone with a 'meniscus sign' suggesting a left sided pleural effusion.

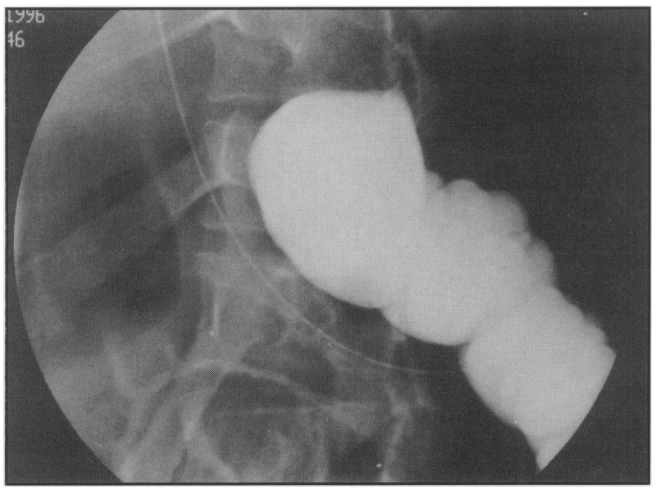


Fig 3. Gastrograffin enema, showing complete obstruction at the site of the hernia.

DISCUSSION

In contrast with stab wounds of the upper thorax, plain radiography is a significantly less sensitive method of detecting intrathoracic pathology. In two series where patients sustained diaphragmatic penetration following stab wounds radiographic anomalies were only present in 33 and 60% of cases.[1,2]

As is the case with blunt abdominal trauma diaphragmatic injuries are frequently occult and the diagnosis goes unrecognised until a complication such as intestinal obstruction, strangulation or haemorrhage occurs.[3] Consequently, the diagnosis is often delayed and mortality rates are high, ranging from 4.3%-66%.[4] The delay between incident and diagnosis ranges from several months to years with the longest reported delay being 20 years.[5]

There are two schools of thought on why the presentation is often delayed. The first relates to the pathophysiology of the condition whereby the pressure gradient between the abdominal and pleural cavity serves to draw adjacent abdominal viscera through the diaphragmatic defect converting it from a subclinical into a potentially life threatening condition as the defect enlarges. It has also been suggested that devitalised diaphragmatic tissue heals poorly and the hernia develops as an intermediate or late event. Secondly diagnostic delays may be the result of clinical deficiencies where there is a lack of awareness in the acute situation compounded by the low sensitivity of diagnostic tests presently available.

Diagnostic peritoneal lavage is employed in the management of abdominal trauma and has been advocated in patients with stab wounds to the lower chest; however false negative rates occur in between 25% and 34% of cases.[4] Laparotomy is not a panacea for diagnosing this condition and there are reports where the diaphragmatic injuries have been missed.[6]

This may reflect our priorities at laparotomy, namely to exclude acute life threatening injuries such as visceral haemorrhage at the expense of less obvious injuries. Laparoscopy is being employed increasingly in trauma centres with a high degree of sensitivity;[7] however in this situation creation of a pneumoperitoneum may cause respiratory depression as CO_2 moves through the diaphragmatic defect producing tension in the pleural cavity. Despite this concern laparoscopy appears to be an excellent modality in the recognition of diaphragmatic lesions following trauma.[8] Similarly, thoracoscopy has been utilised recently.[9] Early results are encouraging but few centres have the experience required to perform thoracoscopy in the acute situation.

Instillation of contrast medium or radiolabelled technetium into the peritoneal cavity has been employed successfully in this condition.[10] To date there has been little information available on the sensitivity of either CT scanning or magnetic resonance imaging.

The most important lesson illustrated by this case report and literature review is to be clinically aware of the diagnosis and have a high index of suspicion in situations where there has been a stab wound in the area bounded by the nipples and umbilicus. Until a more accurate method of

diagnosis is available we recommend a thorough inspection of the diaphragm in penetrating injuries of the lower thorax and upper abdomen. The decision to employ laparotomy, laparoscopy or thoracoscopy should be determined by the patients condition and the experience and facilities available.

REFERENCES

1. Miller L, Bennett E V Jnr, Root H D *et al.* Management of penetrating and blunt diaphragmatic injury. *J Trauma* 1984; **24**: 403-9.
2. Madden M R, Paul D E, Finkelstein J L *et al.* Occult diaphragmatic injury from stab wounds to the lower chest and abdomen. *J Trauma* 1989; **29**: 292-8.
3. Gourin A, Garson A A. Diagnostic problems in traumatic diaphragmatic hernia. *J Trauma* 1974; **14**: 20-31.
4. Meyers M F, McCabe C J. Traumatic diaphragmatic hernia: Occult marker of serious injury. *Ann Surg* 1993; **218**: 783-90.
5. Jain S K. Delayed traumatic intercostodiaphragmatic hernia of the colon. *Injury* 1995; **26**: 204-6.
6. Beauchamp G, Khalfallah A, Girard R *et al.* Blunt diaphragmatic rupture. *Am J Surg* 1988; **148**: 292-5.
7. Lombardo G, Mastroianni V, Martelli S. Indications for laparoscopy in the diagnosis and treatment of abdominal trauma. *Minerva Chir* 1994; **49**: 613-8.
8. Johnson C D. Blunt injuries of the diaphragm. *Br J Surg* 1988; **75**: 226-30.
9. Oschner G M, Rozycki G S, Lucente F, Wherry D C, Champion H R. Prospective evaluation of thoracoscopy for diagnosing diaphragmatic injury in thoracoabdominal trauma: a preliminary report. *J Trauma* 1993; **34**: 704-10.
10. Halldorsson A, Esser M J, Rappaport W *et al.* A new method of diagnosing diaphragmatic injury using intraperitoneal Technetium: A case report. *J Trauma* 1992; **33**: 140-2.

The Ulster Medical Journal, Volume 68, No. 1, pp. 43-45, May 1999.

Autumn Meeting of the Irish Branch of the Association of Clinical Pathologists 16 and 17 October 1998

USE OF MONOCLONAL ANTIBODY THERAPY IN CD20+VE FOLLICULAR LYMPHOMA

J Murdock, T C M Morris; Department of Haematology, Belfast City Hospital.

Rituximab (Rituxan) is a genetically engineered chimeric murine/human monoclonal antibody and the first monoclonal antibody to become available to physicians for the treatment of malignant disease. It has recently been licensed for use in the treatment of patients with relapsed or refractory low-grade or follicular, CD20 positive B-cell Non-Hodgkins Lymphoma (NHL). Its mechanism of action is by binding to CD20 antigen on the B-lymphocytes and effecting cell lysis by possible complement activation and/or antibody-dependent cellular cytotoxicity. Several clinical trials have been able to show a moderate to limited response to Rituximab treatment in patients with relapsed follicular NHL with a 6-9% complete remission (CR) and up to 50% partial remission (PR).

We have treated four patients with Rituximab since April 1998. This group of patients (median age 56; range 51 to 65 years) all had CD20+ve low-to-intermediate grade NHL which had relapsed despite several cycles of chemotherapy. Each patient had cytopenia or other factors contra-indicating intensive second line therapies. All patients were treated with intravenous Rituximab at a close of 375 mg/m^2 and were premedicated with chlorpheniramine and paracetamol. Two patients had no side effects whatsoever, while a further two complained of mild abdominal discomfort (1) and dizziness, minor tongue oedema and pruritus (1). One patient (treatment commenced April 1998) has shown a subjective and objective response to treatment with obvious shrinkage of cervical, axillary and inguinal lymhadenopathy (PR) within one month of treatment. He remains well with no palpable lymphadenopathy 6 months post-treatment. Another patient has shown a moderate response with some shrinkage of intra-abdominal nodes, but with further progression of pelvic lymphadenopathy on follow-up CT scanning. A further patient remained symptomatically unchanged (with no change in disease on CT), and a fourth patient had progressive disease despite treatment.

At present treatment with Rituximab is a fairly costly option and therefore protocols should be drawn up regarding which patients are most likely to benefit from this novel therapy.

ANTIBODIES FOR IMMUNOSTAINING OF BOUIN'S-FIXED BONE MARROW BIOPSIES

Colette Murphy, D S O'Briain

Histopathology Department, St James's Hospital and Trinity College Medical School, Dublin.

Bouin's fluid is widely used as a fixative for bone marrow biopsies because it gives excellent morphology and is easy to use, but it has been suggested that many antibodies, and in particular the much-used B cell marker L26 (CD20), fail to stain in tissue fixed in Bouin's fluid.

We reviewed all immunostains done on bone marrow biopsies during a one year period with particular reference to L26. There were 104 biopsies in all of which successful staining was present and in which a wide variety of antibodies had been used including CD45, CD3, CD79a, CD45RO. There was consistently strong staining for L26 in all biopsies which involved the plasma membrane and cytoplasm of small lymphocytes and lymphoma cells. Prominent cytoplasmic processes were noted in many positive cells. Weak to moderate staining of blast cell nucleoli and of megakaryocytes was frequently seen but could easily be distinguished from positive lymphoid cells. L26 was particularly useful in identifying the degree of residual disease in hairy cell leukaemia treated with 2-chlorodeoxyadenosine.

This study indicates that in addition to its morphological benefits, Bouin's fluid is an excellent fixative for immunostaining using a wide variety of antibodies.

ASSESSMENT OF c-erbB-2 EXPRESSION AND ADVERSE HISTOLOGICAL FEATURES IN PREINVASIVE AND MICROINVASIVE SQUAMOUS CERVICAL CANCER

D Butler, E W Kay, C Barry Walsh, M Leader

Department of Pathology, Royal College of Surgeons in Ireland, St Stephen's Green, Dublin 2.

Amplification and overexpression of c-erbB-2 has been reported in a variety of tumours predominantly of epithelial origin such as breast, ovary, pancreas and stomach. Membrane staining for c-erbB-2 has been found to be prognostically significant. Few studies have addressed the role of c-erbB-2 overexpression in preinvasive and invasive squamous cervical lesions and none in relation to poor histological features.

Eighty-three archival cervical LLETZ biopsies consisting of 27 CIN1 cases, 30 CIN3 cases and 26 microinvasive cases were selected consecutively from a computerised database of cases in the Pathology Department, RCSI Sections were immunostained for c-erbB-2 oncoprotein overexpression using an indirect ABC technique on 3μm sections.

Haematoxylin and eosin stained sections from the 83 cases were reviewed for the presence of 6 histological features some of which have been previously shown to be associated with microinvasive cancer namely: extent of surface involvement, extent of glandular involvement, comedo necrosis, squamous maturation, koilocytic change and apoptosis. Univariate and bivariate analysis was used to determine the relationship between overexpression of c-erbB-2 and the presence of adverse histological features.

Cytoplasmic staining intensity was shown to have a statistical relationship with koilcytic change. All of the histological features examined were shown to have a strong statistical relationship with grade of tumour.

Staining for c-erbB-2 in cervical biopsies appears to be of limited use; however recording of certain histological features particularly intralesional squamous maturation, may be a move useful indicator of progression.

DETECTION AND SPECIATION OF *CRYPTOSPORIDIUM PARVUM, CRYPTOSPORIDIUM MURIS, CYPTOSPORIDIUM BAILEYI* AND *CRYPTOSPORIDIUM WRAIRI* IN ENVIRONMENTAL WATER SAMPLES USING IMMUNO-MAGNETIC SEPARATION, PCR AND ENDONUCLEASE RESTRICTION.

C J Lowery,[1,2] J E Moore,[2] B C Millar,[2] J S Dooley[1]

1. Department of Applied Biological and Chemical Sciences, University of Ulster, Coleraine, Northern Ireland BT52 1SA
2. Northern Ireland Public Health Laboratories, Department of Bacteriology, Belfast City Hospital, Lisburn Road, Belfast BT9 7AB Tel. (01232) 329241 Ext 3239 Fax (01232) 321084.

The protozoan parasite *Cryptosporidium* has recently been recognised as an important agent of gastrointestinal disease leading to a chronic, life threatening condition in immunocompromised individuals and to acute gastroenteritis and diarrhoea in healthy people.

In recent years there has been a dramatic increase in the incidence of waterborne *Cryptosporidiosis* associated with the contamination of drinking water with human or animal faeces although the relative contribution of each is, however, currently unknown. Co-infection with *Giardia* and *Campylobacter* also suggests contaminated water, fruit and vegetables and person-to-person as common modes of transmission. Because the conventional indicators of microbial water quality do not necessarily correlate with the presence or concentrations of *Cryptosporidium* accurate identification of its modes of transmission are of critical importance in evaluating water treatment procedures and the public health risk to cryptosporidiosis.

The current techniques for isolating *Cryptosporidium* from water involve filtration and centrifugation on sucrose gradients to concentrate and purify oocysts, followed by immunofluoresence microscopy. Disadvantages of this method include low recovery efficiencies ranging from 80 to less than 1%, long processing times, the need for a highly trained analyst, high cost, an inability to discriminate between pathogenic and non-pathogenic species, an inability to determine viability and non-specific antibody binding.

A genus-specific PCR assay was designed for the specific amplification of a 552bp region of the

18S rRNA gene. Post-amplification endonuclease restriction generated unique digest patterns which enabled differentiation between the four species, *Cryptosporidium muris*, *Cryptosporidium baileyi*, *Cryptosporidium wrairi* and *Cryptosporidium parvum*, the major human pathogen. The assay routinely detected 10 oocysts in purified oocyst preparations but sensitivity was found to be 10^3-10^4 fold lower in environmental samples although inhibition was ameliorated by the use of Chelex resin and an immunomagnetic separation procedure. Rapid and sensitive pathogen detection methods are essential for the water industry and the results demonstrate that PCR has the potential to improve greatly current detection capabilities.

SEROPREVALENCE OF *CAMPYLOBACTER* ANTIBODY IN THE NORTHERN IRELAND POPULATION

J Glenn,[1] J E Moore,[1] H Ball,[2] P Mallon,[1] L Crothers,[1] P G Murphy[1]

1. Northern Ireland Public Health Laboratory, Belfast City Hospital.
2. Department of Bacteriology, Veterinary Sciences Division, Department of Agriculture for Northern Ireland, Stormont, Belfast.

Campylobacter jejuni is the most common cause of acute bacterial gastroenteritis within the Northern Ireland population, with present infection rates approximating 25 cases per 100,000 individuals. This is in contrast to populations from England and Wales and also Scotland, where the infection rates are *circa* 75 and 120 cases per 100,000 individuals respectively. The aim of this study was to determine the seroprevalence of *Campylobacter* antibody in the Northern Ireland population, which may in turn be useful in demonstrating epidemiological differences between populations amongst the various regions within the UK. Previous research has indicated the lower incidence of this disease within this population, and the most up to date figures mirror this statement.

A locally developed monoclonal antibody was employed in an ELISA assay, derived from a common outer membrane protein in *C. jejuni*. The 5A7 monoclonal was developed using the OMP 18 antigen and following bulk growth of clones, ascites was then produced; caprylic acid purified and used for plate coating. From initial determinations using preliminary ELISAs with coating of 1/100 of the purified monoclonal for capturing the antigen and the use of crude *Campylobacter* antigens, it is possible to detect the test positive human sera at a dilution of 1/400. Two human populations were examined in this study, namely (1) serum from ill patients, where a serological test was requested (n = 500) & (2) serum from "healthy" individuals donating blood to the Northern Ireland Blood Transfusion Service (NIBTS) (n =130). Positive controls were taken as serum from hospitalised patients with a well-characterised episode of *Campylobacter* enteritis. Negative controls were selected from patients with X-linked agammaglobulinaemia (XLA) and common variable immunodeficiency (CVI), not on replacement immunoglobulin therapy. Results indicate there is a markedly low seroprevalence of IgG antibody in the healthy population. Statistically, in the patient population significance was found in the older female population ($p< 0.005$) in the 41-50 and 61-70 age groups. Seroprevalence between age groups was significant in males between the 11-20 and the 51-60 age groups.

Overall, it appears that there is a low incidence of *Campylobacter* IgG antibody within the Northern Ireland population, hence indicating a lower exposure and hence lower level of infection by the organism.

Further investigations leading from this study should include the examination of different conjugates in order to classify the infection leading to the presence of antibody in the sera samples as being recent infection (IgM), current infection (IgA) or previous infection or a secondary exposure (IgG) from the bacterium.

The Ulster Medical Journal, Volume 68, No. 1, pp. 46-47, May 1999

Book Reviews

To Comfort Always: A History of Holywell Hospital 1898 - 1998. Marc Mulholland. Homefirst Community Trust. £7.50. ISBN 0953449904

This hundred years record of Holywell Hospital, Antrim, has been very ably written in a far from drab style. Indeed it should appeal to a much wider readership than what might appear from the title. Also for those who may have had occasional contact with Holywell Hospital, they will discover interesting nuggets as well as the more numerical type data.

The beginnings of an institution should always be interesting to read. This, the author has done very successfully. That it arose out of pressure needs because of the growth of Belfast which was then part of County Antrim is understandable. Belfast's former mental hospital, situated on the site of the Royal Maternity Hospital, could not cope and the move had not yet taken place to Purdysburn Hospital.

Indeed the author might have remarked on the similarity between the long corridors of Holywell Hospital and the Royal Victoria Hospital.

This book takes one on a journey of the expansion of the hospital through difficult times, mainly financial as usual, where inpatient bed demands far outstripped their supply. Before the advent of the National Health Service, it was a County Council responsibility. The ratepayers of the time were none too anxious to part with their money to make for decent living conditions for patients, a sizeable number of whom came from Ballymena Workhouse at the beginning of World War One.

The World War produced further difficulties, as did typhoid from unsanitary conditions; and questionably sourced water supply. Oddly enough, tuberculosis does not figure as a problem in the book in the way that it did in overcrowded conditions in other institutions.

The changes in patients' welfare and comforts from the 1948 take-over by the N.H.S., and especially the effective drug treatments in the past forty years are described. It is often insufficiently recognised that the advent of tranquillisers and anti-depressants have produced previously unimaginable improvements in psychiatry comparable to the discovery of antibiotics in general medicine.

The era of the Resident Medical Superintendent, who was a man of authority in asylums and other hospitals is mentioned, but their power can barely be appreciated by present day hospital personnel. The changing legislation, out-patient and day patient growth in numbers, whilst in-patient numbers peaked in 1960, are mentioned with suitable illustrations.

Perhaps the development of satellite departments in Newtownabbey and Ballymoney, and also statements about progress over the past decade are too recent to assess properly. The last chapter of the book however shows that this hospital continues in a vital way to uphold the motto of Homefirst Trust – "To Comfort Always".

This is an easily read book. It conveys some insight into interactions between human beings. Hospitals were very prison-like in many respects during the first half of the century, but the big social changes after World War Two are herein recorded, such as local involvement in dances, football matches, open days etc. Latterly this has given way to closure of unnecessary wards because of reduced pressure both for admission beds and long stay care needs in the hospital.

Perhaps this book will lead to further scholarship about other Mental Hospitals such as the oldest, St Luke's in Armagh, formerly Armagh Asylum built in 1825; and indeed the County General Hospitals have an interesting past which should be recorded. I hope this book finds the readership it deserves, not only or even chiefly, in psychiatric personnel and contacts, but among the population of County Antrim and Belfast in general.

W A GORDON MacCALLUM

Organ Allocation. Proceedings of the 30th International Conference on Transplantation and Clinical Immunology 2-4 June 1998. Edited by J L Touraine *et al.* Kluwer Academic Publishers. ISBN 0792350774. £92.

This review explores the many factors which impinge on the availability of organs for transplantation. While renal transplantation is a long established procedure, transplants of liver, heart/lung, bone marrow and pancreas are now also becoming routine. The success of transplantation has increased public expectations without an equivalent improvement in the supply of suitable organs for donation.

The main challenge remains the need to greatly increase the supply of organs for transplantation whether from cadaveric of live donors. Strategies to increase the availability of organs must be promoted at a national/regional level. Among the essentials are a legal framework which recognises "Opting Out", whereby everyone is presumed a potential donor, unless they have previously signalled the contrary. Furthermore a wider group of potential donors probably need to be considered, including those of older ages than previously considered optimal. "Live kidney donors" including unrelated donors, are a further source of possible supply. This raises particular concerns since relatives may feel under a sense of obligation or emotional blackmail to become donors.

The book contains information on the success of countries which have already embraced the changes not yet applied in the UK. These have resulted in an increased supply of organs for transplantation. On the other hand, there is a suggestion that increased availability leads to increased demand.

No western country has as yet, solved the imbalance of supply and demand with even those who have adopted "Opting Out" legislation unable to meet increasing demand. This book provides challenge to the Health Care Sector in Northern Ireland to aspire to become more self-sufficient at least in overall numbers of organs donated.

PAUL DARRAGH

Management of Injuries in Children. John F T Glasgow, H Kerr Graham. BMJ Publishing 1997. ISBN 0 72 79 0925 8.

This book has been written as an introduction to the assessment and management of the injured child principally for the junior doctor working in an A&E department. It is written in a

The Ulster Medical Journal, Volume 68, No. 1, pp. 46-47, May 1999

Book Reviews

To Comfort Always: A History of Holywell Hospital 1898 - 1998. Marc Mulholland. Homefirst Community Trust. £7.50. ISBN 0953449904

This hundred years record of Holywell Hospital, Antrim, has been very ably written in a far from drab style. Indeed it should appeal to a much wider readership than what might appear from the title. Also for those who may have had occasional contact with Holywell Hospital, they will discover interesting nuggets as well as the more numerical type data.

The beginnings of an institution should always be interesting to read. This, the author has done very successfully. That it arose out of pressure needs because of the growth of Belfast which was then part of County Antrim is understandable. Belfast's former mental hospital, situated on the site of the Royal Maternity Hospital, could not cope and the move had not yet taken place to Purdysburn Hospital.

Indeed the author might have remarked on the similarity between the long corridors of Holywell Hospital and the Royal Victoria Hospital.

This book takes one on a journey of the expansion of the hospital through difficult times, mainly financial as usual, where inpatient bed demands far outstripped their supply. Before the advent of the National Health Service, it was a County Council responsibility. The ratepayers of the time were none too anxious to part with their money to make for decent living conditions for patients, a sizeable number of whom came from Ballymena Workhouse at the beginning of World War One.

The World War produced further difficulties, as did typhoid from unsanitary conditions; and questionably sourced water supply. Oddly enough, tuberculosis does not figure as a problem in the book in the way that it did in overcrowded conditions in other institutions.

The changes in patients' welfare and comforts from the 1948 take-over by the N.H.S., and especially the effective drug treatments in the past forty years are described. It is often insufficiently recognised that the advent of tranquillisers and anti-depressants have produced previously unimaginable improvements in psychiatry comparable to the discovery of antibiotics in general medicine.

The era of the Resident Medical Superintendent, who was a man of authority in asylums and other hospitals is mentioned, but their power can barely be appreciated by present day hospital personnel. The changing legislation, out-patient and day patient growth in numbers, whilst in-patient numbers peaked in 1960, are mentioned with suitable illustrations.

Perhaps the development of satellite departments in Newtownabbey and Ballymoney, and also statements about progress over the past decade are too recent to assess properly. The last chapter of the book however shows that this hospital continues in a vital way to uphold the motto of Homefirst Trust – "To Comfort Always".

This is an easily read book. It conveys some insight into interactions between human beings. Hospitals were very prison-like in many respects during the first half of the century, but the big social changes after World War Two are herein recorded, such as local involvement in dances, football matches, open days etc. Latterly this has given way to closure of unnecessary wards because of reduced pressure both for admission beds and long stay care needs in the hospital.

Perhaps this book will lead to further scholarship about other Mental Hospitals such as the oldest, St Luke's in Armagh, formerly Armagh Asylum built in 1825; and indeed the County General Hospitals have an interesting past which should be recorded. I hope this book finds the readership it deserves, not only or even chiefly, in psychiatric personnel and contacts, but among the population of County Antrim and Belfast in general.

W A GORDON MacCALLUM

Organ Allocation. Proceedings of the 30th International Conference on Transplantation and Clinical Immunology 2-4 June 1998. Edited by J L Touraine *et al.* Kluwer Academic Publishers. ISBN 0792350774. £92.

This review explores the many factors which impinge on the availability of organs for transplantation. While renal transplantation is a long established procedure, transplants of liver, heart/lung, bone marrow and pancreas are now also becoming routine. The success of transplantation has increased public expectations without an equivalent improvement in the supply of suitable organs for donation.

The main challenge remains the need to greatly increase the supply of organs for transplantation whether from cadaveric of live donors. Strategies to increase the availability of organs must be promoted at a national/regional level. Among the essentials are a legal framework which recognises "Opting Out", whereby everyone is presumed a potential donor, unless they have previously signalled the contrary. Furthermore a wider group of potential donors probably need to be considered, including those of older ages than previously considered optimal. "Live kidney donors" including unrelated donors, are a further source of possible supply. This raises particular concerns since relatives may feel under a sense of obligation or emotional blackmail to become donors.

The book contains information on the success of countries which have already embraced the changes not yet applied in the UK. These have resulted in an increased supply of organs for transplantation. On the other hand, there is a suggestion that increased availability leads to increased demand.

No western country has as yet, solved the imbalance of supply and demand with even those who have adopted "Opting Out" legislation unable to meet increasing demand. This book provides challenge to the Health Care Sector in Northern Ireland to aspire to become more self-sufficient at least in overall numbers of organs donated.

PAUL DARRAGH

Management of Injuries in Children. John F T Glasgow, H Kerr Graham. BMJ Publishing 1997. ISBN 0 72 79 0925 8.

This book has been written as an introduction to the assessment and management of the injured child principally for the junior doctor working in an A&E department. It is written in a

The Ulster Medical Journal, Volume 68, No. 1, pp. 46-47, May 1999

Book Reviews

To Comfort Always: A History of Holywell Hospital 1898 - 1998. Marc Mulholland. Homefirst Community Trust. £7.50. ISBN 0953449904

This hundred years record of Holywell Hospital, Antrim, has been very ably written in a far from drab style. Indeed it should appeal to a much wider readership than what might appear from the title. Also for those who may have had occasional contact with Holywell Hospital, they will discover interesting nuggets as well as the more numerical type data.

The beginnings of an institution should always be interesting to read. This, the author has done very successfully. That it arose out of pressure needs because of the growth of Belfast which was then part of County Antrim is understandable. Belfast's former mental hospital, situated on the site of the Royal Maternity Hospital, could not cope and the move had not yet taken place to Purdysburn Hospital.

Indeed the author might have remarked on the similarity between the long corridors of Holywell Hospital and the Royal Victoria Hospital.

This book takes one on a journey of the expansion of the hospital through difficult times, mainly financial as usual, where inpatient bed demands far outstripped their supply. Before the advent of the National Health Service, it was a County Council responsibility. The ratepayers of the time were none too anxious to part with their money to make for decent living conditions for patients, a sizeable number of whom came from Ballymena Workhouse at the beginning of World War One.

The World War produced further difficulties, as did typhoid from unsanitary conditions; and questionably sourced water supply. Oddly enough, tuberculosis does not figure as a problem in the book in the way that it did in overcrowded conditions in other institutions.

The changes in patients' welfare and comforts from the 1948 take-over by the N.H.S., and especially the effective drug treatments in the past forty years are described. It is often insufficiently recognised that the advent of tranquillisers and anti-depressants have produced previously unimaginable improvements in psychiatry comparable to the discovery of antibiotics in general medicine.

The era of the Resident Medical Superintendent, who was a man of authority in asylums and other hospitals is mentioned, but their power can barely be appreciated by present day hospital personnel. The changing legislation, out-patient and day patient growth in numbers, whilst in-patient numbers peaked in 1960, are mentioned with suitable illustrations.

Perhaps the development of satellite departments in Newtownabbey and Ballymoney, and also statements about progress over the past decade are too recent to assess properly. The last chapter of the book however shows that this hospital continues in a vital way to uphold the motto of Homefirst Trust – "To Comfort Always".

This is an easily read book. It conveys some insight into interactions between human beings. Hospitals were very prison-like in many respects during the first half of the century, but the big social changes after World War Two are herein recorded, such as local involvement in dances, football matches, open days etc. Latterly this has given way to closure of unnecessary wards because of reduced pressure both for admission beds and long stay care needs in the hospital.

Perhaps this book will lead to further scholarship about other Mental Hospitals such as the oldest, St Luke's in Armagh, formerly Armagh Asylum built in 1825; and indeed the County General Hospitals have an interesting past which should be recorded. I hope this book finds the readership it deserves, not only or even chiefly, in psychiatric personnel and contacts, but among the population of County Antrim and Belfast in general.

W A GORDON MacCALLUM

Organ Allocation. Proceedings of the 30th International Conference on Transplantation and Clinical Immunology 2-4 June 1998. Edited by J L Touraine *et al.* Kluwer Academic Publishers. ISBN 0792350774. £92.

This review explores the many factors which impinge on the availability of organs for transplantation. While renal transplantation is a long established procedure, transplants of liver, heart/lung, bone marrow and pancreas are now also becoming routine. The success of transplantation has increased public expectations without an equivalent improvement in the supply of suitable organs for donation.

The main challenge remains the need to greatly increase the supply of organs for transplantation whether from cadaveric of live donors. Strategies to increase the availability of organs must be promoted at a national/regional level. Among the essentials are a legal framework which recognises "Opting Out", whereby everyone is presumed a potential donor, unless they have previously signalled the contrary. Furthermore a wider group of potential donors probably need to be considered, including those of older ages than previously considered optimal. "Live kidney donors" including unrelated donors, are a further source of possible supply. This raises particular concerns since relatives may feel under a sense of obligation or emotional blackmail to become donors.

The book contains information on the success of countries which have already embraced the changes not yet applied in the UK. These have resulted in an increased supply of organs for transplantation. On the other hand, there is a suggestion that increased availability leads to increased demand.

No western country has as yet, solved the imbalance of supply and demand with even those who have adopted "Opting Out" legislation unable to meet increasing demand. This book provides challenge to the Health Care Sector in Northern Ireland to aspire to become more self-sufficient at least in overall numbers of organs donated.

PAUL DARRAGH

Management of Injuries in Children. John F T Glasgow, H Kerr Graham. BMJ Publishing 1997. ISBN 0 72 79 0925 8.

This book has been written as an introduction to the assessment and management of the injured child principally for the junior doctor working in an A&E department. It is written in a

flowing style and in an easily digestible format. It contains a good deal of useful information, bringing together the principles of advanced life support, and a guide to the diagnosis and management of fractures (occupying five of the 15 chapters). The book also encompasses the epidemiology and control and prevention of injury as separate chapters. The text is written from the perspective of individual injuries, and covers in some detail and in a logical and methodical manner the cause of injury, and assessment and treatment of injured children. Throughout the book the differential diagnosis of non accidental injury recurs and the importance of recognition of history and pattern of injury is emphasised. There is a useful section on child abuse and guidance on the preparation of medico-legal evidence. The book is comprehensively illustrated with tables, line drawings and photographs. However some of the subject matter is based upon individual practice and in particular a section on Bier Block regional anaesthesia for the reduction of limb fractures using Lignocaine at a dose of 3 mg/kg could not be considered standard practice, particularly by an inexperienced SHO.

Since it is clearly aimed at that particular audience, I have gathered the views of my own A&E SHOs. All found the book readable, one describing its style as "like a novel". The consensus view was that the book would be useful in the on-call room as general reading, but not suitable for the white coat pocket. In particular the sections on fracture management were commended as being comprehensive and useful.

This text is a useful resource for those whose practice may involve the assessment or treatment of injured children and as such would be valuable reading for an A&E SHO. Because of its style and size it is not a rapid reference guide but rather should be viewed as preparatory reading. Those contemplating the purchase of this book should also consider Paediatric Emergencies by Beattie, Hendry & Duguid (Mosney Wolfe, 1997: ISBN 0 7234 1673 7).

L A McKINNEY

Endocrine Autoimmunity and Associated Conditions. Edited by Anthony Weetman. 1998 Kluwer Academic Publishers. pp 292. ISBN 0 7923 5042 1.

Autoimmunity owes much to endocrinology for helping to clarify and establish this basic principle of disease pathogenesis which has subsequently been realised to be applicable to many other diseases. Equally, as a concept, it has continued to provide a tantalising research challenge to immunologist, geneticist and clinician alike. Undoubtedly we have come a long way over the last four decades since autoimmunity was postulated as the aetiological agent in experimental and human autoimmune thyroiditis, and since the formal documentation of insulitis in short duration IDDM patients in 1965.

This book seeks to present advances in our understanding of the immunology of endocrine autoimmunity within the framework of a coherent and cohesive text not readily available from other single sources. It deals primarily with two major endocrine disorders: thyroid disease and type 1 diabetes mellitus. Under thyroid disorders, there is an initial chapter on animal models of autoimmune thyroiditis followed by chapters on thyroid autoantigens, autoimmune autoantigens, Graves' disease, postpartum thyroiditis and thyroid-associated exophthalmopathy. Discussion on diabetes focuses around beta cell antigens and the aetiology and pathogenesis of type 1 diabetes. Of considerable interest are 5 remaining chapters on rather more miscellaneous conditions including Addison's disease and related polyglandular endocrinopathies, premature ovarian failure, pituitary autoimmunity, pernicious anaemia and vitiligo. In each chapter, the aetiology, pathogenesis and treatment are discussed in detail. The book clearly highlights some of the more problematic areas such as thyroid exophthalmopathy, treatment of which must be accompanied by elucidation of disease pathogenesis.

Does the book succeed in its goals? It certainly provides an authoritative and informative update on a variety of immunologically mediated diseases by a series of respected national and international authors. Every chapter in the book discusses new developments, but they also clearly define limits of knowledge. Within a single volume it offers information which would only otherwise be obtained with difficulty and much searching of the literature. Perhaps the photographs could have been improved and presented in colour as the quality of micrographs, X-rays and bar diagrams is poor. An additional chapter on methodological pitfalls in interpretation of laboratory assays caused by interfering proteins such as thyroid assays and macroprolactin would have been helpful.

The book is a reference tool for a library or departmental bookshelf rather than perhaps a personal collection. It is one of a planned series of books covering specialist areas of medicine with diseases of immunological importance and aiming to provide a continuous update over a 4 year cycle. It may be that a CD ROM tool would facilitate this learning. I have no doubt however that the editors will succeed in their goals.

DAVID R McCANCE

BOOK RECEIVED

Strength and Compassion in Kidney Failure. Barrie Friedman. Kluwer Academic Publishers. £61. ISBN 0 7923 5235 1. Published 27.08.98.

flowing style and in an easily digestible format. It contains a good deal of useful information, bringing together the principles of advanced life support, and a guide to the diagnosis and management of fractures (occupying five of the 15 chapters). The book also encompasses the epidemiology and control and prevention of injury as separate chapters. The text is written from the perspective of individual injuries, and covers in some detail and in a logical and methodical manner the cause of injury, and assessment and treatment of injured children. Throughout the book the differential diagnosis of non accidental injury recurs and the importance of recognition of history and pattern of injury is emphasised. There is a useful section on child abuse and guidance on the preparation of medico-legal evidence. The book is comprehensively illustrated with tables, line drawings and photographs. However some of the subject matter is based upon individual practice and in particular a section on Bier Block regional anaesthesia for the reduction of limb fractures using Lignocaine at a dose of 3 mg/kg could not be considered standard practice, particularly by an inexperienced SHO.

Since it is clearly aimed at that particular audience, I have gathered the views of my own A&E SHOs. All found the book readable, one describing its style as "like a novel". The consensus view was that the book would be useful in the on-call room as general reading, but not suitable for the white coat pocket. In particular the sections on fracture management were commended as being comprehensive and useful.

This text is a useful resource for those whose practice may involve the assessment or treatment of injured children and as such would be valuable reading for an A&E SHO. Because of its style and size it is not a rapid reference guide but rather should be viewed as preparatory reading. Those contemplating the purchase of this book should also consider Paediatric Emergencies by Beattie, Hendry & Duguid (Mosney Wolfe, 1997: ISBN 0 7234 1673 7).

L A McKINNEY

Endocrine Autoimmunity and Associated Conditions. Edited by Anthony Weetman. 1998 Kluwer Academic Publishers. pp 292. ISBN 0 7923 5042 1.

Autoimmunity owes much to endocrinology for helping to clarify and establish this basic principle of disease pathogenesis which has subsequently been realised to be applicable to many other diseases. Equally, as a concept, it has continued to provide a tantalising research challenge to immunologist, geneticist and clinician alike. Undoubtedly we have come a long way over the last four decades since autoimmunity was postulated as the aetiological agent in experimental and human autoimmune thyroiditis, and since the formal documentation of insulitis in short duration IDDM patients in 1965.

This book seeks to present advances in our understanding of the immunology of endocrine autoimmunity within the framework of a coherent and cohesive text not readily available from other single sources. It deals primarily with two major endocrine disorders: thyroid disease and type 1 diabetes mellitus. Under thyroid disorders, there is an initial chapter on animal models of autoimmune thyroiditis followed by chapters on thyroid autoantigens, autoimmune autoantigens, Graves' disease, postpartum thyroiditis and thyroid-associated exophthalmopathy. Discussion on diabetes focuses around beta cell antigens and the aetiology and pathogenesis of type 1 diabetes. Of considerable interest are 5 remaining chapters on rather more miscellaneous conditions including Addison's disease and related polyglandular endocrinopathies, premature ovarian failure, pituitary autoimmunity, pernicious anaemia and vitiligo. In each chapter, the aetiology, pathogenesis and treatment are discussed in detail. The book clearly highlights some of the more problematic areas such as thyroid exophthalmopathy, treatment of which must be accompanied by elucidation of disease pathogenesis.

Does the book succeed in its goals? It certainly provides an authoritative and informative update on a variety of immunologically mediated diseases by a series of respected national and international authors. Every chapter in the book discusses new developments, but they also clearly define limits of knowledge. Within a single volume it offers information which would only otherwise be obtained with difficulty and much searching of the literature. Perhaps the photographs could have been improved and presented in colour as the quality of micrographs, X-rays and bar diagrams is poor. An additional chapter on methodological pitfalls in interpretation of laboratory assays caused by interfering proteins such as thyroid assays and macroprolactin would have been helpful.

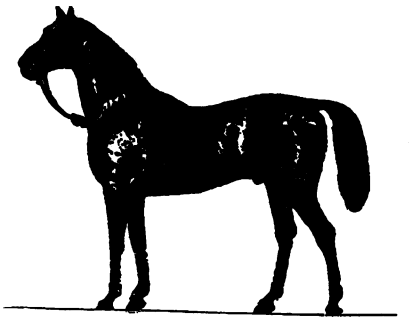
The book is a reference tool for a library or departmental bookshelf rather than perhaps a personal collection. It is one of a planned series of books covering specialist areas of medicine with diseases of immunological importance and aiming to provide a continuous update over a 4 year cycle. It may be that a CD ROM tool would facilitate this learning. I have no doubt however that the editors will succeed in their goals.

DAVID R McCANCE

BOOK RECEIVED

Strength and Compassion in Kidney Failure. Barrie Friedman. Kluwer Academic Publishers. £61. ISBN 0 7923 5235 1. Published 27.08.98.

Medical Equestrian Association of Northern Ireland



The Medical Equestrian Association of Northern Ireland is now 10 years old. Formed in 1988 with Millar Bell as founding Chairman, its members have acted as Medical Officers at many equestrian events and are actively involved in the safety of all who ride in Northern Ireland.

AIMS:

1. Improvement of cover at Equestrian events. This includes advice to Organisers regarding standards of cover required.
2. To provide training for members in the management of Equestrian accidents.
3. Education of the Equestrian world and first aid personnel in the hazards of horse riding and the management of Equestrian injuries.
4. The monitoring and assessment of protective clothing for riders.

The Medical Equestrian Association is affiliated to the M.E.A. (G.B.) and there are also Associations in Ireland, Canada, U.S.A. and Australia. An international meeting is planned for Sydney in 2000.

Meetings are held throughout the Province and we are often addressed by distinguished guest speakers who are experts in their field. Post Graduate educational courses are held to keep our members up to date and a certificate is issued on successful completion.

We are concerned about the legal implications of accidents in which horses are involved.

We invite all doctors with an equestrian interest, whose families are involved in any of the equestrian disciplines, or who ride in their leisure time to come and join our Association.

Annual Subscription £15 ***Husband & Wife £20***

Please apply to:

Hon. Secretary: Dr. Diana Browne, 18A Monalla Road, Ballinamallard, Co. Fermanagh, BT94 2GS.

Telephone: 01365 324377 003537166132