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[continued on back cover

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The Ulster Medical Journal

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THE ULSTER MEDICAL JOURNAL

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Erratum:

The Throne Hospital and Early Plastic Surgery in Northern Ireland J Colville. Vol. 67 November 1998. Pages 117 - 120

The following reference to Mr Wilbert Dickie was inadvertently omitted from this paper at the proof stage. It should have appeared as follows:

"In 1951 Wilbert Dickie joined the staff as a second plastic surgeon and on 4 February 1951 is noted to have excised a naevus. On 8 February 1951 he and Norman Hughes jointly dealt with what appears to have been extensive burns of the neck, trunk and arms. Dr Love was the anaesthetist."

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The Ulster Medical Journal, Volume 68, No. 2, pp. 49-53, November 1999.

Sir Ian Fraser 1901-1999

Peter Froggatt

Ian Fraser died at his residence, 19 Upper Malone Road, on 11th May in his ninety-ninth year. He had been a significant force in Ulster surgery, indeed the entire Ulster medical scene, almost from his appointment as an 'honorary attending surgeon in charge of the out-patient department' at the then Belfast Hospital for Sick Children (in Queen Street) in 1927 until late in life; and he was to receive wide national and international recognition. An acute sense of history was not the least of his gifts and all writers on local medical history owe much to his perceptive sketches of predecessors and earlier contemporaries.

A memorial service was held in Fisherwick Church on 2nd July. The family honoured me in their invitation to give a Tribute – which is reproduced below. I have added some notes which with standard reference sources, Ian's own autobiographical sketches, the Fraser Archive in the Archivist's office at RVH and other material preserved by his son, will I hope, provide sufficient background information to tempt the future biographer whom Fraser's life so richly deserves.

TRIBUTE

2nd July 1999

When President Reagan's father-in-law, the neuro-surgeon Loyal Davis,[1] was admitted an honorary Fellow of the Royal College of Surgeons in Ireland, at a ceremony in the White House, Ian Fraser, aged 80, the unchallenged *doyen* of Irish surgeons, read the citation. "Dr Davis, it is interesting to see that one man can be an editor, a teacher, an administrator, a surgeon and a soldier – such is given to very few".[2] Rembrandt never painted so faithful a self-portrait, since with these words Ian could have been painting himself.

For Ian James Fraser – though as he said "I later threw the James away" [3] – combined exceptional qualities with a Midas touch. He had a captivating personality – gregarious and warm-hearted he exuded irrepressible vitality and an infectious charm which delighted and enriched all who met him. He was also blessed with the common touch: as was said of Sir Thomas Myles, a previous President of the College: "He was at home with the highest as the lowest were at home with him".[4] Invariably courteous and congenial with an understated but sophisticated humour, he was forever cheerful and cheering: no-one ever saw Ian despondent or morose. He was a Cheshire Cat – a smile, or more precisely an aura of vivaciousness, which lingered after the rest had gone.

Ian was greatly influenced by his father, an east Belfast general practitioner versed in the classics.[5] Sadly, tragedy struck early; Ian's mother died when he was not yet two;[6] but he grew up in a happy home with his father, step-mother,[7] and half sister,[8] as later he was to enjoy unalloyed contentment with his wife Eleanor,[9] his daughter Mary-Alice, his son Mark and the whole extended family, and at the age of nearly 90 could write sincerely and for public consumption: "I have had a very happy home life, entirely due to my wife and our two children".[10]

At "Inst" [11] and later at Queen's his keen and disciplined intellect, his remarkable memory which never left him, and his enthusiastic application, made him a glittering prizeman with the singular distinction of being placed first in all the then four subjects in Finals with over 80% in each.[12] He took first place again in both parts of the Irish surgical Fellowship, added the English Fellowship and the Queen's University Master of Surgery with the now inevitable honours,[13] studied in London, Paris and Vienna, and when only 26 was appointed to the consulting staff of the Belfast Hospital for Sick Children[14] where he combined clinical and investigative work, published quite widely in front-line journals,[15] added an MD by thesis,[16] and by 1939 was rewarded with election as Fellow of the Royal Society of Edinburgh,[17] which was then I think unique among the Ulster fraternity. But his major interests were clinical

and practical, not academic, and in tandem with his developing consulting practice he started his life-long and wholehearted involvement with the St John Ambulance Brigade which he re-invigorated: with barely 150 members in Northern Ireland in 1931 it grew under Ian's command to nearly 2000 by 1940, while he himself scaled its dizzy heights: he became the first Bailiff Grand Cross from Ulster, and at the precocious age of 39 he was made an OBE for his success.[18] Inevitably there were disappointments: he was passed over for consultant posts at the Royal in favour of older men.[19] There was also grief: his first-born son died at the age of two.

The War enlarged the stage on which Ian could deploy his already evident qualities and add some others. He volunteered at once and was posted to West Africa, dallying in Belfast only long enough to see his second son, Mark, born and to remove my appendix! His wartime exploits are well-known, and not just from his own pen. They merit mention. How he was recalled from being RAMC consultant surgeon to the four British West African colonies to lead a team in trials of the first batches of penicillin in battle conditions; his proving that it was essential to use the drug early after trauma and in consequence his necessarily exchanging the safety and comfort of base hospitals for the hazards and exigencies of assault units; his D-Day landings during the Italian invasions, his winning the DSO at Salerno, his wading waist-deep ashore on the Arromanches beaches in Normandy; his marathon operating sessions under fire; his command of a vast tented hospital at Bayeux; his final posting to GHQ Central Command, India, with the rank of brigadier; and, in recognition, his honorary colonelcy of two Territorial RAMC units.[20] Physical courage, endurance, and high organisational ability were now added to his existing formidable battery of attributes. And there was another one which was to ensure much later success – the confidence which colleagues, seniors and juniors alike, reposed in his ability and integrity.[21]

He returned in 1945 to what he called "a lean time", but it wasn't lean for long. Following appointment to the Royal Victoria consultant staff he was to enjoy uninterrupted success; but first he had to face a difficult career choice. Always an inspiring teacher, a gifted speaker and a brilliant *raconteur*, he had been an assistant to and protégé of the professor of surgery, Andy Fullerton, and also a surgical registrar and tutor at the Royal, and a highly effective "grinder" with an enviable success rate among his students. In 1947 he was approached to apply for the vacant chair of surgery at Queen's.[22] He demurred, but declined: he was too gregarious for the library and laboratory; too fond of animals to sacrifice them even for science, especially dogs now coming into surgical experimentation. His dedicated path lay in national health service and private consultant practice; but he didn't forget the University which he loved and served through long-time membership of the Senate, the Queen's University Association, Convocation, the Board of Curators, and other committees, where I had the benefit of his shrewdness and as a judge of people.

Ian's subsequent career reads like a lengthy entry of one of the great and the good in *Who's Who* – as indeed it is. It is tempting, but inexpedient, to litanise his achievements here, but some common threads can help us to understand the driving forces in his life and the sometimes perplexing antinomies in his nature. The most striking is the almost pre-ordained inevitability of his being elected to be President or Chairman of any important body on which he served, be it within his profession – as with the Irish College of Surgeons, the British Medical Association, the Association of Surgeons of Great Britain and Northern Ireland, the Ulster Medical Society, the Ulster Surgical Club, or in other avocations as with the Northern Ireland Police Authority, Queen's University Convocation, Queen's Association, his school's Former Pupils Association, its Rugby Club and others. This is a measure of his commitment, ability, popularity, wide acceptability and the trust and confidence reposed in him by his colleagues and the powers that be. The very number of such bodies indicates his energy; the range indicates his wide professional interests and loyalties, and his non-medical activities – not every doctor is founder of a major surgical association,[23] a member of a Regimental Benevolent Fund and a Defence Advisory Council, an adviser to government on medical education, Deputy Lieutenant of his city, a surgeon-in-ordinary to the Queen's representative, a council member of BUPA and MDU, a patron of voluntary societies, a governor of his old school, and a director of a commercial bank![24] And his recognition was not parochial: honours from America and several European

countries, including Chevalier de la Légion d'Honneur of France,[25] jostled with many from home, and he was in wide demand as a lecturer and speaker, especially on medical history and in *Retrospects* of which he was a master and which he enjoyed. He was also in demand as an examiner, delegate and representative long beyond normal retirement, a mark in the sand he easily stepped over – perhaps in fact never saw – since formal "retirement" was unknown to him. Until nearly the end he bounced around the world like a lively rubber-ball, a great ambassador for Ulster and Irish surgery, as liked and respected, and above all *enjoyed*, in Washington, Paris and Moscow, as in London, Dublin and Belfast; and he could discuss Irish silver and antiques, professional memorabilia, sport and cultural affairs as readily as the history, development and practice of surgery. But people were central in Ian's scheme of things. He enjoyed them, empathised with them, could console and cheer them, and his medical historical writings and reminiscences were firmly focused on people, their events and institutions, but rarely with ideas as such, which were too arcane, too abstruse and bloodless for the warmth of his spirit.[26]

Ian was unquestionably a man of very high ambition who sought, found and enjoyed success. Success receives plaudits but can excite envy, and like all successful men, Ian at times had his detractors. But his ambition was not predatory: he neither demeaned nor trampled on anyone in his march to the top; in fact he was a help to most. Nor did his ambition o'er-leap itself: it drove him to success, not to decline and fall, his stock was never higher than in his later years, and he died mourned, respected, and admired by all. For Ian really *liked* people and was helpful and generous especially to juniors. When President of the Belfast Medical Students Association in 1939, he took the student officers to London to see hospitals, but also to Twickenham to see Sinclair Irwin[27] score the only, and winning, try for Ireland; and on his 90th birthday he gave his entire collection of bleeding bowls to his former assistants. When I retired from Queen's he insisted on making the dinner speech, even though aged 85: flatteringly he wanted to say nice things about me even though I had never served him, never received his patronage, never been in a position to help him or show him any favours. He was like that. Two years later he took a triple coronary by-pass in his stride, saw everyone who visited him (to the Sister's annoyance) and voluntarily cut short his period of convalescence. He was like that also. Two months before he died, when already 98, he was one of the few members of the BMA Eastern Division (Northern Ireland) to send written apologies for inability to attend a stated meeting, while most of the absentees didn't bother. Impeccably courteous: he was like that also. The profession in Ulster is fortunate to have had him, and in death his reputation and example, and our warm memories of him, will go marching on.

When Laurence Sterne decided to put his larger-than-life father into his book *Tristram Shandy*, he had to make two of him: Walter Shandy and Uncle Toby. The real man was too much for one character. I feel the same about Ian; my only doubt is that two characters may not be enough.

At the end of his published Memoirs Ian wrote: "I have had one of the happiest lives that any man could wish for". He would have seen this as a fitting epitaph. No doubt it is; but it is too mono-dimensional, almost too suggestive of hedonism, and of a bland Colgate-smiling cardboard cut-out moral Thespian, for such a multi-faceted doctor who took his high calling with the utmost pride and seriousness. I think Shakespeare, with this dilemma in mind, did better – as he made Anthony say over the body of Brutus:

> His life was gentle, and the elements
> So mixed in him that Nature might stand up
> And say to all the World, ' This was a man'.

NOTES

1. Distinguished neuro-surgeon. MD (1918), MS (1921). Professor of surgery (Northwestern) from 1932; consultant surgeon, Passavant Memorial Hospital, Chicago, from 1929. President, American Surgical Association (1957), and American College of Surgeons (1962-3). Honoured by, among others, RCS (FRCS, h.c., 1955), RCSE (FRCSE, h.c., 1959) and RCSI (FRCSI, h.c., 1981). Father of Nancy Reagan.
2. Full text of the citation is in the family archive.
3. Interview by June Sheppard. *Ulster Tatler*, March 1982, p.148.
4. Lyons, J B. *An Assembly of Irish Surgeons*. Glendale Press and RCSI: Dublin, 1984, p.13.
5. Robert Moore Fraser, BA, MD (RUI). Read classics before medicine. A single-handed GP on the Albertbridge Road.
6. Margaret, daughter of Adam Boal Ferguson, a farmer. Died of tuberculosis.
7. Alice Cuthbert, daughter of Dr Alexander Cuthbert of Derry (who died of typhus).

8. Margaret, still alive, unmarried, and approaching ninety.
9. Eleanor Margaret *née* Mitchell. There were three children: John (died aged two of tuberculous meningitis); Mary-Alice (married Roy Trustram-Eve, 1962); Mark, FRCSI (married Veronica Higginson) is a GP in Kent. Mr Frank MacLaughlin, FRCS, the ENT surgeon, was best man.
10. Fraser, I. *Blood, Sweat and Cheers*. BMJ: London, 1989, p.143.
11. *RBAI School News*. No.301 (Midsummer 1999), pp.186-7. Fraser was at RBAI, 1913-18.
12. Letter of Application and Testimonials in favour of Ian Fraser, MD, MCh, BAO, FRCS (Engl.), FRCSI for the Post of Honorary Assistant Surgeon to the Royal Victoria Hospital, Belfast. September 1933, (RVH archive); *Calendars, Queen's University of Belfast.* See under dates.
13. In June 1927: in fact 'with commendation' since 'honours' were not awarded in a Masters degree.
14. Calwell, H G. *The Life and Times of a Voluntary Hospital. The History of the Royal Belfast Hospital for Sick Children, 1873 to 1948.* Brough, Cox and Dunn: Belfast, 1973, p.83.
15. I have identified the following articles and communications in professional journals up to 1939 when he was elected FRS (Edinb). All are single-authored.

    The cotton-wool sandwich. *Med Press Circl* 1930; **158**: 435-6.

    Prolapse of the rectum in children. *Brit Med J* 1930; **i**: 1047.

    Foreign body in the vagina. *Brit Med J* 1930; **ii**: 308.

    Purpura simulating the acute abdomen. *Lancet* 1930; **2**: 525.

    Rupture of the spleen. *Clin J* 1930; **59**: 439-41.

    A rare neck cyst. *Brit J Surg* 1930; **18**: 338-9.

    Cancer of the mouth. *Brit Dent J* 1930; **51**: 1270-81.

    Septicaemia from minor wounds. *Brit Med J* 1931; **i**: 242.

    Ectopic kidney. *Brit Med J* 1932; **i**: 128.

    A very large bursa. *Lancet* 1932; **1**: 290-1.

    Diverticulitis of the colon. *Ulster Med J* 1932; **1**: 99-104.

    Thyroid extract and pulmonary embolus. *Brit Med J* 1932; **i**: 659.

    Towel for suprapubic prostatectomy. *Brit Med J* 1933; **i**: 277.

    Sorry mistaken diagnoses in acute appendicitis. *Brit Med J* 1933; **i**: 310-1.

    Diverticula of the jejuno-ileum. *Brit J Surg* 1933; **21**: 183-211.

    The treatment and prognosis of acute osteomyelitis. *Ulster Med J* 1933; **2**: 303-7.

    An unsuspected foreign body in the hand. *Lancet* 1933; **2**: 921.

    Fragilitas ossium tarda. *Brit J Surg* 1934, **22**: 231-40.

    The treatment of varicose veins. *Ulster Med J* 1935; **4**: 105-12.

    The injection treatment of varicose veins. *Clin J* 1936; **65**: 331-7.

    Note on the Steinach II operation for the enlarged prostate. *Ulster Med J* 1937; **6**: 56-9.

    Recurrent intussusception in a young child. *Lancet* 1939; **1**: 874-5.

    The International Society of Surgery. *Ulster Med J* 1939; **8**: 46-7.
16. Causation, Pathology and Treatment of Diverticula of the Small and Large Intestine. MD thesis (QUB), December 1932.
17. Six Fellows (at least four were required under Rule 350) supported Fraser's application in October 1938 and he was elected on 6th March 1939. (Personal communication from The Royal Society of Edinburgh).
18. Fraser became honorary secretary of the St John Ambulance Association in Northern Ireland in 1931 and the first Commissioner of the new Northern Ireland (Ulster) District Brigade in 1932. He progressed to a Commander of the Order in 1935, Knight in 1941, received the Long Service Medal in 1945, became a founder member of the Order's Committee for Northern Ireland (1947-1952) and then of the Chapter of the Commandery of Ards at its formation in 1952, Knight Commander in 1955, and a Member of the Chapter-General (and attended regularly until he was 94), then Lieutenant in 1968 and finally Bailiff Grand Cross in 1974, the first from Northern Ireland.
19. There are two 'Letters of Application' from Fraser in the RVH archive dated March 1930 and September 1933 both for the post of Honorary Assistant Surgeon. Neither was successful. It is likely that Cecil Woodside was preferred for the latter and possibly Barney Purce for the former. Both were older than Fraser and had served in the RAMC in World War I, both crucial advantages.
20. Of No. 107 Field Ambulance TA, RAMC (1948-1971), and of No. 204 General Hospital TA, RAMC (1961-1971).
21. Fraser's wartime exploits are described in several autobiographical sketches, the main ones being: *Blood, Sweat and Cheers* (note 10 above), pp.33-72; Penicillin: early trials in war casualties. *Brit Med J* 1984; **289**: 1723-5; Random recollections of world War II. *Ulster Med J* 1994; **63**: 201-13 (a fuller text is in the RVH archive); and 'Invasion of France: British general hospital at Bayeux' written (in French) for the *Free French Medical Journal* (in the RVH archive). The 'Scott-Thompson' referred to by Fraser as 'the bacteriologist' fellow member of the team (of two!) conducting the penicillin field trials, was Thomas Scotland Thomson, MD, FRCPE, FRCPath, (1909-1992) later Director of the Regional Public Health

Laboratory, Cardiff, and Professor of Medical Microbiology, Welsh National School of Medicine (Obituary notice. *J Med Microbiol* 1993; **38**: 301-3).

22. Personal knowledge.
23. The Ulster Surgical Club.
24. The Provincial Bank of Ireland and from 1966, when the Bank merged with the Royal Bank and the Munster and Leinster Bank to form the Allied Irish Bank (AIB), of AIB until retirement: thereafter was on the AIB Northern Ireland Regional Advisory Board, 1967-1986.
25. For a list of others, see *Who's Who*.
26. Fraser's main intellectual interests in retirement were the history of surgery, especially in Ulster, and recording personal reminiscences. His best original work in these fields are his UMS Presidential Address of 19th October 1967 dealing with Dr Henry McCormac and his son Sir William, Bart., PRCS (Engl.) 1896-1900 (Father and son: a tale of two cities, 1800-1901. *Ulster Med J* 1968; **37**: 1-39); and, The first three professors of surgery (at QCB and QUB). *Ulster Med J* 1976; **45**: 12-46. Unfortunately for the scholar, he omits his sources!
27. John Walker Sinclair Irwin, FRCSE, consultant staff, RVH, 1950-1979. Son of Sir Samuel Thompson Irwin, MCh, FRCSE, consultant staff, RVH, 1918-1945. Sinclair, a back-row forward, scored the only (and winning) try against England at Twickenham in Ireland's 5-0 victory in 1939. In 1940, in the RAMC, he was captured at Dunkirk and spent long years as a P.O.W. Sir Samuel was also an international player, between 1900 and 1903. Both were Presidents of the IRFU, Sir Samuel in 1935-6; Sinclair in 1969-70.

The Ulster Medical Journal, Volume 68, No. 2, pp. 54-8, November 1999.

Ultrasonography of intratesticular lesions: its role in clinical management

P T Kennedy, J M Elliott, P F Rice, B E Kelly

Accepted 20 October 1999

SUMMARY

Ultrasound is the primary imaging modality in the investigation of patients with symptoms related to the scrotum, and is pivotal to the diagnosis of suspected testicular malignancy. This retrospective study analysed the results of testicular ultrasound at a large teaching hospital over a five year period. We wished to examine the clinical consequences for patients in whom ultrasound findings were suspicious of testicular cancer, and the accuracy of the ultrasound diagnosis. Real time ultrasound examinations were performed, providing multiplanar imaging of the testis and para testicular tissues. Over a five year period 661 examinations were carried out. An intratesticular lesion was identified in 44 patients; nineteen of these patients were shown to have testicular malignancy following tissue diagnosis. When ultrasound was used to identify testicular malignancy in those patients with an intratesticular lesion, it had a sensitivity of 94.7% and a specificity of 59.1%. A tissue diagnosis was obtained in 93% of those patients thought likely to have a testicular malignancy on sonographic assessment, and in 40% of those in whom a diagnosis of malignancy was possible, but less likely. Our study shows that this modality can be used to aid the clinician in deciding which patients should undergo orchidectomy, invasive biopsy or clinical surveillance.

INTRODUCTION

Since scrotal ultrasound was first described in 1978, it has developed an increasing role in the management of scrotal pathology. It is sensitive in the detection of abnormalities within the scrotum, and is accurate in separating testicular from para testicular pathologies. However, it can not absolutely differentiate benign from malignant intratesticular lesions. We examined the consequences of a sonographic diagnosis of intratesticular pathology and the resulting diagnoses. We discuss the possible markers of benignity, and the range of management options that a likely benign diagnosis offers.

MATERIALS AND METHODS

The computerised reports of 661 consecutive scrotal ultrasound examinations performed at our institution during a five year period were scrutinised retrospectively. The degree of diagnostic certainty contained in the report, in cases where intratesticular lesions were described (44), was graded as follows:

Grade 1 - Probably Malignant.
Grade 2 - Probably Benign.

The examinations were performed using either a Diasonics (Bedford, United Kingdom) DRF400 with a 10MHz linear array probe with built in stand off, or an ATL (Advanced Technology Laboratory, California, U.S.A.) Ultramark 9 HDI with a 5-10MHz linear array probe without a stand off. All examinations were carried out by a consultant, or a radiology trainee under consultant supervision.

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The medical notes of those patients in whom testicular malignancy was suspected were reviewed. In addition, the reports of all testicular tissue received by the departments of pathology in Belfast over the same period were also reviewed. It was therefore possible to obtain information on some patients whose medical notes could no longer be traced, and also to trace any patients whose initial ultrasound report was normal, but who subsequently reached a definitive diagnosis of malignancy by another route. To our knowledge, no patient who had a normal testicular sonogram subsequently presented with a testicular neoplasm.

The sonographic findings, when malignancy was suspected, were compared with the findings at pathology, or with the clinical findings in those patients who did not have a tissue diagnosis.

Details recorded for all examinations included patient age, sonographic diagnosis, referral source and the grade of the examining radiologist.

RESULTS

The age range of the patients examined was 12-89 years, with a mean 41.2 years. Of the patients with tissue proven testicular malignancy the range was 18-49 years, with a mean 23.8 years.

Forty four out of 661 examinations (6.7%) produced a report describing an intratesticular lesion. Of these, three were excluded from the analysis: two because of incomplete records, and one because the patient died, without post mortem examination, before a diagnosis was made. Thirty one of the 41 patients proceeded to histological diagnosis (Table I). This was via orchidectomy in 28 cases; fine needle aspiration of the testis was performed in two cases and one patient had the diagnosis established following fine needle aspiration of a retroperitoneal collection of lymph nodes. Nineteen of the 31 patients (61.3%) with a histological diagnosis were shown to have a testicular malignancy (Table II), whilst the remaining 12 patients (38.7%) had a benign condition (Table III). Those patients without a histological diagnosis (10 of the 41) were followed clinically, some with repeat scrotal ultrasound, and were all diagnosed as having a benign condition. To date none of these patients have returned with malignant disease.

TABLE I

Summary Table

Total number of examinations	661
Reports describing an untratesticular lesion	44(6.7%)
Subsequent tissue diagnosis	31(4.7%)
–Malignant disease	19(2.9%)
–Benign disease	12(1.8%)

TABLE II

Histological diagnosis of malignancy. N=19

Seminoma	9
Non seminomatous germ cell tumours	8
Lymphoma	2

TABLE III

Histological diagnosis of benign lesions. N=12

Epididymal cyst	3
Scar secondary to infarct	2
Tubular atrophy and fibrosis	1
Chronic inflamation	1
Acute inflamation	1
Testicular cyst	1
Necrosis	1
Sertoli cell nodule	1
Haematoma	1

The final diagnoses of all 41 patients with scrotal ultrasound findings describing an intratesticular lesion, were compared with the degree of certainty for malignancy expressed in the examination report: 66.7% of lesions graded by the radiologist as probably malignant (i.e. Grade 1) later proved to be malignant (Table IV); conversely when the index of suspicion was low (i.e. Grade 2), a malignancy was shown only on one occasion (7.1%).

The ultrasound report was correlated with subsequent patient management. When the ultrasound identified a likely malignancy the patient was significantly more likely to proceed to an invasive procedure than when it indicated that malignancy was less likely. (Table V) .

TABLE IV
Sonographic diagnosis compared with histology

Sonographic diagnosis	*Number in group*	*Malignant lesion*	*Benign lesion*
Probably Malignant–Grade 1	27	18(66.7%)	9(33.3%)
Probably Benign–Grade 2	14	1(7.1%)	13(92.9%)

TABLE V
Sonographic diagnosis and whether an invasive procedure was carried out

Sonographic diagnosis	*Tissue obtained*	*Clinical follow up*
Probably Malignant–Grade 1	25	2
Probably Benign–Grade 2	6	8

DISCUSSION

Since its first description by Miskin and Bain in 1978,[1] ultrasound of the scrotum has been used by clinicians to clarify diagnosis and aid management.[2,3] It is highly sensitive in differentiating normal scrotal contents from abnormal.[3,4,5] Furthermore, the accuracy is 99% at separating testicular from paratesticular pathologies.[3,6,7,8,9] It is also a sensitive method for detection of testicular tumours.[5,9,10] In our series no patient who had a normal testicular sonogram (i.e. 617 out of 661: 93.3%) subsequently presented with a testicular neoplasm giving a negative predictive value for intratesticular lesions of 100%.

It is in distinguishing benign from malignant intratesticular disease that the greatest difficulty occurs. Testicular malignancy displays a range of sonographic appearances, but in general neoplasms are hypoechoic with marked disorganisation of texture;[9] pure seminoma and lymphoma are usually well defined, homogeneously hypoechoic areas with smooth or irregular margins[5] (Figure 1), whilst non seminomatous germ cell tumours often have a heterogeneous pattern with cysts and scattered

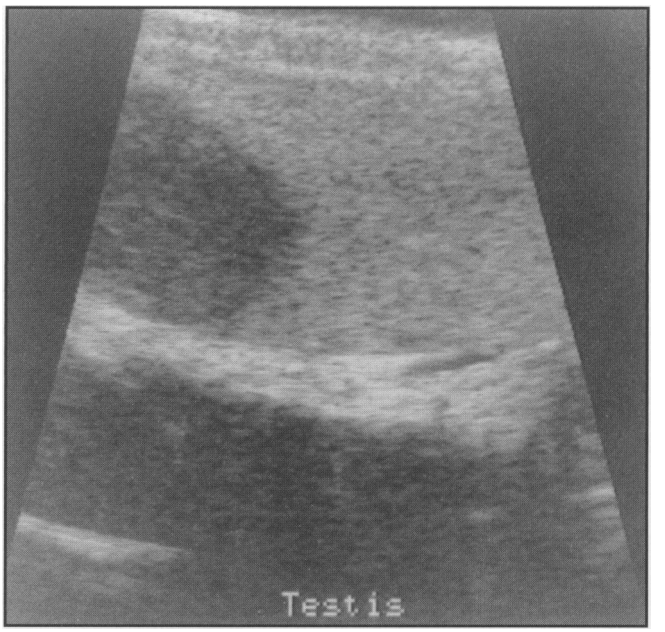

Fig 1. Ultrasound appearance of testicular seminoma.

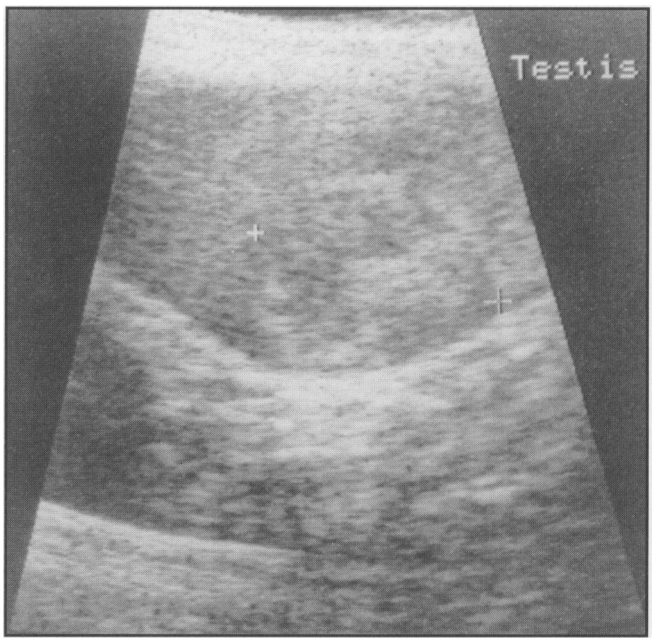

Fig 2. Ultrasound appearance of testicular teratoma.

areas of increased echogenicity,[5,11] (Figure 2). The final histological appearances of the benign lesions which led to orchidectomy in our series (Table III) are similar to those in other studies.[8,12]

Before Ultrasound was widely available, any patient with a scrotal mass which was deemed to be intratesticular by palpation underwent orchidectomy via an inguinal incision. This led to a high rate of orchidectomies for benign lesions,[13] and as scrotal ultrasound becomes more prevalent it is apparent that there are a greater number of benign intratesticular lesions than had been

realised. Since scrotal ultrasound is not reliably able to differentiate between benign and malignant conditions, there is some scepticism about its role in identifying testicular malignancy.[10] An overall false positive rate for testicular malignancy in the presence of an intratesticular mass is typically 50%.[12, 14, 15] Many studies have endeavoured to find some sonographic features pathognomic of malignancy, but have failed. However some sonographic indicators of benign disease have been identified which make that diagnosis (of benign disease) more likely. When we reviewed sonographic reports of the 44 intratesticular lesions seen on ultrasound, such stratification was manifest by the varying diagnostic certainties indicated by the reports. Thus when the sonographic report was probably malignant (27 Patients/Grade 1) our false positive rate for malignancy was 33.3%; [9/27] when our report was probably benign (14 Patients/Grade 2) our false negative rate for malignancy was 7.1%.[1/14]

Twenty five out of 27 patients in the first group went on to have a tissue diagnosis (22 orchidectomies, 2 fine needle aspirations, and one excision biopsy), whilst in the second group only 6 out of 14 patients underwent orchidectomy, indicating that the management decision had been strongly influenced by the sonographic findings.

What are the possible indicators of benignity on ultrasonography? Lesions which are exclusively echogenic have always proved to be benign.[3, 8, 12, 16] Testicular cysts and haemangiomas can be diagnosed with certainty.[17] Cysts are echo-poor centrally and demonstrate through enhancement. Haemangiomas show echo-poor confluent vascular areas. An epidermoid cyst is suspected given a cystic lesion with a central echogenic focus,[18] or an echogenic rim.[17] An epididymal cyst compressing the testis can produce sonographic appearances suggestive of malignancy.[2, 3] Focal orchitis is often associated with swelling of the epididymis and overlying scrotal skin.[8, 17] Intratesticular haematoma often appears as an echolucent rim around tissue which has a similar echopattern to normal testicular parenchyma.[17] It may be associated with haematoma within the scrotal skin, and should show definite signs of resorption after one week.[19] A peripheral wedge shaped lesion is suggestive of an infarct.[7] These features helped during differentiation of probably benign from probably malignant lesions in our study.

Malignancy is usually manifest by a focal lesion.[3, 7] If the testis is diffusely involved by malignancy it tends to have a globular shape with a lobulated contour, whilst a benign process with diffuse involvement leaves the testis a smooth oval shape.[20]

Doppler ultrasound has not helped the sonographer make a definite diagnosis of malignancy, although a recent study did show a definite trend;[21] 95% of primary testicular tumours larger than 1.6cm in diameter showed increased vascularity, whilst 86% of those smaller than 1.6cm were hypovascular.

It must however be stressed that these are merely indicators, and there is a great deal of overlap in the appearance of benign and malignant processes.

When identified, these features can be relayed in the report to the clinician. However what are the clinician's options? In our series, orchidectomy was almost universally employed. During the last decade intraoperative examination of the testicle with frozen section histology has gained acceptance in a limited number of situations. This allows conservation of the testis if benign disease is confirmed. Follow up by clinical and sonographic examination may be used when the clinical features are strongly in favour of a benign diagnosis.

When an intratesticular mass is detected in a testis that is normal on clinical examination, then the chance of it being malignant is less than 20%.[22, 23] In this situation, excision biopsy of the lesion via an inguinal incision has been advocated.[22, 23] Frozen section at the time of excision allows orchidectomy to be carried out if malignancy is identified. The same management strategy could be employed if sonography indicates that a palpable lesion in a testicle is likely to be benign.[14, 17, 24] This approach may reduce the number of orchidectomies performed for benign disease, whilst ensuring that no malignancy will be missed. Orchidectomy is associated with significant psychological sequelae and therefore should be avoided if at all possible.

Further it is important that the radiologist should be aware of the possibility of a tissue diagnosis being obtainable without orchidectomy. Faced with an intratesticular lesion and believing that orchidectomy is the only means of excluding malignancy, then the tendency may be to emphasise the malignant features. If there is a

lesser procedure which will provide a tissue diagnosis, then the radiologist should be able to indicate that there is an intratesticular lesion which sonographically has a low probability of being malignant. This may lead to fewer orchidectomies as other options, for example, excision biopsy or FNA or sonographic follow up, are available.

We believe that scrotal sonography has a major role to play in the management of an intratesticular lesion. In association with the clinical features it can help the surgeon decide whether to opt for orchidectomy, excisional biopsy if a malignant lesion is less likely, or follow up when a benign lesion is certain. This approach will reduce the number of orchidectomies carried out for benign disease.

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Early experience using duplex ultrasonography in the diagnosis of deep venous thrombosis; a prospective evaluation

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SUMMARY

Duplex ultrasound is used in many radiology departments as the first line of investigation for symptomatic deep venous thrombosis. Before changing the practice of our department from venography to duplex ultrasonography, we wanted to assess our ability to identify deep venous thrombosis on ultrasound. Thirty-eight patients were investigated for suspected deep venous thrombosis by venography and duplex ultrasound. The results were compared using venography as the 'gold standard'. Duplex ultrasound correctly identified 13 out of 16 limbs with deep venous thrombosis. Four of the 38 duplex ultrasound examinations (11%) were described as inadequate at the time of examination, and when these are excluded from the analysis a sensitivity of 93%, and specificity of 80% are achieved. We conclude that there is a significant learning curve when performing duplex ultrasound of the lower limb, and that change-over from venography to ultrasound should include a period during which both examinations are routinely performed.

INTRODUCTION

Deep venous thrombosis (DVT) is a common condition with potentially serious sequelae which is difficult to diagnose clinically with accuracy. Contrast venography has been the 'gold standard' investigation for a long time. However it involves irradiation, is often a painful procedure and has associated risks such as hypersensitivity reaction to the contrast, chemical phlebitis, contrast extravasation and renal failure. Consequently, many different modalities for diagnosing DVT have been developed over the years. Duplex ultrasonography (a combination of real-time grey scale image, and pulsed doppler to provide flow information) has improved in image quality over the past decade, and is now used as the primary imaging technique in many centres. Our department envisages using ultrasound as its first-line investigation in the future. Therefore this study was instigated to assess the accuracy of duplex ultrasonography in a clinical setting, when performed by sonographers with little experience of the technique. The study did not set out to validate the investigation, but to explore its reliability early in its use within a department.

PATIENTS AND METHODS

Between August 1997 and January 1998 patients referred to our department with symptoms suggestive of DVT were investigated by contrast venography. For 38 patients a duplex ultrasound examination was performed within one hour of the venography. For each patient the presence of thrombus and its distribution were recorded, and a comparison made between the two modalities, using venography as the 'gold standard'.

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The mean age of the patients was 68 years, (range 31-85). Twenty-two of the patients were female. All patients were referred either from casualty (63%) or from the wards (37%). A previous history of DVT was obtained in five patients. The time taken for each examinaåion was recorded.

All the duplex examinations were performed by two specialist registrars trained in the principles of the technique, but with experience of less than ten previous examinations. They were blinded to the results of the contrast venography examination. ATL 3000 HDI scanners (Advanced Technology Laboratories, Bothwell, WA, USA) with a 7-10MHz probe were used for each examination. Each patient was examined supine, prone or left lateral decubitus, and sitting, depending on which segment of the deep venous system was being assessed. The examination began at the calf and worked proximally, so that the sonographer was not biased, when examining the calf, by the presence of more proximal thrombus. The anterior tibial group of calf veins were not assessed. For each patient the sonographer recorded whether sufficient visualisation of the calf veins had been obtained to render the examination diagnostic. When the calf was inadequately visualized the examination was considered negative for thrombus. In two patients sonographic examination of the calf was impossible due to patient immobility.

The diagnosis of DVT on duplex scanning is based on a number of criteria, the most important of which is direct visualization of thrombus within the vein. Non-compressibility of the vein, lack of flow, and abnormal flow patterns during respiration are also important. The presence of non-occlusive thrombus however, can cause false negative results if too much emphasis is placed upon flow analysis. All criteria must therefore be assessed in diagnosing DVT.

RESULTS

Contrast venography revealed DVT in 16 of the 38 limbs, whilst ultrasound correctly diagnosed 13 of these thromboses. The segments involved are listed in Table I. There were three false negative duplex ultrasound scans (Table II): in one patient venography identified anterior tibial and gastrocnemius muscle vein thrombus, but no extension into the popliteal vein. In two other patients isolated calf vein thrombus was missed, but both of these scans were recorded as inadequate at the time of examination. There were four false positive scans; three of these cases occurred in the first 11 patients examined, and were probably due to misinterpretation of muscle bundles in the calf as dilated non-compressible veins. The fourth false positive was convincing on ultrasound as a segment of peroneal vein thrombus, but was not visualized on venography.

TABLE I

Segments of deep veins involved by thrombus, as shown by venography

Normal	22
Calf	4
Calf to popliteal	4
Calf to frmoral	5
Calf to iliac	2
Femoral	1
Popliteal to femoral	1

The total number of segments involved by thrombus is 17 because one patient had a calf vein thrombus and a separate, isolated superficial femoral vein thrombus.

TABLE II

	positive venogram	*negative venogram*
positive duplex	13	4
negative duplex	3	18

Comparison of duplex ultrasound with contrast venography for lower limb DVT. Sensitivity 81%, specificity 82%, accuracy 84%.

Of the 16 limbs with DVT, 15 had thrombus in the calf. Four of these 15 had thrombus involving the calf veins only. Two of the fifteen patients did not have their calves examined by ultrasound due to marked immobility. Of the remainder (i.e. 13 patients), 8 calf thromboses were positively identified and five were missed. Of the five missed thromboses, two further patients were the cases described in the preceding paragraph, which were recorded as inadequately visualized at the time of the examination.

A total of four calves were recorded as inadequately visualized: calf tenderness in three patients resulted in the sonographer being unable

to adequately compress the leg to allow detection of incompressibility of the vein. The cause of the tenderness was fracture of the fibula, an overlying soft tissue wound, and superficial thrombophlebitis respectively. One of these three patients was also quite immobile. The fourth patient was relatively immobile which prevented optimal probe positioning. If these patients are excluded from the study then the sensitivity and specificity are 93% and 80% respectively. The average time taken for the examination was 20.1 minutes; however this decreased as the study progressed: the average time taken for the first 19 patients was 22.6 minutes, whilst it was 17.9 minutes for the second half of the study (p=0.044, two sample t test).

DISCUSSION

Deep venous thrombosis (DVT) is a common condition with potentially fatal sequelae, and clinical diagnosis is insensitive.[1] Contrast venography has long been the definitive investigation, but several other less invasive modalities have been developed. Duplex ultrasound, the combination of grey scale, real time ultrasound with pulsed doppler to provide spectral blood flow information, has emerged as an accurate alternative. A recent survey showed that it is used by 46% of UK radiology departments as their first line investigation.[2] Colour flow ultrasound and power doppler have also been advocated[3] as a means of improving the accuracy of the technique. Duplex ultrasound for suspected DVT was initially unpopular because it was a time-consuming technique with poor visualization

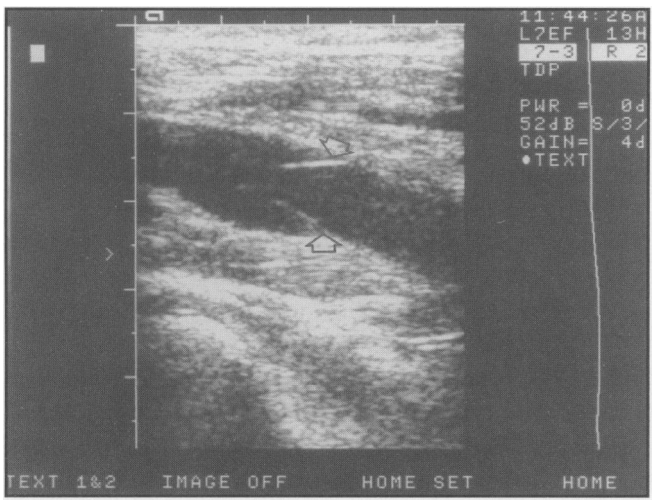

Fig 1. *A longitudinal section, showing resolutiuon* sufficient to clearly demonstrate valve leaflets within the popliteal vein (arrows).

of the calf veins. However image quality has improved (figures 1, 2 and 3), as a consequence of technological advance and improved scanning protocols, and these disadvantages have therefore diminished.[4] Duplex ultrasound is accurate in diagnosing femoropopliteal thrombus, and some groups argue that isolated below-knee thrombus is a rare event which does not require anticoagulation and therefore diagnosis of thrombus in this segment is not necessary.[5] However up to a third of isolated below-knee thrombus propagates,[6, 7] and since it can be diagnosed by duplex ultrasonography then it is sensible to include an assessment of the below - knee segment when performing ultrasound for suspected DVT.[8]

We have confirmed the accuracy of duplex ultrasound in assessing above-knee DVT: we had one false negative duplex in this segment which failed to identify a 1 cm thrombus lodged behind a valve leaflet in the mid superficial femoral vein; however calf vein thrombus was correctly identified in this patient, so that the correct diagnosis was made when the limb was considered as a whole. Due to the relatively small numbers in our study this gives a sensitivity of 92% for above-knee thrombus, which is slightly low when compared to similar studies in the literature which show a sensitivity of 96-100%.[3, 9, 10, 11]

When including the assessment of the below-knee veins we have returned a sensitivity of 81% and specificity of 82%. These figures are below average when compared to the literature, which indicates a sensitivity of 92-98% and specificity of 86-100%,3, 10, 12, 13 but when the technically inadequate scans are excluded our figures are 93% and 80% . Our reason for excluding the technically inadequate scans is that in clinical practice these patients would be referred for contrast venography. Four (13%) of our duplex examinations were considered technically inadequate, which is in line with other studies,[3, 10] although this figure should diminish as further experience is gained.[14] Our false positive rate is high when compared to the literature, and this was due to misinterpretation of muscle bundles for dilated non-compressible veins in three patients early in the study. A later false positive showed what appeared to be thrombus isolated to the peroneal vein, and although this was not confirmed by venography, review of the venogram shows underfilling of some of the peroneal vein branches.

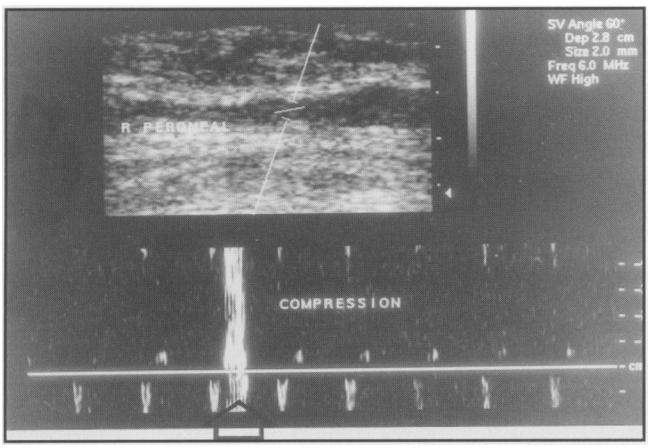

Fig 2. Longitudinal image depicting the peroneal vein. The doppler gate has been positioned over the vein whilst the sonographer simultaneously squeezes the patient's calf to augment blood flow within the vessel. This results in a sudden movement of the blood column of over 40 cm/ sec. (Arrow).

Contrast venography is not a perfect test, and there are many documented examples of DVT demonstrated by duplex ultrasound, confirmed by another technique (e.g. MRI) but not shown on contrast venography.[4, 12] We, like many other groups, did not routinely examine the calf for anterior tibial vein thrombosis since isolated thrombus in this segment is quite rare.[14] We did find that colour and power doppler were useful, particularly for identifying calf vessels, but we did not record sufficient data to determine whether they increased sensitivity or specificity.

A great advantage of duplex ultrasound in assessing suspected DVT is its ability to provide an alternative diagnosis such as popliteal (Baker's) cyst, haematoma, superficial phlebitis and subcutaneous oedema. Such an alternative diagnosis is typically made in 9-11% of patients scanned.[9, 10, 15] Duplex ultrasound is also a cheaper option than venography, avoiding the need for using expensive iodinated contrast media and requiring less acetate sheets for image storage.

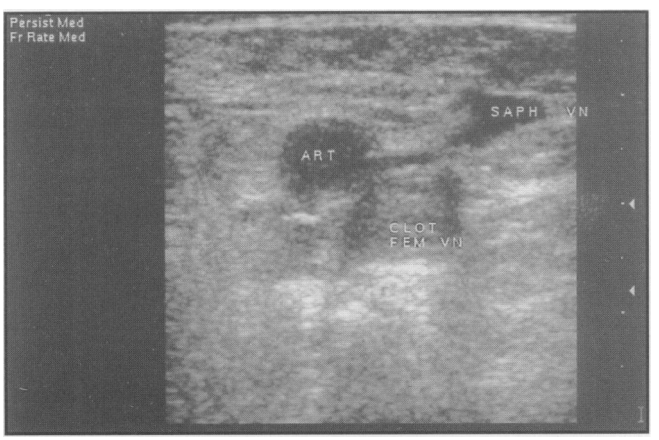

Fig 3. Transverse section through the superficial femoral vein demonstrating echogenic thrombus. Note a patent adjacent long saphenous vein.

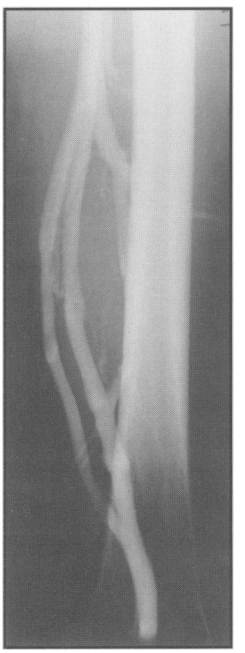

Fig 4. Contrast venogram demonstrating the superficial femoral vein dividing into two venae commitantes, and then rejoining.

There are a number of recognised pitfalls, and the most common of these is the presence of a duplicated superficial femoral vein (fig. 4). The risk is that the sonographer correctly identifies the normal superficial femoral vein, but fails to recognise the second, thrombosed vein. This is the most common cause of a false negative examination in the femoropopliteal segment.[16] A further area of difficulty occurs in patients who have had previous DVT presenting with new symptoms suggesting a further episode.

In conclusion, duplex ultrasonography is a useful technique in the assessment of limbs with suspected DVT. We have obtained reasonable results with little prior experience of the technique; however it is clear that there is significant learning curve, and highly accurate results should be obtained with experience. We advocate that a sonographer learning the technique should compare the results of their early examinations with a contrast venogram for each patient.[10] We also suggest that contrast venography remains the first-line investigation in patients who are particularly immobile or obese.

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Laparoscopic cholecystectomy: experience with 303 patients over the initial four years

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SUMMARY

A total of 303 patients underwent attempted laparoscopic cholecystectomy (LC) over a four-year period by two consultant surgeons or a senior trainee under their supervision. The procedure was completed in 291 with a conversion rate to open cholecystectomy of 3.9% and a median post-operative length of stay of two days, range zero to nine days. In eighteen patients the indication for LC was failure of symptoms to settle, two of whom required conversion (11.1%). Diathermy dissection was avoided in Calot's triangle and dissection started at the junction of Hartmann's pouch and cystic duct with full mobilisation of this area prior to clip application. Pre-operative endoscopic retrograde cholangiopancreatography ERCP was performed in patients suspected of having common bile duct stones without routine intra-operative cholangiography. There was one death in this series (0.3%) and an overall complication rate of 6.3%. There was no incidence of either bile duct injury or leak. LC can be performed with a low complication rate with attention to careful dissection technique in the region of Calot's triangle.

INTRODUCTION

Laparoscopic cholecystectomy has rapidly gained popularity within the last ten years as the surgical procedure of choice for symptomatic gallbladder stones. Proposed benefits include less post operative pain, better cosmetic result and shorter hospital stay when compared with open cholecystectomy.[1]

However concern has been raised over the possibility of an increased incidence of common bile duct injuries with this new procedure and whether this problem may be reduced by routine laparoscopic cholangiography or other operative techniques.[2,3]

Potential hazards include dissection and clipping of either the common bile duct or common hepatic duct instead of the cystic duct or an indirect diathermy burn leading to duct damage.[4,5] Due to the potential for injury a strict policy of avoidance of either hook or scissors diathermy for dissection in Calot's triangle has been employed in our unit. In addition no duct structure is clipped until Hartmann's pouch has been mobilised allowing clear identification of the cystic duct.

The aim of this study was to analyse the first four year's experience with LC in a single surgical unit with particular regard to post-operative morbidity and mortality.

METHODS

A consecutive series of 303 patients with symptomatic gallstones underwent attempted laparoscopic cholecystectomy between July 1991 and September 1995. The mean age was 48 years with a range of 15 to 85 years.

The indication for the procedure was symptomatic gallstones demonstrated by ultrasonography or oral cholecystogram. A selective policy of pre-operative endoscopic retrograde cholangio-pancreatography (ERCP) was used. A history of jaundice, pancreatitis, deranged liver function tests or dilated bile ducts on ultrasonography was investigated by ERCP and sphincterotomy was

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performed if duct stones were found. Routine laparoscopic cholangiography was not performed. All procedures were carried out by one of two consultants or by a senior trainee under direct supervision. The technique of establishing pneumoperitoneum was similar to that described previously.[6, 7] A Verres needle was used via a subumbilical incision and carbon dioxide insufflated to maintain a pressure of 15 mmHg. Through the same incision a 10mm cannula was inserted and a laparoscope passed into the peritoneal cavity. Under videoscopic guidance another 10mm cannula was placed to the right of the midline just inferior to the xiphoid process and two 5mm cannulae placed to allow retraction and dissection, the position depending on operator preference.

The surgical technique employed was similar to that reported previously. In particular, the initial dissection centred on the junction of Hartmann's pouch and cystic due, with combined use of blunt instrument and pledges dissection to demonstrate clearly that the cystic had been identified. Diathermy at this stage was avoided and only used to dissect the gallbladder from the liver bed once the cystic duct had been divided between three titanium clips. If the cystic artery was identified clips were again applied in triplicate; however with the dissection now concentrated on a more distal level than previously used at open cholecystectomy it was possible on occasions to divide the smaller terminal branches using diathermy at the time of gallbladder dissection. Early in this series a retrieval bag was not used to remove the gallbladder through the umbilical port site. However, one patient developed a persistent wound infection which was subsequently shown to be due to a gallstone retained in the wound, and from then on a retrieval bag was used routinely.

Following surgery patients were allowed to eat and drink when tolerated, and were discharged when fully mobile and needing only oral analgesia.

RESULTS

Of the 303 patients LC was successfully completed in 291 making an overall conversion rate to open cholecystectomy of 3.9%. Eighteen patients had LC attempted during the same admission after acute symptoms failed to respond to conservative treatment, two of whom underwent conversion (11.1%). A total of 295 patients had elective LC within three months of acute symptoms and of this group nine required conversion (3.0%).

The reason for conversion was inability to safely identify or dissect Calot's triangle in eight patients, bleeding from the gallbladder bed in two, and large bowel perforation which occurred during dissection of dense adhesions between the greater omentum and the gallbladder in one patient. There was no significant change in conversion rate throughout the study period.

There were no bile duct injuries in this series, defined as either bile leak, duct injury or resection. Other post-operative complications occurred in nineteen patients (6.3%) (Table). Four patients developed signs of haemorrhage and required emergency laparotomy. In two this bleeding was found to be from the epigastric port site and the other two had bleeding from an aberrant cystic artery. In all bleeding was easily controlled and followed by an uneventful post operative recovery.

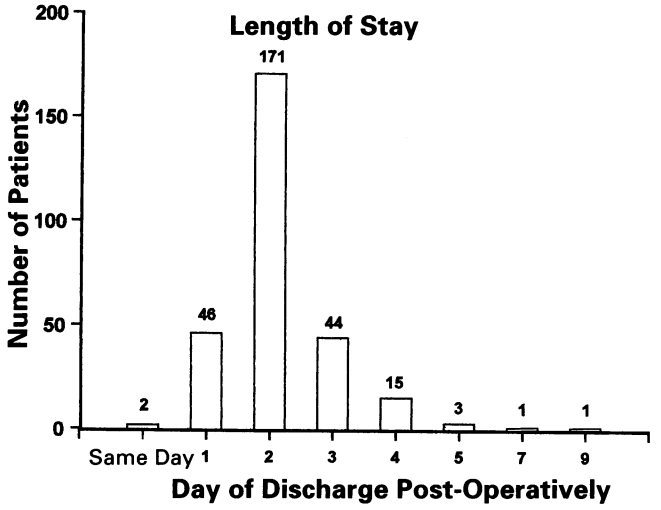
There was one death in this series (0.3%) due to a small-bowel perforation which presented on the third day following the laparoscopic procedure. This patient, a 73 year old female, developed abdominal pain and distension and at laparotomy was found to have a small-bowel perforation in the right iliac fossa. It is postulated that this injury occurred as a result of bowel being adherent to the anterior abdominal wall due to adhesions following previous lower abdominal

TABLE
Post-operative complications following Laparoscopic Cholecystectomy

Wound Infection	1
Urinary Infection	1
Chest Infection	2
Intraperitioneal Haemorrhage	4
Urinary Tract Infection	1
Myocardial Infarction	1
Small Bowel Perforation	1
Retained Common Bile Duct Stone	1
Re-admission with non-specific abdominal pain	2
Richter's Hernia	1
Fluid Collection in Gallbladder Bed	1
Port Site Infection due to gallstones	1
Pneumothorax	1
Pulmonary Embolus	1
TOTAL	19 (6.3%)

surgery. At insufflation of the peritoneal cavity it is possible that a shearing force caused the linear tear subsequently identified at laparotomy. Following small bowel resection the post-operative course was complicated by a subphrenic abscess which necessitated a second laparotomy and drainage. However she deteriorated and died of respiratory complications.

The median post-operative stay (fig) was two days, with two patients discharged on the same day and the maximum stay being nine days.



figure

DISCUSSION

The benefits of LC were quickly identified by both patient and surgeon and led to a dramatic shift from open surgery to the laparoscopic technique. However it is now clear that there are several complications specifically associated with this procedure which have caused some to question the place of laparoscopic surgery in general.[8] Of major concern are the reports of an increase in the incidence of injury to the common bile duct during dissection of Calot's triangle and whether with appropriate training or modification of surgical technique the rate of occurrence of this complication would be comparable to that following open cholecystectomy.

Although McMahon et al reported that the introduction of LC was associated with an increased incidence of bile duct injury a systematic review of the effectiveness and safety of LC carried out by Downs et al under the auspices of The Royal College of Surgeons of England concluded that there was only weak evidence of an increased risk.[1, 3] This was almost certainly due to the dearth of randomised controlled clinical trials with sufficient power and length of follow-up. More recently a study of 114,005 cases of LC was reported by MacFadyen et al which encompassed forty series performed in the United States from 1989 to 1995.[9] A total of 561 major bile duet injuries (0.5%) and 401 bile leaks (0.38%) had occurred and they concluded that this was indeed an increase over what would be expected after open cholecystectomy. A major problem with the literature addressing the issue of bile duct injury at open cholecystectomy is that some studies do not record bile leaks. In the largest single series of open cholecystectomies where both bile duct injury and bile leak were recorded, carried out by Morgenstern et al, an incidence of 0.5% was reported.[10]

The role of intraoperative cholangiography to reduce bile duct injury is also controversial. With the availability of skilled endoscopy a policy of selective ERCP, either pre- or post-operatively, in patients with suspicion of common bile duct stones is possible.[11] Khalili et al reported a series of 1207 patients from Los Angeles who underwent LC and intraoperative cholangiography (IOC) and demonstrated a 0.4% incidence of common bile duct injury, which is comparable to the figure of 0.5% reported by Morgenstern et al for open cholecystectomy.[12] The Los Angeles group went on to report a series of 46 laparoscopic bile duct injuries and found that IOC had been performed in 16.[4] There was no difference in severity or type of injury when IOC had been achieved and in 11 of the 16 the image had been misinterpreted. This raises the question of the quality of image at IOC and whether this investigation can significantly reduce bile duct injury rate. We have shown in this study that a policy of selective pre-operative ERCP with attention to surgical technique is a feasible approach with a low incidence of bile duct injury. Although numbers in this study are relatively small it does include patients with acute inflammation which have been shown to be at increased risk of bile duct injury.[13]

An overall mortality and morbidity rate of 0.3% and 6.3% respectively are in keeping with figures for other reported series of LC.[1] The patient who developed a small bowel tear highlights the careful selection required and we would now include lower abdominal incisions as a relative contradiction to LC. The use of an open technique to achieve pneumoperitoneum is a reasonable alternative.

The importance of retrieving the gallstone spilled at LC has been highlighted in case reports where such stones subsequently led either to intra-abdominal or to abdominal wall abscesses.[13, 14, 15] We recommend the routine use of a retrieval bag to remove the gallbladder through the wound and removal of all gallstones spilled during the procedure if possible.

In summary, a policy of avoidance of diathermy in Calot's triangle combined with dissection centred on the junction of Hartmann's pouch and the cystic duct has been employed in 291 successfully completed laparoscopic cholecystectomies with no bile duct injuries or leaks. The selective use of per-operative ERCP has been used to manage patients suspected of having common bile duct stones, without the routine use of intra-operative cholangiography.

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A prospective randomised study comparing polyethylene glycol and sodium phosphate bowel cleansing solutions for colonoscopy

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SUMMARY

Polyethylene glycol (Klean-Prep, Norgine) is widely used for bowel cleansing in the United Kingdom. This study compares the efficacy, acceptability and adverse effects of a polyethylene glycol (PEG) solution with sodium phosphate (Fleet Phospho-soda, De Witt) for bowel preparation prior to colonoscopy.

Two hundred and nine consecutive patients were prospectively randomised to either PEG or sodium phosphate (SP) preparation. The endoscopist was blinded to the randomisation process. Fifty patients were excluded from the study because of previous colectomies or incomplete data. Of the remaining 159 patients, 88 had been randomised to the PEG group and 71 to the SP group. There was no difference in sex distribution between the groups. There were no significant differences between groups in terms of patient acceptability, side effects (nausea/vomiting and abdominal cramps), adequacy of bowel preparation and colonoscopy completion rates. 74% of the PEG and 70.4% of the SP group were rated by the endoscopist as having good or excellent bowel preparation. Sodium phosphate is well tolerated without additional side effects when compared with PEG solution. Both solutions were found to be equally effective in bowel cleansing.

INTRODUCTION

Polyethylene glycol solution has been the standard preparation for colonoscopy and colorectal surgery for several years. Usually four litres of the solution is taken during the 24 hours prior to outpatient colonoscopy. However, 5 to 15% of patients dislike the taste, find the volume difficult to take, or complain of cramps, nausea or vomiting, leading to reduced compliance and inadequate bowel preparation.[1]

This prospective, randomised study was designed to examine the efficacy of a standard PEG solution against a more recently introduced SP based solution.

PATIENTS AND METHODS

Two hundred and nine consecutive outpatients were prospectively randomised to receive either PEG or SP bowel cleansing solutions prior to colonoscopy. The endoscopist was blinded to the randomisation. Patients in the PEG group were instructed to take four litres of the solution on the day prior to endoscopic examination, if the test was to be in the morning, or two litres the day before and a further two litres on the day of the test, if the examination was in the afternoon. The PEG solution was to be completed at least three hours before the colonoscopy. Patients assigned to the SP group took two doses of the solution (45 ml/bottle) at 0700 and 1900 hrs for a morning examination, or at 1900 hrs and the next day at

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0700 hrs for an afternoon test. They were advised to take about 1500 ml of cool water with the sodium phosphate. All patients were instructed to adhere to a liquid diet while taking the bowel cleansing solution.

On the day of colonoscopy, patients were asked to fill out a questionnaire with the attending nursing staff. This recorded the estimated volume of preparation consumed as a measure of patient compliance. The overall acceptability of the preparation was assessed using a visual analogue scale (a 10 cm straight line with 0 on the left representing fully acceptable and 10 representing completely unacceptable). Similar visual analogue scales were used to assess palatability (0= pleasant taste, 10 = unpalatable) and abdominal cramping (0=no cramps/pain, 10 = worst pain imaginable). Patients were also asked about the presence of nausea or vomiting. Finally, they were asked if they would be willing to repeat the assigned preparation for future colonoscopic examination, knowing that other preparations were available.

Colonoscopy was performed by a single consultant or by surgical registrars (under consultant supervision). During colonoscopy, the endoscopists subjectively scored the adequacy of bowel preparation (Table 1).

The duration and extent of the examination were recorded. Colonoscopy was defined as complete when either the caecum or ileo-caecal valve was visualised or, when these were not demonstrated with absolute certainty, radiological screening confirmed the tip of the scope to be in the caecum.

TABLE I

Objective scoring for adequacy of bowel preparation

Grade	*Description*
1–Excellent	Completely clear
2–Good	Small amount of yellow or light brown fluid, easily sucked away
3–Satisfactory	Large amount of watery yellow or brown fluid. Tedious to suck away
4–Poor	Semisolid stool, cannot be sucked away
5–Failed	Solid stool

Statistical analysis was performed using a computer statistical package (SPSS for Windows, Release 8.0.0, SPSS Inc.) to compare the results from both groups. Chi-squared tests were used to compare proportions, Mann-Whitney U tests were used to compare the visual analogue data and the adequacy of bowel preparation scores and an independent z test was used to compare the duration of colonoscopy. A 5% significance level was chosen as evidence of a difference between groups ($p<0.05$).

RESULTS

Two hundred and nine patients were enrolled into the study and prospectively randomised. Twenty-one patients were excluded because of prior colectomies. A further twenty-nine patients had incomplete data sheets and were also excluded. Of the remaining one hundred and fifty nine patients, eighty-eight were randomised to the PEG group and seventy one to the SP group. 45% (n=40) of the PEG group and 46% (n=33) of the SP group were male (X^2 =0, p=1).

Consultants performed 48% (n=76) of the colonoscopies and 52% (n=83) were carried out by specialist registrars under consultant supervision. The results for both groups are shown in Tables II, III, IV and V. There was no significant difference in outcome between either preparation in terms of patient acceptability, side effects or impact on the completeness of colonoscopy.

TABLE II

Level reached during colonscopy

Level Reached	*Number (%) of patients in each group:*	
	PEG	*SP*
Caecum	76(86.4%)	65(91.5%)
Ascending colon	2(2.3%)	0
Transverse colon	6(6.8%)	4(5.6%)
Descending colon	4(4.5%)	1(1.4%)
Sigmoid colon	0	1(1.5%)

No significant difference between groups for completion rate of colonoscopy (p=0.3, 2 x 2 chi-square test with Yeat's continuity correction).

TABLE III

Comparison of PEG and SP groups for compliance, side-effects and colonoscopic completion rates

	Number (%) of patients:		p value*
	PEG	*SP*	
Failed to take complete preparation	10(11.4%)	3(4.2%)	0.18
Willing to take preparation again	82(93.2%)	62(87.3%)	0.32
Nauseated	54(61.3%)	47(66.1 %)	0.64
Vomited	4(4.5%)	8(11.2%)	0.32
Excellent/good preparation	65(74.0%)	50(70.4%)	0.63
Caecum reached	76(86.4%)	65(91.5%)	0.30

* 2 x 2 Chi-squared test with Yeat's continuity correction used to calculate significance of differences between the two groups.

TABLE IV

Comparison of PEG and SP groups for acceptability, side-effects and duration of colonoscopy

	Median (1st, 3rd quartiles) for:		*p value**
	PEG	*SP*	
Palatability (0-10)	2.6(1.1, 5.0)	3.3(1.3, 5.0)	0.60
Overall acceptability (0-10)	4.3(1.0, 7.0)	3.8(0.7, 6.7)	0.44
Abdominal cramping (0-10)	7.4(4.6, 10.0)	8.2(5.0, 10.0)	0.44
Duration of colonoscopy (min)†	20(12.8, 35)	20(15.0, 35)	0.74

* Mann-Whitney U test used to calculate significance of differences between the two groups.

† Data positively skewed (maximum 60 minutes for the PEG group, 55 minutes for the SP group).

Table V

Results for adequacy of bowel preparation

Grade	*Number (%) of patients in each group:*	
	PEG	SP
1 – Excellent	38(43.2%)	28(39.7%)
2 – Good	27(30.8%)	22(30.7%)
3 – Satisfactory	10(11.1%)	8(11.5%)
4 – Poor	11(12.3%)	11(15.3%)
5 – Failed	2(2.6%)	2(2.8%)

No significant difference between both groups in terms of preparation grade using a Mann-Whitney U test (p=0.56).

DISCUSSION

The development in the 1980's of an oral laxative solution associated with minimal fluid and electrolyte shift ended the days of tedious bowel preparation prior to colonoscopy.[2] This balanced electrolyte solution utilises PEG as a nonabsorbable solute to clean the bowel. Although an efficient laxative, PEG preparation requires patients to consume a large amount of fluid, which many find difficult and some impossible. Attempts have been made (with little success) to improve the palatability of the solution by altering the electrolyte content or by adding flavouring.[2] In this study, eleven percent of patients were unable to complete the preparation with polyethylene glycol.

The equality of sex distribution in our study is important as women with intact bowels have a lower colonoscopy completion rate compared to men with intact bowels.3 The mean ages for the PEG and SP group are 57.9 and 51.5 years respectively. Although there is a statistical significance between the two groups ($p<0.05$, independent t test), previous study[4] demonstrated similar completion rate independent of age. Patients who had previous colectomies were excluded as this group is known to have a higher colonoscopy completion rate compared to patients whose colon is intact[3] and adequacy of bowel preparation may be affected by the absence of an ileo-caecal valve.

Recent reports have highlighted the use of a smaller volume SP based laxative.[2,5-7] In 1990, Vanner *et al*[8] reported a prospective randomised trial comparing SP with PEG preparation, demonstrating superior results with the former with respect to both efficacy and tolerance. Marshall *et al*[1] found that patients considered SP easier to take than PEG solutions. In the present study, patients rated PEG more palatable than SP (median visual analogue score 2.6 versus 3.3 respectively), though this did not reach statistical significance. However, 11.4% of those given PEG solution were unable to complete their preparation compared to 4.3% of those given SP (insignificant difference, $\chi^2=1.8$, $p=0.18$). The figures reported by Afridi *et al*[9] are similar (20% and 4.2% respectively).

Patients experienced similar abdominal cramping when using PEG compared to SP (median visual analogue score 7.4 versus 8.2 respectively, $p=0.44$). Also, there was similar incidence of vomiting with PEG compared to SP (4.5% versus 11.2%, $\chi^2=1.67$, $p=0.20$). This is consistent with two previous reports[6,9] which showed no differences in the frequency of abdominal discomfort, nausea or vomiting.

Both groups were equally willing to repeat similar preparation for future colonoscopic examination (PEG vs SP, 93.2% vs 87.4%, $p=0.32$). This contrasts with a study carried out by Cohen *et al*[6] who reported that 19% of the PEG group would repeat the same preparation compared to 83% for the SP solution. Other studies[2,9] also found that sodium phosphate is better tolerated by patients than polyethylene glycol preparation solution.

The caecum was visualised in 86.4% of all patients prepared with PEG, and 91.5% of those prepared with SP ($\chi^2=1.05$, $p=0.30$). Afridi *et al*[9] reported similar figures of 90.1 % and 94.3% respectively. Church *et al*[3] showed that there was no difference in colonoscopy completion rates between consultants and supervisedtrainees. In this study, 48% of colonoscopies were performed by a consultant and 52% by trainees.

Good bowel preparation is an essential prerequisite for safe colonoscopy. Endoscopists rated the preparation as good or excellent in 74.0% of the PEG group compared with 70.4% of those patients assigned to the SP group ($\chi^2=0.23$, $p=0.63$). Kolts *et al*[7] found that oral sodium phosphate solution was better in achieving an excellent or good cleansing score compared with the electrolyte lavage but again the difference was not statistically significant.

Sodium phosphate preparation is cheaper (NHS cost £4.79 versus £8.39, British National Formulary September 1998), easier to take and as effective as PEG solution for preparation of the colon prior to colonoscopy.

Sodium phosphate based bowel preparation for colonoscopy is as effective as polyethylene glycol. There was no significant difference in this study between either agent in terms of patient acceptance, side effects, adequacy of bowel preparation or efficacy of subsequent colonoscopy.

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A comparison of open access endoscopy and hospital-referred endoscopy in a district general hospital

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SUMMARY

Open access endoscopy (OAE) is widely used in many hospitals. The aim of this study was to compare the upper gastrointestinal endoscopies referred to as "OGDs" performed under the OAE service and those referred from hospital outpatient clinics (HR) during the initial year in which an OAE service was provided in a district general hospital.

A retrospective review of medical records from all patients undergoing OGD during the first year of OAE to identify the waiting time for OGD, the extent of pre-treatment at the time of OGD, the endoscopic findings and the number of endoscopies in which oesophageal or gastric neoplasia was detected. Follow-up endoscopies (n=41) were excluded.

Of 739 OGDs included, 384 (177 male; mean age 48.0 yrs.) were performed under the OAE service, 346 (149 male; mean age 50.7 yrs.) were referred from outpatient clinics and 9 could not be accurately classified. The waiting time was significantly lower in the OAE group compared to the HR group (24.5 v 29.8 days, $p<0.001$). Pre-treatment at the time of OGD was significantly more frequent in the OAE group compared to the HR group (295 v 186, $p<0.001$). Frequencies of the main endoscopic diagnoses did not differ significantly between the two groups.

The OAE service provided faster access to OGD than the HR group and the endoscopic findings were similar in the two groups.

INTRODUCTION

Since it is generally accepted that the clinical evaluation of dyspepsia will misclassify one-third of major pathological lesions, upper gastrointestinal endoscopy (OGD) is necessary to determine the specific aetiology and to identify the most appropriate therapy, at least in patients over 45 years old.[1] Open access endoscopy allows rapid access to outpatient OGD for patients in primary care. A recent British Society of Gastroenterology survey reported that 74% of members were offering this service.[2] It has been suggested that an open access service will provide a shorter waiting time for endoscopy in comparison to those who have an initial consultation at the outpatient clinic. As a result of the shorter waiting time, GPs could prescribe symptomatic treatment rather than acid suppression therapy, which may mask upper gastrointestinal pathology, giving a false negative endoscopy result. This may also reduce unnecessary prescriptions for acid suppression therapy with resulting economic benefits. In addition, a rapid diagnosis may improve the prognosis, for example, in oesophageal carcinoma since earlier treatment can be instituted. Such an improvement in prognosis has not been observed for early gastric cancer.[3]

Since its introduction in the 1970s open access endoscopy has been surrounded by controversy over its benefits. The referral system is open to overuse by GPs and to counteract this some centres censor the referrals and are not strictly "open access".[4] For example, a barium swallow

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examination may be more appropriate than endoscopy as an initial investigation for certain groups of patients with dysphagia.[5] Criticisms of the open access service include the fact that patients may be more anxious about their procedure than patients screened at an outpatient clinic although one recent study has not confirmed this.[6] In another study, 64% of patients preferred to be seen at the consultant clinic first.[7] There is also a significant increase in workload for the endoscopy unit by providing such a service despite a relatively low diagnostic yield.[8]

In order to succeed, centres offering an open access service must be continually assessed and monitored to ensure that their aims are being achieved. We reviewed all OGDs performed in the first year in which an open access endoscopy service was offered to general practitioners Gps in the area surrounding Craigavon Area Hospital in order to compare OGDs performed under the open access service (OAE) and those referred within the hospital (HR) to detect if there are any differences in waiting time, previous treatment, symptomatology and endoscopic findings.

METHODS

All OGDs performed in Craigavon Area Hospital between 1st April 1995 and 30th March 1996 were identified from computerised records. This is a district general hospital serving a population of 200,000. A review of medical records was then carried out taking note of the demographic details, waiting time from referral to OGD, symptoms and smoking habits, therapy before OGD, previous investigations, endoscopic findings and, following the OGD, whether further investigations were requested or if specific therapy was suggested. A normal endoscopy was taken to be the absence of pathology and included hiatus hernia without oesophagitis. Where two or more diagnoses were evident, the principal diagnosis affecting treatment was used as the "endoscopic finding". The waiting time was taken to originate from the date on which the open access referral request form was sent by the GP for OAE, or the clinic date on which it was decided to proceed to OGD, in the HR group. A comparison was then made between open access endoscopies and those referred from hospital outpatient clinics to determine if there were differences in referral patterns, waiting times or the pathological lesions detected.

A standard OAE referral form with a list of ten symptoms and a space for the appropriate response was issued to GPs. Demographic details, alcohol and smoking habits were recorded. Guidelines were issued to GPs before commencement of the OAE service. These indicated that patients over 45 years old presenting with a new onset of dyspepsia and all patients with other sinister symptoms (anaemia, dysphagia, weight loss, family history of gastric neoplasia) should be referred to an outpatient clinic in the first instance. All follow-up OGDs performed for surveillance of benign or malignant lesions were excluded. A small number of emergency OGDs performed each year in the hospital theatres for overt upper gastrointestinal bleeding were not included. In addition, OGDs performed as part of a limited endoscopy service in a rural hospital in the same trust were also excluded.

STATISTICAL ANALYSIS

Statistics where appropriate are shown as mean values with standard deviation in parentheses. Group comparisons of variables were made using the Chi-square test. Continuous variables were compared using the Mann Whitney U-test. A value of $p< 0.05$ was considered significant.

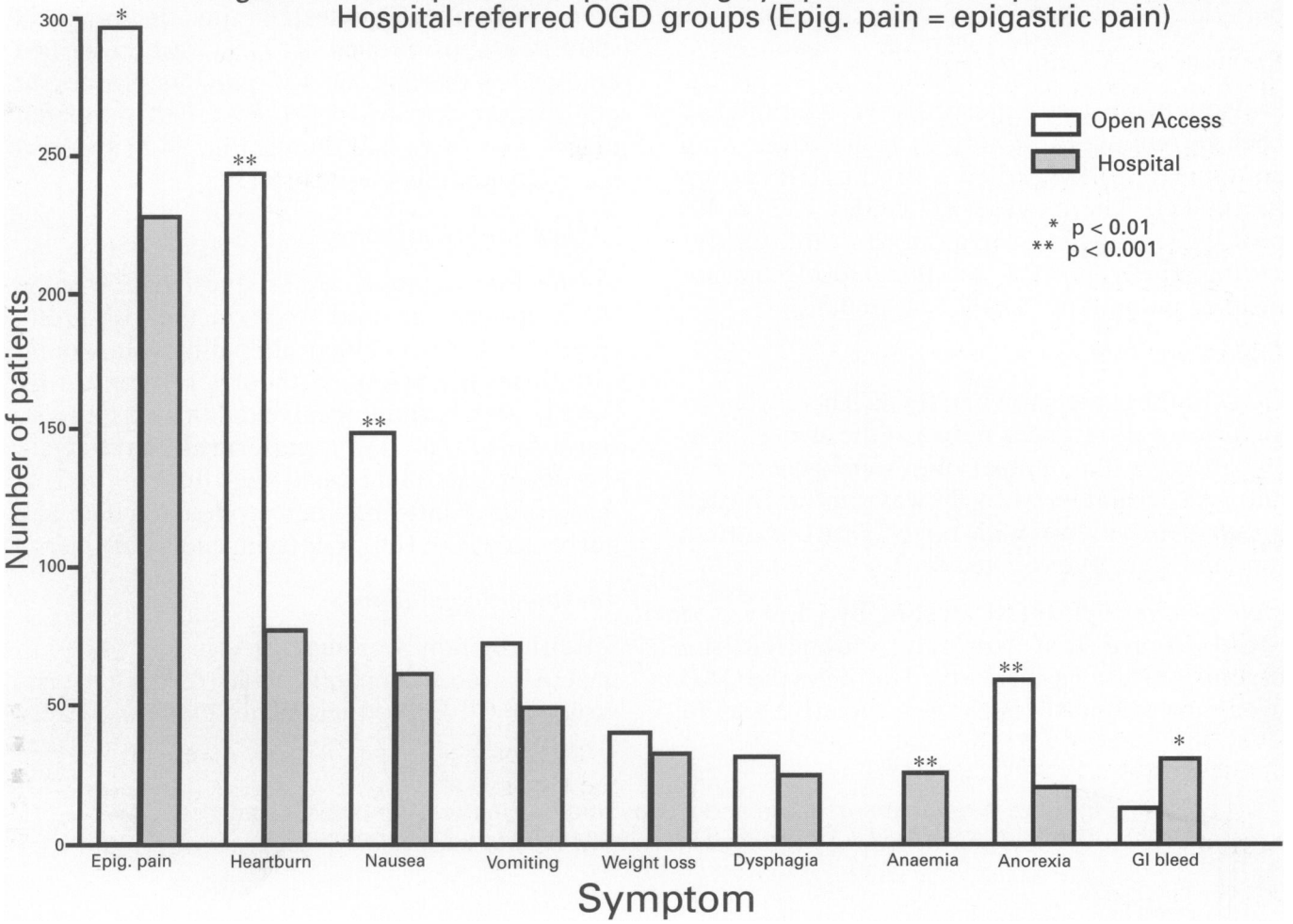
RESULTS

Patients and waiting times

Seven hundred and ninety-two OGDs were performed during the study period. Forty- one were excluded since they were follow-up OGDs and 12 medical records could not be obtained leaving 739 in the group under consideration. Of these, 384 (177 male; mean age 48.0 yrs.) were performed under open access referrals, 346 (149 male; mean age 50.7 yrs.) were referred from hospital outpatient clinics and nine could not be accurately classified.

The number of patients referred to the open access system did not differ significantly between fundholders and non-fundholders (111 *v* 273; p=0.32). The mean waiting time in the OAE group was 24.5 days (standard deviation 16.0; range 1-119 days), compared to 29.8 days (standard deviation 21; range 1-141 days) in the HR group ($p<0.001$). The waiting time for fundholders and non-fundholders was similar in the HR group (29.0 *v* 30.1 days, $p = 0.43$) although fundholders had a longer wait for OAE (27.8 *v* 23.1 days, p=0.016).

Figure 1: A comparison of presenting symptoms in the Open Access and Hospital-referred OGD groups (Epig. pain = epigastric pain)



Clinical features and smoking habits

The clinical features present in each of the groups are given in fig. 1. More patients in the OAE group complained of epigastric pain (p=0.002), nausea (p<0.001), heartburn (p<0.001) and anorexia (p < 0.001) than in the HR group, whereas more patients in the HR group had evidence of gastrointestinal bleeding (p=0.003) and anaemia (p<0.001) compared to the OAE group. The prevalence of vomiting, weight loss and dysphagia did not differ between the two groups.

More patients with upper gastrointestinal pathology (n=527) had anaemia compared to those who had a normal OGD (n=203) (24 *v* 3; p=0.046). Heartburn (49 *v* 85; p=0.022), dysphagia (12 *v* 14; p=0.047) and weight loss (10 *v* 8; p=0.023) were more frequent in patients with oesophagitis compared to the normal OGD group. There was no difference in the frequency of these features in patients with duodenal ulcer/duodenitis or gastric ulcer/gastritis compared to the normal OGD group.

A smoking history was absent in 314 (82%) in the OAE group and 240 (69%) in the HR group (p<0.001). Of those cases in which a smoking history was given, the number of smokers was similar in each group (41 *v* 53; p=0.17).

Treatment before OGD

Two hundred and ninety-five (77%) patients in the OAE group were currently on upper gastrointestinal treatment at the time of their procedure compared to 186 (54%) in the HR group (p<0.001). More patients in the OAE group were on proton pump inhibitors (134/384 *v* 90/346; p=0.01) and H_2 receptor antagonists (107/384 *v* 74/346; p=0.048) compared to the HR group. The number of patients referred to OAE from fundholding practices on acid suppression was similar to those from non-fundholding practices (78/111 *v* 163/273; p=0.062). However, more patients in the fundholding group were on proton pump inhibitors (48/111 *v* 86/273, p=0.034); no difference was observed for patients

on H_2 receptor antagonists (30/111 *v* 77/273; p=0.9).

Previous investigations

Previous upper gastrointestinal investigations had been carried out in 175 (45%) in the OAE group compared to 198 (57%) in the HR group (p=0.002). There were 81 OGDs (32 *v* 49, p=0.019), 115 ultrasound abdominal examinations (45 *v* 70, p=0.002 and 258 barium meal examinations (134 *v* 124, p=0.82).

Endoscopy findings

OGD findings are shown in fig. 2. There were no significant differences between the two groups. In particular, the number of oesophageal (1 *v* 3) and gastric tumours (2 *v* 2) was similar in each group. All patients with upper gastrointestinal tumours were over 65 years.

Helicobacter pylori (HP) testing by CLO test (a rapid urease test for campylobacter-like organisms) test was performed in 162 in the OAE group, of whom 81 (50%) were positive and 74 (91%) of these were prescribed eradication therapy. Of 118 CLO tests in the HR group, 58 (50%) were positive and 54 (93%) were prescribed eradication therapy. Of 185 patients prescribed eradication therapy, 51 (28%) had duodenal ulcers, 64 (35%) had duodenitis, 34 (18%) had gastritis and nine were normal.

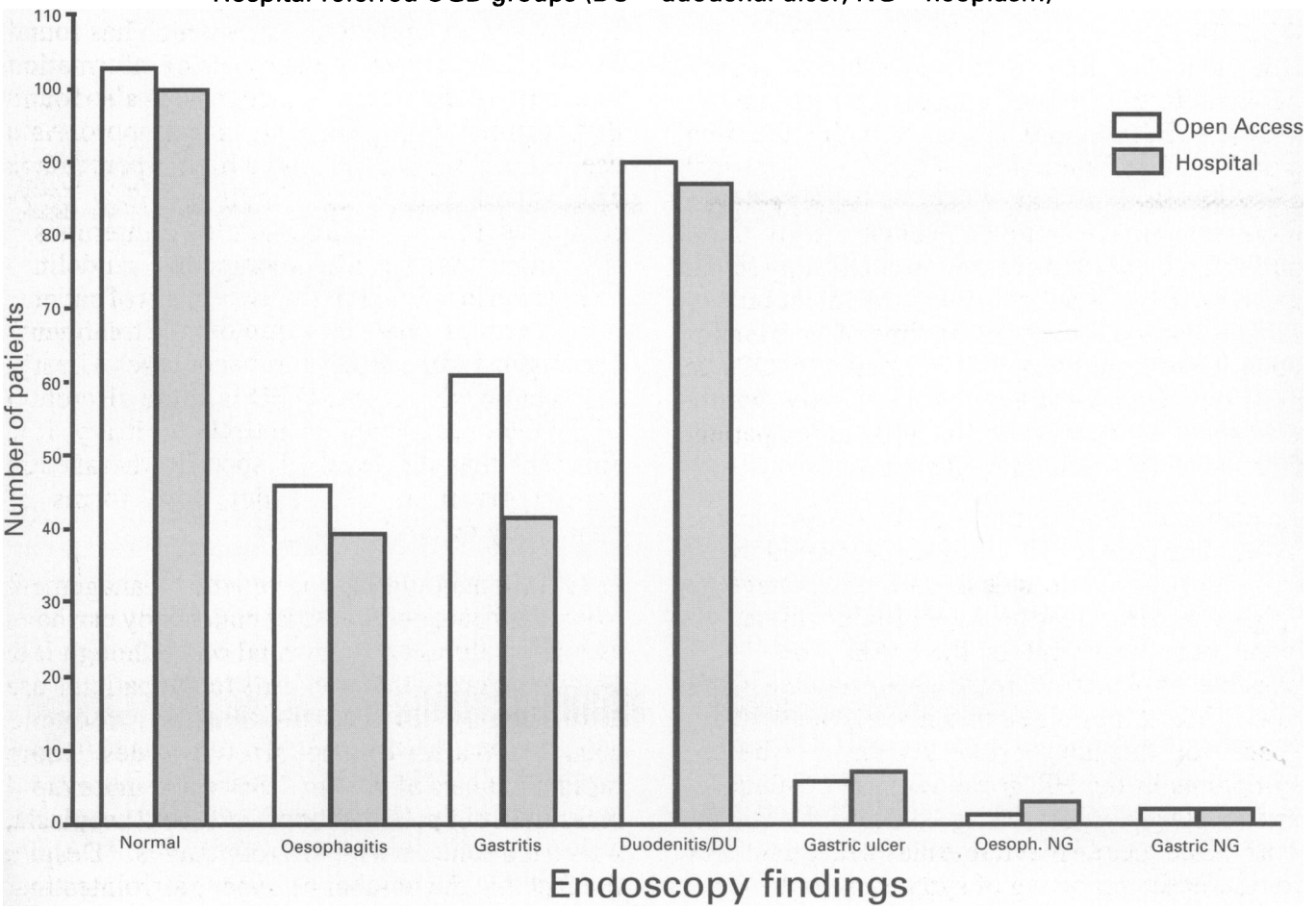
Follow-up investigations

Further investigations were requested in 54 of the OAE group compared to 37 in the HR group (p=0.1). These included abdominal ultrasound examination (n=53), 24-hour pH monitoring (n=15) and barium meal examinations (n=7). Barium meals (n=7) were performed to investigate the upper gastrointestinal tract further. In 2 of these further information was gained which had not been detected on OGD (both duodenal ulcers).

Therapeutic guidelines

Specific therapy was suggested in 245 (64%) in the OAE group compared to 240 (69%) in the HR group (p=0.14). No therapeutic guidelines were

Figure 2: A comparison of the endoscopy findings in the Open Access and Hospital-referred OGD groups (DU = duodenal ulcer; NG = neoplasm)



given in the letter to the GP in 187 cases (94 *v* 93, p=0.55) and "symptomatic therapy" was suggested in 56 cases (43 *v* 13, p<0.001).

DISCUSSION

Open access endoscopy has been the subject of much controversy since its initiation over 20 years ago. Our study clearly demonstrates that there is a significant reduction in waiting time for OAE compared to HR endoscopy. There was no significant difference in waiting time for fundholders and non-fundholders for HR endoscopy, although fundholders had a longer waiting time for OAE. The waiting time for HR endoscopy does not take into account the waiting time to be seen at the outpatient clinic which obviously varies widely for the three consultants offering this service and adds to the waiting time.

The extent of pre-treatment with acid suppression therapy in both groups is a cause for concern since this may lead to healing of pathological lesions prior to endoscopy, it may cause a false-negative *Helicobacter pylori* result[9] and it may also delay the diagnosis of early gastric cancer.[10] Acid suppression therapy was more prevalent in the OAE than the HR group, both for proton pump inhibitors and H_2 receptor antagonists, and this difference may reflect GPs prescribing habits. It is clear that there is extensive use of proton pump inhibitors before endoscopy which is more prevalent in fundholding than non- fundholding practices. For fundholding practices, empirical acid suppression therapy may be perceived as a more economical option although clearly these patients may need to proceed to endoscopy for an accurate diagnosis if empirical treatment fails to relieve symptoms. A waiting time of 24 days for open access endoscopy should enable GPs to prescribe symptomatic treatment only before endoscopy since there are benefits to the patient from a reliable, accurate diagnosis.

As expected, more patients in the HR group had anaemia and upper GI bleeding compared to the OAE group, whereas less sinister features of epigastric pain, heartburn, anorexia and nausea were more prevalent in the OAE group. One possible explanation for this is that the OAE referral form has a list of ten symptoms with a space for the appropriate response, whereas symptoms in the HR group rely on an adequate and thorough history being taken by the doctor. This introduces an inevitable bias with a tendency for increased reporting of symptoms in the OAE group. Regarding the major upper gastrointestinal pathologies, more patients with oesophagitis reported three symptoms (heartburn, dysphagia, weight loss) compared to the normal OGD group. Although heartburn is more common in the oesophagitis group it has a poor specificity as it is reported in 42% (n=85) of those with a normal OGD. This underlines that symptoms are generally a poor predictor of upper gastrointestinal pathology emphasising the usefulness of OGD in the evaluation of patients with dyspeptic symptoms.[1] The absence of a smoking history, in particular, on the OAE form which involves a "circle as appropriate" response is clearly inadequate in view of the significance that this may have on upper gastrointestinal pathology and *Helicobacter pylori* infection.

Our finding that previous investigations were more common in the HR group clearly indicates that upper gastrointestinal symptoms and pathology are often recurrent leading to hospital referral or re-referral and investigation. This introduces an inevitable selection bias in the HR group which cannot be avoided.

The yield of positive endoscopic findings between OAE and HR did not differ significantly which contrasts with a previous study which has found that specialists have a higher yield of information relevant to patient care.[11] Zuccaro *et al* also found that gastroenterologists have a more appropriate use of OAE (85 *v* 81%) and a higher percentage of positive endoscopic findings (62 *v* 52%) compared to non-gastroenterology internists.[12] We found that specific therapeutic guidelines were given in approximately two-thirds of patients in both groups whereas "symptomatic treatment" was suggested in a small number of cases. Clearly therapeutic advice post-OGD is at the discretion of the endoscopist and is entirely arbitrary. It is apparent that the level of specific therapeutic advice given to GPs under both forms of endoscopy referral is similar.

OAE has a major impact on patients' management in primary care and a normal endoscopy can have as much value as an abnormal one although it is hard to quantify this. Benefits to the patients are a rationalisation of medication, reduced consultations, lower hospital referral rates,[11] more rapid diagnosis of benign disease and more rapid reassurance of patients concerned about neoplasia, which is a concern with 41% of patients.[13] Despite the fact that the number of upper gastrointestinal

tumours was small, this was similar in both groups and a restriction on OAE cannot be justified at present, on this basis, since individual symptoms have a poor discriminant value.[13] However, targeting the service to those over 45 years old could reduce the number of procedures, increase the diagnostic yield and still detect all the tumours in our patients.

Recently strategies have been proposed for non-invasive screening for *Helicobacter pylori* in dyspeptics under 45 years. *H.pylori* positive subjects can either be given empirical eradication or undergo OGD.[14, 15] Heaney *et al* have reported that *H.pylori* negative subjects can be treated symptomatically, without undergoing OGD due to the low rate of pathology, thus reducing endoscopy workload by 42% and resulting in improvements in dyspepsia and quality of life at 6-month follow-up.[15] This strategy has been proposed to improve selection of young dyspeptic patients for endoscopy and clearly reduces the workload of the endoscopy unit.

During its first year, the OAE service provided more rapid diagnosis for patients referred to this service, although the diagnostic yield including upper gastrointestinal tumours was similar, when compared to the HR group. Further follow-up is required to ensure that the shorter waiting time for OAE is maintained over subsequent years.

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A home from hospital service for older people

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ABSTRACT

Current policy and practice emphasises much more than ever before a need for purchasers and providers to reduce appropriately the length of hospital stay. Consequently, a number of early discharge "schemes" have been developed. This paper presents the findings from an evaluation of a "home from hospital" (HFH) scheme.

The HFH service provides a maximum of six weeks' intensive domiciliary care for older people on their discharge from hospital. The aim of the service is to facilitate early discharge from hospital and to assist patients to regain independence. The study reported here elicited the views and perceptions of clients and professionals involved in the HFH scheme about the quality, efficiency and effectiveness of the service.

Seventy-five patients were discharged from hospital to the HFH scheme during a two month period and those who consented to participate in the study were interviewed after discharge from the HFH service (n = 40). Participants had attended hospital for various conditions but the largest group were fracture patients. Hospital staff and community based professionals completed a questionnaire about the service.

Overall, patients and professionals perceived the HFH scheme as a beneficial service, though some minor problems existed at an individual level. Clients' dependency levels generally decreased during their time on the scheme.

Research using a controlled design is necessary in order to draw firm conclusions about the cost-effectiveness of a HFH service. Overall, home-from-hospital appears to be an effective model of an early discharge scheme worthy of further attention.

INTRODUCTION

The DHSS (NI) policy document *People First: Community Care in Northern Ireland for the 1990s*[1] (published in 1990 and implemented on 1st April 1993) emphasised further the need for joint working between hospital services and care in the community. The current *Regional Strategy for Health and Social Wellbeing* (1997-2002)[2] states that care for elderly people should be configured and developed with the aim of supporting at least 88% of elderly people in their own homes. In November 1997, a "Winter Pressures" Group was established in Northern Ireland to examine methods to deal with the problem of increased demand on hospital beds over the winter months. A "home from hospital" (HFH) service was one of the responses which purchasers and providers developed as a consequence of these (and other) factors. This paper aims to report and discuss the results of an evaluation of the home from hospital service in the Northern Health and Social Services Board (NHSSB) in Northern Ireland.

There is a scarcity of published evaluative research on the HFH model of service provision. Millar[3] described some HFH schemes which have been established in Britain; and Shepherd[4] reported mainly positive views expressed by older users of a HFH scheme and their carers in Nottinghamshire. Other authors have demonstrated how a home based rehabilitation scheme was more effective in terms of reducing disability than hospital care for older people with

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stroke and hip fractures.[5,6] The research reported here is one of the few studies which examine the merits or otherwise of this type of post-hospital discharge service and the use of Winter Pressures money.

The HFH service which was the focus of the evaluation is designed to provide domiciliary care to patients on their discharge from hospital for a period of approximately six weeks. The main purpose of the scheme is to enable patients to undergo rehabilitation in their own homes, in order to encourage a full and quick return to independence in an environment with which they are familiar and within which they feel comfortable. The HFH service aims also to permit patients to return home from hospital earlier than otherwise would be possible; and to avoid the need for residential or nursing home care by providing a care worker to perform personal care tasks within the patient's own home.

METHOD

To be considered for entry to the HFH scheme clients must be adults who were independent before admission to hospital and who are likely to regain their independence within six weeks after discharge from hospital. The potential for independence is assessed by a hospital social worker in consultation with the hospital multi-disciplinary team. During the period of the study (February and March 1998), a total of 75 patients (58 females; 17 males) entered the HFH scheme. Of these 75, 40 (33 females; 7 males) were interviewed following their discharge from the HFH scheme. The participants had been admitted to hospital as a result of fractures (28%), hip replacements (15%), myocardial infarctions (10%), stroke (5%) and various other medical and surgical procedures. Only 7/40 patients had a carer. A total of 35 patients (25 females, 10 males) refused to take part in the study, although six of these only received the HFH help for less than a week. There were no statistically significant differences between participants and non-participants in terms of age, length of hospital stay or sex, but those who refused to participate in the study had been in receipt of the HFH scheme for a significantly shorter period than those who agreed to participate (see Table).

The one-to-one interviews with patients were conducted within one week after their discharge from the HFH scheme. All interviews were conducted by a single individual. The interview consisted of a mixture of closed and open questions designed to investigate the clients' opinions of the appropriateness of the help they received from the HFH scheme and how the scheme had addressed their concerns about leaving hospital. The interview also included the Barthel Index[7] which provides an indication of

TABLE

Comparison of patients who participated and those who refused to participate in the study

	Patients who participated in the study (n = 40)	Patients who refused to participate (n = 35)	
Age (years)			t = 0.39
mean (SD) range	76.43 (11.91) 60-95	77.56 (12.10) 51-95	p = 0.697
Length of hospital stay (days)			t = 0.41
mean (SD) range	16.74 (12.48) 2-56	19.19 (29.32) 0-130	p = 0.687
Length of time in HFH scheme (days)			t = 3.89
mean (SD) range	39.05 (12.42) 18-16	25.83 (16.21) 5-42	p < 0.001
Sex			χ^2 = 0.75
male : female	33 : 7	10 : 25	p = 0.386

level of dependency. Possible scores on the Barthel Index range from 0 to 20, with 0 indicating the highest level of dependency.

Questionnaires were posted to each patient's district nurse (where appropriate), community social worker and General Practitioner (GP) on completion of the interview. Response rates for the postal questionnaires were as follows: social workers – 98% (39/40); GPs – 75% (30/40); district nurses – 73% (16/22). Information about hospital discharge procedures was also collected from 9 ward managers and 12 hospital consultants.

RESULTS

Discharge from hospital

When asked if they were worried about leaving hospital, over half (56%; 15/27) of the patients responded in the positive. The types of worries they expressed were "being able to get about", "how to manage", "the type of help I will get" and "doing my shopping". Eleven felt that being told about the HFH scheme helped to relieve their anxieties. They were given a leaflet and were told about the scheme in the hospital by a social worker 2.7 days pre-discharge, on average (range = 0-7 days pre-discharge).

Leaving the HFH scheme

Over 50% (21/40) of patients received a home-help service after their time on the HFH scheme was finished, although more than half of this number (12/40) had been receiving a similar service before their admission to hospital. Around 28% (11/40) were anxious about leaving the HFH scheme. The most common worry related to uncertainty about being able to manage on their own. Other worries included: "... no confidence", "... problems getting dressed", "... not fit to do my housework", "... can't manage to get about and my husband has heart problems".

Changes in patient's dependency levels

At the end of their time on the HFH scheme, 36/40 (90%) patients stated that their ability to look after themselves had improved since hospital discharge. Those who reported feeling independent at this stage made comments such as "I can manage better indoors", "I'm more confident now" and "I can look after myself better now".

In addition to the scores on the Barthel Index at discharge from the HFH scheme (median = 19.5; range = 13-20), scores for 26 of these 40 patients at the point of their discharge from hospital were also available (median = 16; range = 13-20). For the 26 who were interviewed at the two points in time, a Wilcoxon statistical test suggested that there was a significant increase ($p < 0.001$) in patients' Barthel scores, indicating a decrease in dependency levels, between entry to and discharge from the HFH scheme.

Appropriateness of the HFH service

Most patients (35/40; 88%) agreed that the HFH scheme provided them with the right kind of help. In support of the service, they said, for example: "It's reassuring to have someone around", "It relieved the worry of my family" and "Rather do this as go to a [nursing or residential] home – you mend better in your own house". In response to the question: "how much help and support did you receive from the HFH scheme?" 27/40 (68%) reported "a lot", 12/40 (30%) reported "some" and one reported "very little". When asked if they felt this amount of help and support was enough, 36/40 (90%) responded positively.

All but one stated that they would recommend the HFH scheme to people who were in the same situation; and all but two would like to receive HFH again if they were ever admitted to hospital. Social workers, district nurses and GPs viewed the scheme as appropriate for 97.5% (38/39), 87.5% (14/16) and 97% (29/30) of patients respectively.

The contribution of HFH to early hospital discharge

Social workers deemed that 56% of patients would have remained in hospital for an extra 10 days, on average, in the absence of the HFH scheme. Ward managers judged that 60% would have remained in hospital for an average of an extra 12 days. Hospital consultants recorded that, in the absence of the HFH scheme, 39% of patients would have remained in hospital for an average of an extra 13 days.

The main reasons given by the professional groups for extending a patient's stay in hospital, in the absence of the HFH scheme, were that "the patients could not manage on their own at home", or that "the patient had poor mobility".

DISCUSSION

Much previous research has focused on the Hospital at Home (HAH) model of provision rather than HFH. Older medical patients on HAH schemes experienced more positive outcomes in

terms of recovery from illness than patients who remained in hospital longer and were not discharged to a scheme.[8] However, other research has not found any significant differences between older medical or orthopaedic patients who were discharged on to a HAH scheme and those who remained in hospital longer.[9, 10, 11] There is also a lack of consensus about whether or not HAH schemes are more cost-effective than hospital care.[12, 13, 14]

However, HAH schemes differ from the HFH model which is the focus of this paper. HFH provides personal or social care and some nursing care (for example, changing dressings, administering injections) to those who no longer need medical care but require assistance during a period of rehabilitation. HAH provides medical and nursing care to patients who might be described as hospital ward "outliers". Decisions about entry to and discharge from HAH schemes are usually made by a patient's GP or a senior community nurse rather than a hospital-based co-ordinator (usually a social worker) as is the case with HFH.

Overall, HFH appears to offer an effective model of organised post-discharge services for older people and, more importantly at least from the patient's perspective, contributes significantly to quality of life. There is a scarcity of research designed to investigate this largely social care model of hospital discharge services. However, the general pattern of results found in this study concurs with the findings reported by others [4, 5, 6] – where the HFH scheme was stated to have worked well, dependency levels decreased during time on the HFH scheme and although there were a few individual problems, the HFH service was perceived as beneficial. It is important to note that the largest group of participants in this study and in others [4, 6] had been admitted to hospital for fractures and hip replacements. The benefit or otherwise of a HFH scheme for those with other medical conditions is unclear and requires investigation. Previous research[11] has suggested that people with certain conditions (knee replacement) are not suitable for participation in an early discharge scheme or prefer to stay in hospital rather than be discharged early (chronic obstructive airways disease), whereas other people (with stroke) appear to benefit in terms of reduced disability in the medium term from rehabilitation at home rather than in hospital.[5]

Professional staff appeared to suggest that in many cases patients would have had to remain in hospital for a longer time because of non-medical reasons. This illustrates one of the potential benefits of HFH. Patients may complete their (non-medical) rehabilitation or recovery at home with the assistance of HFH, thereby releasing a bed for use by someone who requires medical treatment and care. However, there was some variation between the responses of professionals regarding those for whom this was the situation.

Any appraisal of the cost-effectiveness of the HFH service must take into account the extent to which the service facilitates early discharge from hospital, avoids the need for convalescence care in nursing homes and prevents hospital re-admission. Streamlining of discharge procedures to ensure continuity of care will reduce high levels of hospital re-admission[15] and agreement about responsibilities between hospital and social services staff in the discharge process will avoid "blocked beds".[16] These features are encapsulated and implemented in a HFH scheme. Therefore, early discharge and avoidance of hospital re-admission are more likely to be achieved by a service which has as one of its components a HFH scheme. This view is supported by the finding that substantial savings in bed days were made through an early discharge scheme which provided supported home rehabilitation for elderly people with a hip fracture.[13] However, firm conclusions about effectiveness and cost-effectiveness can only be drawn after an investigation using a controlled research design. Nonetheless, the HFH model of post-discharge care is valued highly by service users and is worthy of further attention if not replication by other purchasers and providers. In 1997/98, the Department of Health allocated £159m to "cope with winter pressures" and there are plans to distribute similar funds in 1998/99. However, few evaluations (controlled or otherwise) have been undertaken of the apparently large number of service schemes financed under the winter pressures allocation. Clearly, this is an area which merits research and development attention in order to ensure the effective, efficient and equitable use of resources.

ACKNOWLEDGEMENTS

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We would like to acknowledge the co-operation and help provided by clients and staff in the Board and in Causeway HSS Trust and Homefirst Community Trust.

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None so deaf

171st Annual Oration. Royal Victoria Hospital, Belfast 1st October 1998

Alan G Kerr, FRCS

INTRODUCTION

The tradition of the Annual Oration was introduced in the days when almost all clinical studies were carried out in this hospital, to welcome new clinical medical students. The world has changed since then and with it the curriculum, the academic calendar and, more than anything else, medical care. Although we may bemoan many of these changes, few of us would want to go back to medicine as it was when I was a student.

Last year we heard the 170th Oration from Morrell Lyons, entitled 'Anaesthesia and the Broken Hearted' and he told us about the development of anaesthesia for cardiac surgery. He said 'The broken hearted ... are not my surgical colleagues ... but rather patients with significant heart disease ...' Little did I think as I listened to him then, that between his oration and mine I would become one of his broken hearted patients.

I have now sampled this hospital from the other side and found it to be a very positive experience. I encountered at first hand what in my head I knew already. There are many people here, of all grades, who do a lot more than is included in their job descriptions and who are prepared to go far out of their way to make life easier for the patients. I am very grateful for all that was done for me in the cardiology wards.

To return to the tradition of this oration, I now welcome to this historic hospital all those clinical medical students who have arrived since the last oration one year ago. During the next few years you will have the privilege of many opportunities to understand patients and disease, and to lay the foundations for the rest of your medical careers. If you use the time wisely, you and your patients will continue to reap the reward for the rest of your professional lives. If you don't, you may well still pass your exams and collect your degrees but you will have missed an opportunity that will never be repeated, your future patients will get less than the best and you will gain less satisfaction.

It is my duty to give you some advice about your future. What better than that given by the famous Irishman, C S Lewis, cousin of Dr Ted Lewis, whom many will remember as a Consultant Physician in Wards 1 and 2? Both were born in Belfast exactly 100 years ago. In his Commemoration Address to King's College in London in 1944, C S Lewis gave some advice about professional life.

He advised that you make it your goal to associate with the people who have the right attitude to their profession and whose satisfaction lies in doing the job well. In this way you will preserve your integrity, enjoy what you are doing and hopefully do it well. You might also get fame and fortune. If on the other hand, you make it your aim to get in with those who you think can advance your career, you are more likely to get fame and fortune but possibly at a price that is too high. You will be more likely to lose your integrity and probably also forfeit much of the satisfaction that should come from what you are doing.

OTOLOGY

I am an otologist, and most of what I want to say concerns otology. For the past 30 years I have had the good fortune of working as a consultant in generally very good physical conditions with excellent colleagues, medical, nursing and others, both here and in the Belfast City Hospital. We have all worked diligently to prevent deafness from developing, and where it was present to do something about it. But of course, there is little advantage in being able to hear if one does not listen and hence my title, which as you all know is, in full, *'there are none so deaf as those who will not hear'*. This expression seems to have

been first used in the 16th century. The first record of the parallel statement, none so blind, seems to have originated with another famous Irish writer, Jonathan Swift. Now Swift had Méniere's disease and consequently was deaf in one ear. Maybe it was his personal experience that led him to create the expression "turning the deaf ear" when he said:

> 'They never would hear
> but turn the deaf ear
> as a matter they had no concern in.'

One of the many negative aspects of our political situation in Northern Ireland is that the majority here tend not to look to Dublin quite enough. This is sad because thereby we are losing part of our heritage. Dublin was a famous European city when Belfast was still little more than a small town and it is doubtful if Jonathan Swift would ever have accepted the post, if such had existed, as Dean of Belfast. It was in Dublin that Irish medicine first established itself.

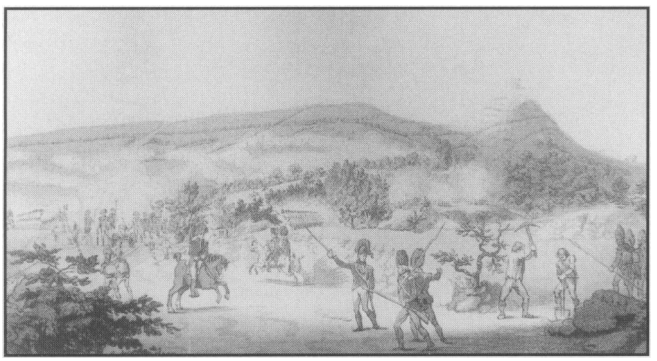


Fig 1. The Battle of Vinegar Hill. (Courtesy of the National Army Museum, London)

I'd like to start my story exactly 200 years ago in the Irish uprising of 1798. The final battle of that uprising was at Vinegar Hill (Fig 1) and at that battle, serving with the British Army, was a young Scots doctor who probably deserves the credit of being the first otolaryngologist in Ireland.

He was, of course, a lot more besides. He was a military surgeon named John Cheyne. (Fig 2). He later found life in the army rather boring. Between the battles, he complained, he got tired of billiards and books so he returned to civilian life to do some postgraduate training, both in his father's practice in Scotland and also with Charles Bell of Bell's Palsy fame. Cheyne married an Irish girl, daughter of the vicar of Antrim, and as has happened so often, it was he who settled in Ireland. He established himself as a physician in

Fig 2. John Cheyne. (Courtesy of RCPI)

Dublin where he became one of the leading lights. He was appointed to a chair in the College of Surgeons. It was he who launched the journal, Dublin Hospital Reports. He was a prolific writer and his works included a book which justifies me in putting him first in the line of otolaryngologists in Ireland. This was entitled *The Pathology of the Larynx and Bronchia* and was illustrated by Charles Bell. It was one of the early works of laryngology, in the days before there were specialist laryngologists.

It was in the Dublin Hospital Reports that Cheyne wrote his first description of the pattern of breathing we now call Cheyne-Stokes Respiration. He laid the foundation for the great success of the school of Irish Medicine in the nineteenth century. He retired to England in 1831, shortly before William Wilde (Fig 3) became a medical student in Dublin. Wilde was born in 1815 and went to the same school as Oliver Goldsmith in Elphin, Co. Roscommon.

Following graduation he studied Otology and Ophthalmology in London, Vienna and Berlin, and then returned to Dublin where he developed a very successful practice and opened his own Eye and Ear Hospital. He published a textbook on aural surgery, which was to become world-renowned. In the preface he referred to a concern that was often expressed in nineteenth century otology papers – the need to rescue otology from empiricism and found it upon pathology and reasonable therapeutics. Wilde's incision is still recognised by otologists.

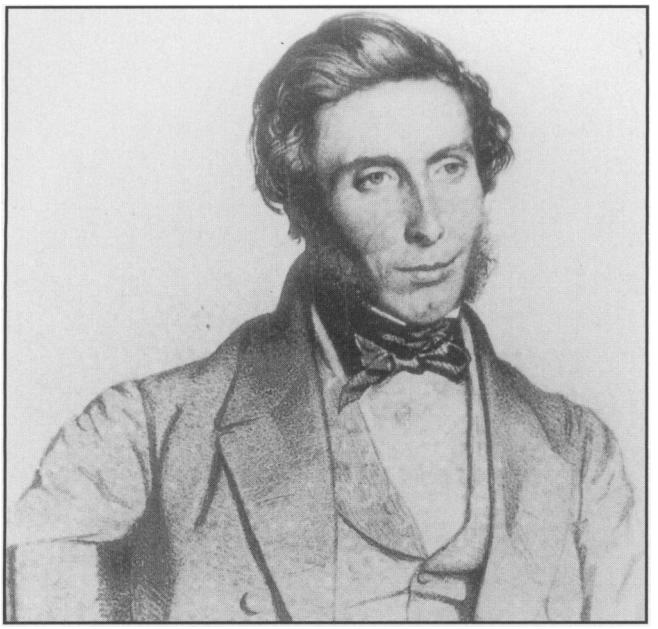


Fig 3. Sir William Wilde. (Courtesy of Prof. Eoin O'Brien and RCSI)

Sadly, just like his son Oscar, the later years of his life were marred by a sex scandal followed by a libel trial. Both father and son were effectively ruined by their court cases and afterwards neither added much to his enormous achievements. Oscar, however, appears to have retained his sense of humour. Shortly after his trial, while being transferred from one prison to another and left standing in the rain, he commented, 'If this is the way Queen Victoria treats her prisoners, she doesn't deserve to have any'.

Fig 4. Sir Robert Woods. (Courtesy of Prof. J B Lyons and RCSI)

Sir William Wilde died in 1876 but 11 years earlier, in 1865, another famous otolaryngologist had been born. Sir Robert Woods (Fig 4) was the first Irishman to have practised Otolaryngology exclusively. He became President of the Royal College of Surgeons in Ireland in 1910 and was knighted in 1913. One of his sons was killed in the first world war in 1916, and it is said that it was to seek a diversion that he decided to enter politics. He failed at the first opportunity but when Sir Edward Carson moved to a Belfast seat, leaving one vacant in Dublin University, he was elected, as a Unionist, in 1918.

Sir Robert was a Protestant and a unionist, and his home in Dublin was eventually to become the British Embassy. Belfast Medical School was founded so that the youths of Ulster would not have to go to Edinburgh or Dublin for a medical education, where they would be exposed to undesirable influences. Ulster Presbyterians would have been quite happy to have had Sir Robert Woods teaching their boys, but not one of his protégés, Oliver St John Gogarty.

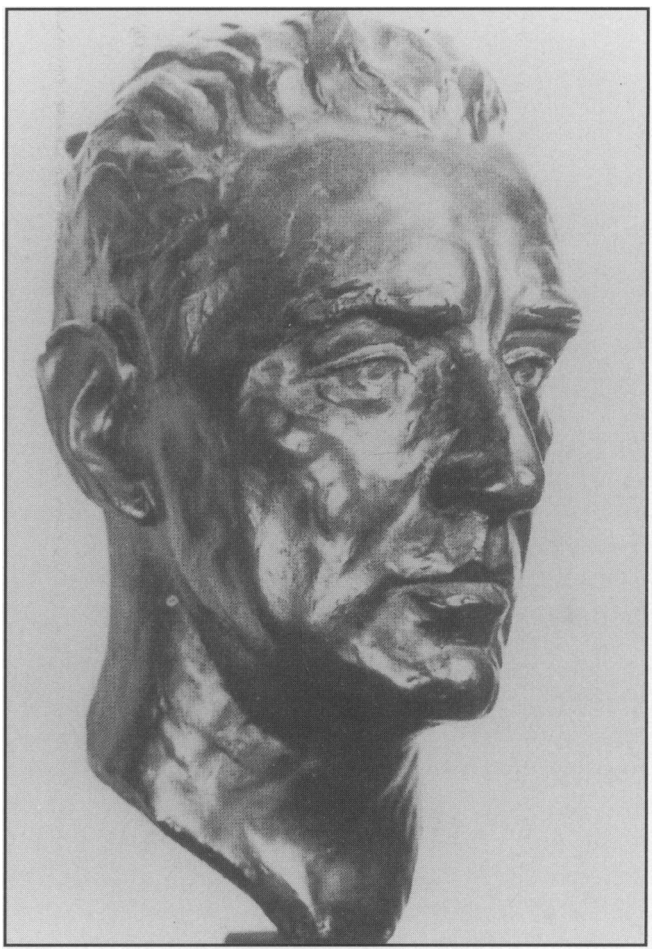


Fig 5. Oliver St John Gogarty. (Courtesy of Prof. Eoin O'Brien and RCSI)

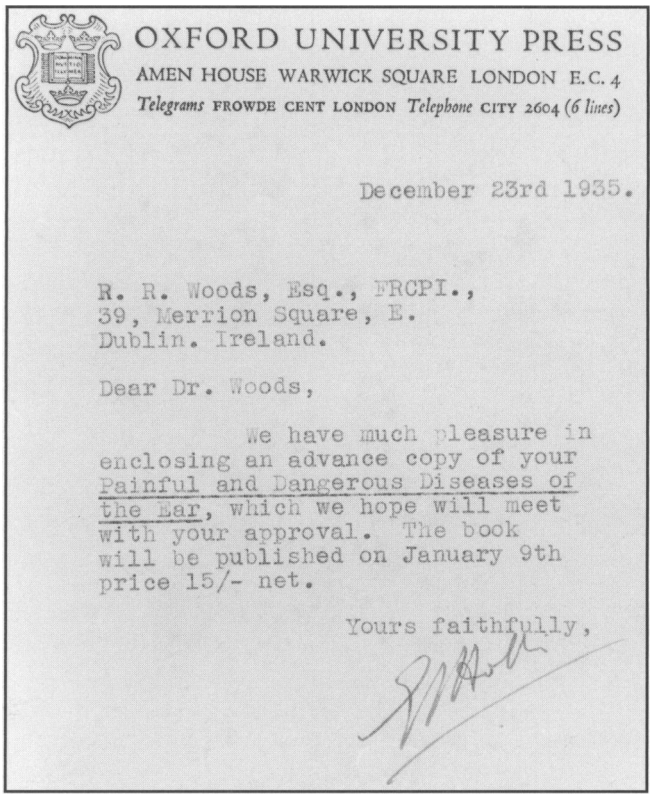
Gogarty (Fig 5) was a fascinating man. He was a friend of W B Yeats, James Joyce and Augustus John. He was a type that doesn't exist any more. He had finished his whole medical course, as one could do in those days, before he had passed even his second MB examination. He was an outstanding poet and, when he was short of money, would enter for, and usually win, undergraduate poetry prizes. He was also a master of the obscene limerick which he could produce on the spot in almost an situation. During his time as a student he was one of Ireland's leading racing cyclists although he was banned from competing for a time because of his bad language. He was also a strong swimmer and on three occasions went into the water fully clothed in a rescue attempt, being successful in two of these.

He was a very close friend of Arthur Griffith, the founder of Sinn Féin and became an active member of that party. He was involved in the 1916 uprising and helped to look after Griffith during Griffith's terminal illness. I'm told that it was he who did the post-mortem examination on Michael Collins. He was a member of the first Senate after the creation of the Irish Free State and as such was declared a legitimate target for the rebels.

In January 1923 he was taken from his home at gunpoint and driven to a house on the banks of the Liffey where he was held in a dark cellar. He claimed to have diarrhoea and requested permission to go outside to relieve himself. Two guards were sent with him. Getting them to hold his coat, he suddenly ran off and for the fourth time in his life dived fully clothed into the water, and swam to the other side, surviving the gunfire aimed at him.

He played an active role in the Senate and, according to the record, never hesitated to speak, even when he was quite uninformed on the subject!

Gogarty began to lose interest in otolaryngology in the early 1930s. But another Woods had appeared on the Irish stage in the form of Bobby, one of the sons of Sir Robert. In those days there were still no pure otologists in Ireland but R R (Bobby) Woods had a special interest in the ear. In the pre-antibiotic days there was a lot of fatal ear disease, usually from intracranial complications, and in 1936 he published an excellent little book entitled 'Painful and Dangerous Diseases of the Ear'. I believe that it was shortly before Woods died that he gave his pre-publication copy (Fig 6) to Gordon Smyth,



OXFORD UNIVERSITY PRESS
AMEN HOUSE WARWICK SQUARE LONDON E.C. 4
Telegrams FROWDE CENT LONDON *Telephone* CITY 2604 *(6 lines)*

December 23rd 1935.

R. R. Woods, Esq., FRCPI.,
39, Merrion Square, E.
Dublin. Ireland.

Dear Dr. Woods,

We have much pleasure in enclosing an advance copy of your Painful and Dangerous Diseases of the Ear, which we hope will meet with your approval. The book will be published on January 9th price 15/- net.

Yours faithfully,

Fig 6. Letter from the publisher to Bobby Woods.

who subsequently, shortly before he died, gave it to me. Maybe I should plan never to give it away!

Bobby Woods was one of the few Irish surgeons who was involved at the very start of the renaissance of otology in 1938 when the single-stage fenestration operation for otosclerosis was introduced.

However, before talking about that let me digress for a moment or two to remind you of the anatomy and physiology of the ear. There are three parts, simply known as outer, middle and inner, and we now know that each one of these plays some role in amplifying sound. First there is the outer ear which, with the auricle, acts as a sound-collecting system and funnels sound down the ear canal. At the inner end of this is the ear drum which with the middle ear ossicles adds further amplification.

In recent years it has been discovered that the outer hair-cells in the cochlea actively contract to boost the signal and therefore add yet more amplification. The brain also amplifies, in that when we concentrate we hear better and, of course, *there are none so deaf as those who will not hear.*

The balance organs are also situated in the inner ear. Not only do they help to keep us upright on the narrow base of two feet but they are also very important for co- ordination of eye movements.

Now there are many potential problems as sound moves from the environment to the brain. Let us, by way of illustration, look at otosclerosis, one of the more common forms of severe middle-ear deafness, especially in young adults. The stapes, or stirrup, (Fig 7) becomes immobile as the result of new bone growing in the middle ear and preventing normal vibration.

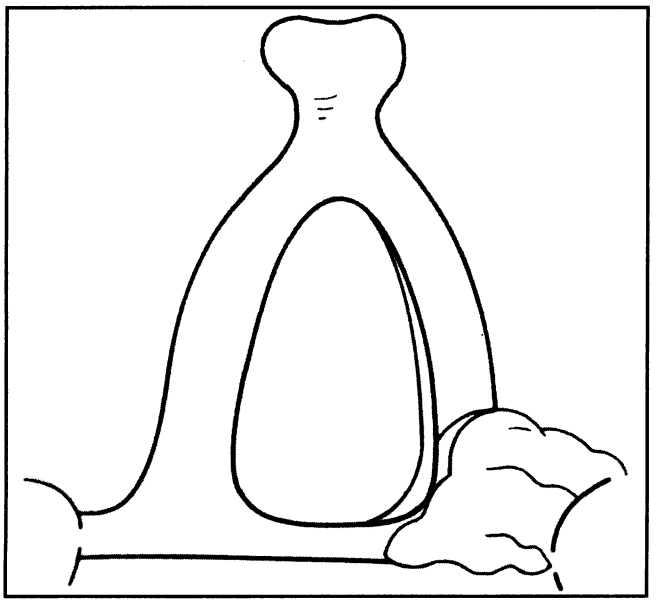


Fig 7. Diagram of stapes immobilised by new bone. (From Scott-Brown's Otolaryngology, Courtesy of Butterworth-Heinemann.)

Until Lempert's fenestration procedure, otosclerosis was a fearful diagnosis. It meant a slowly progressive deafness. It usually started in the early twenties and often caused severe and incapacitating hearing loss within 10 years, leading to extreme social isolation. In 1938, when hearing aids were still very primitive, a New York surgeon, Julius Lempert, introduced the one-stage fenestration operation whereby the middle ear was bypassed so that sound got into the inner ear via the balance system. Although this route of entry could not give normal hearing, it was a great leap forward. So far as I can ascertain it was Bobby Woods who introduced this procedure to Ireland.

It was not until after the war that the first fenestrations were done in Northern Ireland, by Kennedy Hunter. (Fig 8) This hospital was probably even more short of money in those days than now, because Kennedy had to buy his own microscope and drill to do the operation. By the time I started otolaryngology in the early 60s Kennedy Hunter did little other than otology and was setting high standards for ear surgery in Belfast.

Lempert's fenestration operation was a major breakthrough and was the start of the renaissance of ear surgery. But there were potential problems. If an ear is operated upon where the deafness is not due to fixation of the stapes, sound energy will get into the balance organs and cause severe dizziness. Such a patient will be very much worse off. The hearing will not be any better and she will be dizzy every time she comes into contact with a loud noise.

A rather obsessional New York surgeon, Samuel Rosen, was so disturbed by this problem that, to avoid it, he began all his fenestration operations by opening the middle ear under local anaesthesia to confirm that the stapes was indeed fixed. If it was not he didn't proceed with the operation. In one patient, in 1953, while probing the stapes to confirm its fixation, he inadvertently mobilised it. Because it was under local anaesthesia, the patient became immediately aware of the improvement in his hearing.

Rosen realised the significance of this event and the potential for other patients with otosclerosis, and looked further into this. He was meticulous

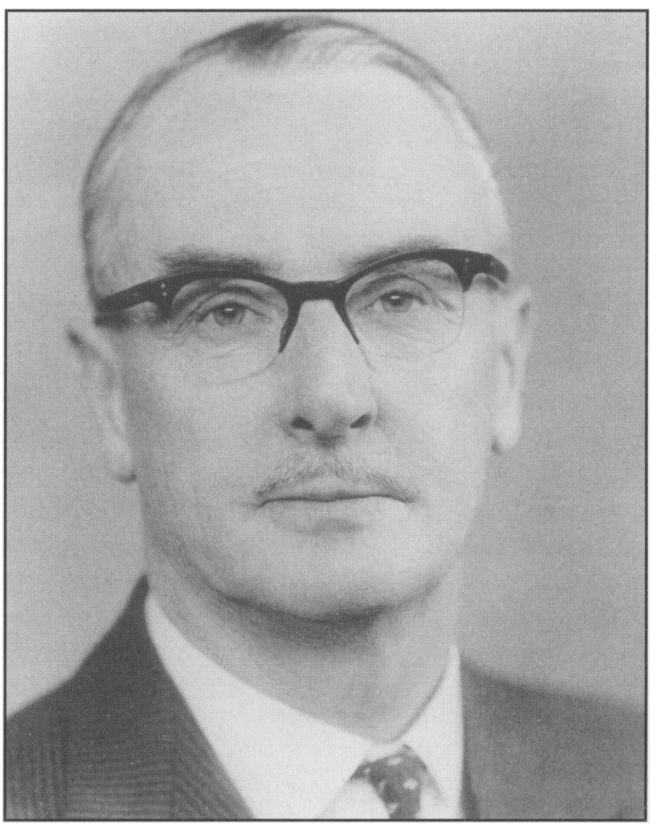


Fig 8. Kennedy Hunter.

and decided that he would have to develop special instruments and also practise this procedure. This happened around the time that he was having some problems with his hospital and therefore, in order to practise, he brought home whole heads which he obtained from a New York Mortuary. He kept these in his domestic fridge. I think the cleaning woman must have been a little indiscreet and when a decapitated body was found near Rosen's home the police searched his house, found a head and arrested him. It was only when the police doctor confirmed that the head from the fridge didn't fit the body, that they believed Rosen's story and let him out of custody.

Thus began the era of mobilisation of the stapes. When successful, this was a smaller operation than the fenestration procedure and gave better hearing results with fewer complications. Sadly the long-term results were poor, as the new bone tended to regrow and immobilise the stapes again. However, it focused the minds of otologists on the stapes and in 1958, in Memphis, Tennessee, John Shea carried out the first stapedectomy operation. He removed the whole of the stapes, sealed the inner ear with a vein graft and replaced the stapes with a polythene strut. This was an instant success, and added impetus to the development of ear surgery.

Suddenly, ear surgeons all over the world began to think of improving hearing, even in chronically infected ears with long-standing perforations. And it was into this exciting atmosphere that Gordon Smyth (Fig 9) came when he began his otological career under the inspiration of Kennedy Hunter. He was subsequently to become one of the leading otologists in the world and a dominant influence here. I, and most of my otolaryngology colleagues in Northern Ireland, owe him an enormous debt of gratitude.

When he was still a registrar, Gordon Smyth described a new and revolutionary surgical procedure in the management of cholesteatoma, known as the intact canal wall, or closed cavity, tympanoplasty. He became well known before he became a consultant. We all know the scene where the patient is shown into the registrar and requests that he see the consultant. It seems that every generation produces one or two registrars who become better known than the consultants and Gordon was one of those. In the outpatient clinic, when the patient found himself in the cubicle with the consultant, he was liable to say

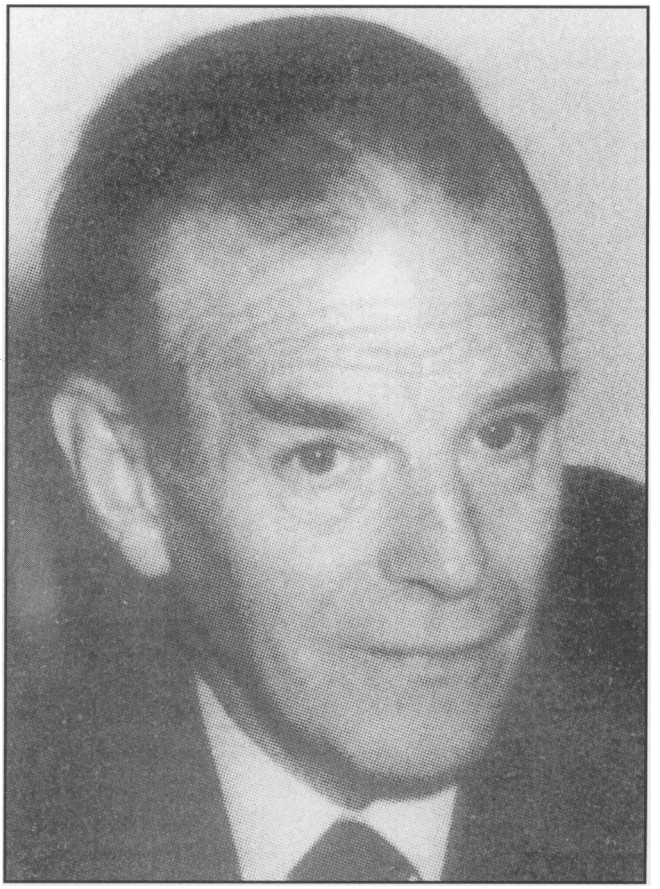


Fig 9. Gordon Smyth.

that he had come to see Mr Smyth and please, would it be possible to see him? Some consultants found this hard to take!

Gordon's idea was that it should be possible in most cases of cholesteatoma to remove all the disease by a combined middle ear and mastoid approach, but yet leave basically normal anatomy. Consequently there would be no open mastoid cavity to cause problems. This procedure was simultaneously but independently described by two surgeons in the United States and by another in Germany.

A lot of emotion was generated by this new surgical procedure and hot debates raged across the otological world about open versus closed cavities. In the UK the young Gordon Smyth was the main voice in favour of this approach and most of the senior British otologists were opposed to it. People came in their scores to Belfast to see it being done and many were looking for reasons to object to it. Technically the procedure was time-consuming and difficult, and it usually had to be done in two stages. To add to the problems many did it without proper training and got disastrous results.

Gordon Smyth had a major emotional investment in this procedure. He maintained a close personal follow-up of his patients and, after about 15 years, he became unhappy about his own long term results. In 1975, he reported his figures which, he said, had caused him to change his opinion and conclude that this was not the best way of dealing with most cases of cholesteatoma.

There must be very few surgeons who have made their names on a procedure and who have then admitted, on their own evidence, that it was seriously flawed. There are often *none so deaf* as those whose work is being criticised. Lempert and Rosen, the two great men who led the way in otosclerosis surgery, were both unable ever to accept that their procedures had been superseded. In this case it was Gordon Smyth himself who both produced and publicised the evidence.

He made innumerable contributions to otology but his detailed record keeping, critical analysis and preparedness to admit openly his changed position were probably his greatest. As surgeons, all of us need to look carefully at what we are doing, especially if any procedure is our own personal contribution to our specialty or if, for any other reason, we have developed an emotional investment in it.

Gordon Smyth was also one of the leaders in our efforts to conquer conductive deafness and, again, his long term records proved to be invaluable. Great strides have been made but sadly some types of middle ear problem have proved resistant to all that we can do and conductive deafness has not yet been totally conquered.

DEVELOPMENT OF HEARING AIDS

However, fortunately, the new technologies that allowed many of the advances in surgery also led to advances in hearing aid development. Until the late nineteenth century the only effective form of hearing aid was some system to funnel sound into the ear canal (Fig 10) and thereby increase its amplitude. The old fashioned ear trumpet is not to be scoffed at. It is simple, doesn't require batteries and is very effective so long as the deafness is not severe.

Alexander Graham Bell was a teacher of the deaf, and married one of his deaf pupils. In the nineteenth century he worked hard to try to produce some form of electrical amplification for his wife; he did this, and on the way he also created the telephone. Despite this, it was not

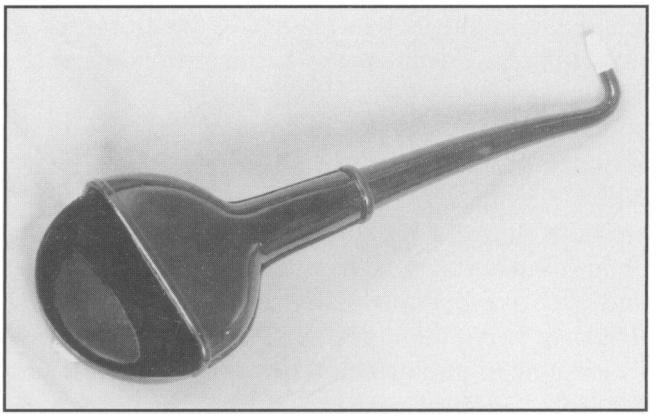


Fig 10. Ear trumpet.

until the 1920s that really practical hearing aids were invented. However, although they were practical, they were unwearable. The aid was bigger than many modern small television sets and was powered by an acid battery that was almost as large. So the hearing aid stayed stationary and the user came to it. It was not until the 30s that hearing aids became wearable although they were still both heavy and conspicuous, with the batteries being carried separately in a large pack.

With the development of transistors in the 50s the size could be reduced and when I started my ENT career in 1963 many were still marvelling at the wonderful 'little' hearing aids that had become available. These were the size of a packet of 20 cigarettes, were worn on the body and had a wire going up to the ear. Nowadays they are considered quite unacceptable.

Hearing aids have continued to improve and the aids available at present under the Health Service are small and, being worn behind the ear are not easily seen, especially in those with long hair. Hearing aids are one of the few things that have survived all health service cuts in that they continue to be free but the downside of this is that the range is limited to certain mass-produced models.

Advances have continued. The latest digital hearing aids can be completely out of sight, pre-programmed by computer to suit the specific hearing loss of the wearer, adjusted to filter out some of the background noise and fitted with automatic volume control. Sadly these really modern digital aids are not available under the National Health Service, but with the current liberalisation of the health service these wonderful aids can now be bought through our hospital

hearing aid department, at the much discounted price of about £1400.

I have been talking only about aids that deliver sound through the ear canal. There are many reasons why these are not suitable for everyone. The most obvious, although not the most common, is absence of an ear canal. In these people amplified sound is delivered into the inner ear through the bone. Advances are being made here also. We now have the bone-anchored bone-conduction hearing aid. A metal screw is implanted into the side of the head and in a few months it becomes bonded with the bone of the skull. A hearing aid fitting is then applied and a hearing aid is snapped on to this. This is more comfortable to wear and produces better quality sound than the conventional bone-conduction hearing aid.

There are other benefits from this technology such as the use of prostheses. It is very difficult to produce a realistic ear by plastic surgery. Using the implantation technique it is possible to clip on a prosthesis which is stable and usually much more acceptable.

One of the most exciting developments in electrical hearing has been the cochlear implant for the totally deaf. Enthusiasts have been talking about doing something for the totally deaf for over a hundred years but it was only in the 50s and 60s that proper research was undertaken in any serious way and only in the past decade that reliable results have been achieved.

The implant differs from the hearing aid in that the sound waves are changed to electrical waves and amplified but not changed back into sound waves. Electrodes are placed into the inner ear and used to stimulate the remnants of the auditory nerve. Many of those with cochlear implants can even use the telephone. Unfortunately, this is a very expensive procedure, with the apparatus costing up to £20,000. The rehabilitation takes many months and the estimated total cost is nearer £30,000 per patient.

The latest in hearing technology is the implantation of tiny hearing aids into the middle ear, rather like a pace maker, only much more expensive. The initial results from this are most encouraging. If their initial promise is maintained they could be the otological equivalent of hip replacement and the cost to the health service could be astronomical.

1998

I indicated that C S Lewis suggested that if you are properly motivated you will not necessarily get fame and fortune but at least you will have the satisfaction of a job well done and that you will feel good about your achievements at the end of your career. This is usually the case but unfortunately not always.

I have referred to John Cheyne who was at the Battle of Vinegar Hill in 1798 and to C S Lewis who was born in 1898. I want to look very briefly at the last '98 in my series of three, 1998. This year saw the trial of a Belfast graduate before the GMC, along with another cardiac surgeon and the medically-qualified chief executive of the hospital. I am, of course, referring to the so-called Bristol, or Wisheart, case. Many of the senior people here will remember James Wisheart as an excellent junior doctor who didn't cut corners, was of the highest integrity and cared for patients well beyond the usual call of duty.

Sir Donald Irvine, President of the GMC has indicated that this case was initiated as a result of an article by William Rees-Mogg in the *Times* in April 1996, and it was the press which kept up the combined air of tragedy and scandal. Happily *Hospital Doctor* later made a small effort to correct this. However, I was reminded of what Anthony Trollope said of the leading newspaper, the *Jupiter*, in his novel The Warden. 'A man may have the best of causes, the best of talents and the best of tempers; he may write as well as Addison, or as strongly as Junius; but even with all of this he cannot successfully answer, when attacked by the *Jupiter*.'

The cinema shows the paper-boys shouting 'Read all about it'. Sadly this is not the case. The papers do not tell us *all* about anything. And in the so called Wisheart case they have reported only what suited their desire for a medical scapegoat.

James Wisheart was tried for a list of things including lack of technical expertise and for clinical incompetence. After the evidence was presented by the prosecution, the General Medical Council dismissed the charge of lack of technical expertise without the defence even having to address it. But the papers did not report that. The GMC found the charge of clinical incompetence not proven but, again, this was ignored by most of the press. The GMC declared that his honesty and integrity were not in question. But the press didn't tell us that.

Here is an extract from what was said by the Professional Conduct Committee in their final judgement, addressing James Wisheart.

'We have considered very carefully the extensive evidence of the care and dedication which you have shown to many patients. We accept that for many years you have worked hard in their service. We accept that there is no evidence that you ever had any intention of acting other than in your patients' interests.'

Many of us would be delighted, at the end of our careers, to have the GMC say that about us. But, of course, again the papers didn't report it.

It seems to me that James Wisheart did what C S Lewis advised, but sadly it didn't work out for him. I don't think any graduate of this medical school has had so much publicity since the trial of John Bodkin Adams, over 40 years ago, on a charge of murdering some of his patients. And it is unlikely that any graduate of this medical school has ever been so unfairly vilified. I suppose that the moral is that no one is, or ever was, safe, once the press start looking for a scapegoat. There are *none so deaf* to reason as the press when they get going.

This Bristol case will result in changes that all of us will feel. Medicine is, yet again, entering another brave new world that is well illustrated by the poster that says, 'Doctor, the patient will see you now'. There has never been a time when we could do more for our patients than now. But resources are limited and the public have been encouraged by successive governments to have unrealistic expectations. Our standing as a profession is in danger. The GMC may have thought that the production of a scapegoat for both press and government would ensure that we would continue to regulate ourselves. That is far from certain. However, not only do we not want a system that requires a scapegoat from time to time, but most of us realise that if any one of us were to be the subject of scrutiny, in the manner of this recent GMC enquiry, he or she is likely to have areas of considerable discomfort.

In this new world we must audit all our work, which is mandatory. For many this isn't new, but for all it is time consuming. Evidence-based medicine is certainly important, and we must look critically at everything we do. Again for many this isn't new and for all is time consuming. What is new for most of us is that we now have to cope with new situations where we have to think about costs, in some shape or form, in almost every decision we make.

But despite all the trauma and insecurities that we, and indeed all professions, are feeling at the moment, medicine is still a good career. It is satisfying, extremely interesting, reasonably secure and rewarded, and happily, most people still do trust us, despite everything.

To all new clinical medical students I say, 'You have chosen a good profession. Become good at it and you will have a satisfying and rewarding life. You might even become rich and famous'.

ACKNOWLEDGEMENTS

I wish to thank my colleagues for the honour of having been invited to deliver the 171st Annual Oration and also all those, too numerous to list, who have helped me, knowingly and also unknowingly, in its preparation.

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Case Report

Intracranial haemangioma: clinical features and radiological appearances

J M McAllister

Accepted 4 July 1999

Since the advent of magnetic resonance imaging (MRI), intracranial cavernous haemangioma has become the most commonly identified occult vascular malformation. The following case report demonstrates the characteristic radiological appearances and highlights the central role of MRI in the diagnosis of this lesion.

CASE REPORT A thirteen-year-old boy presented with a six-week history of a progressive left hemiparesis, with no associated symptoms. Clinical examination revealed an upper motor neurone weakness of the left arm and leg. Examination was otherwise unremarkable. Computed Tomography (CT) (Figure 1) and MRI (Figure 2) of brain were performed.

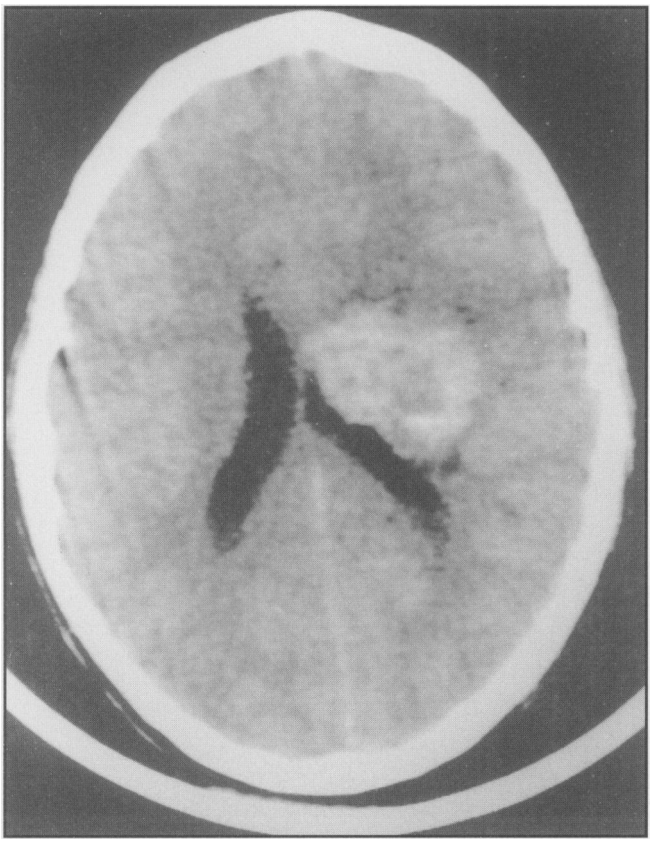

Fig 1. Axial CT scan (unenhanced).

The CT images demonstrate an irregular, mainly hyperdense lesion in the periventricular white matter adjacent to and causing compression of the body of the right lateral ventricle. Foci of high attenuation, consistent with calcification, are present within the lesion, and a surrounding low density zone of oedema is noted.

The lesion is seen on MRI to extend superiorly into the centrum semiovale and inferiorly into the upper basal ganglia on the right. It demonstrates a 'popcorn' appearance, with a reticulated core of mixed signal intensities. Appearances are typical of a cavernous haemangioma containing haemorrhage in various stages of evolution.[1] A peripheral rim of low signal on the T2 weighted

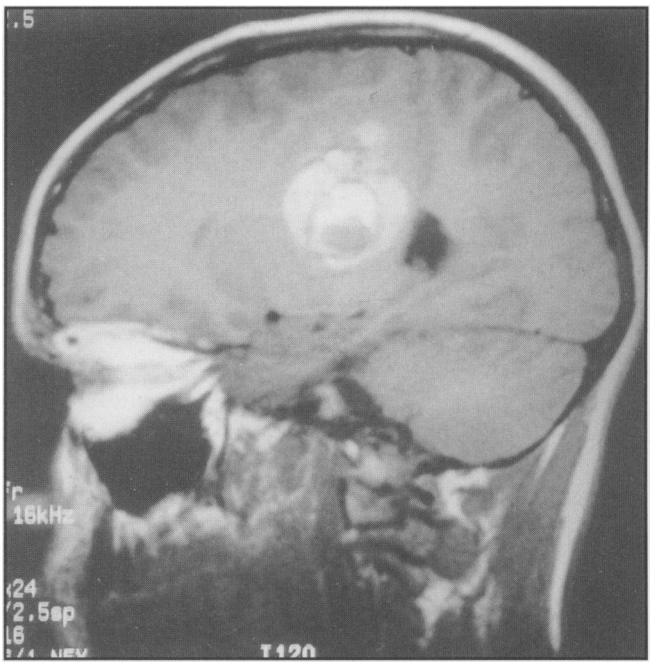

Fig 2a. Sagittal T1 weighted (TR500/TE11) image

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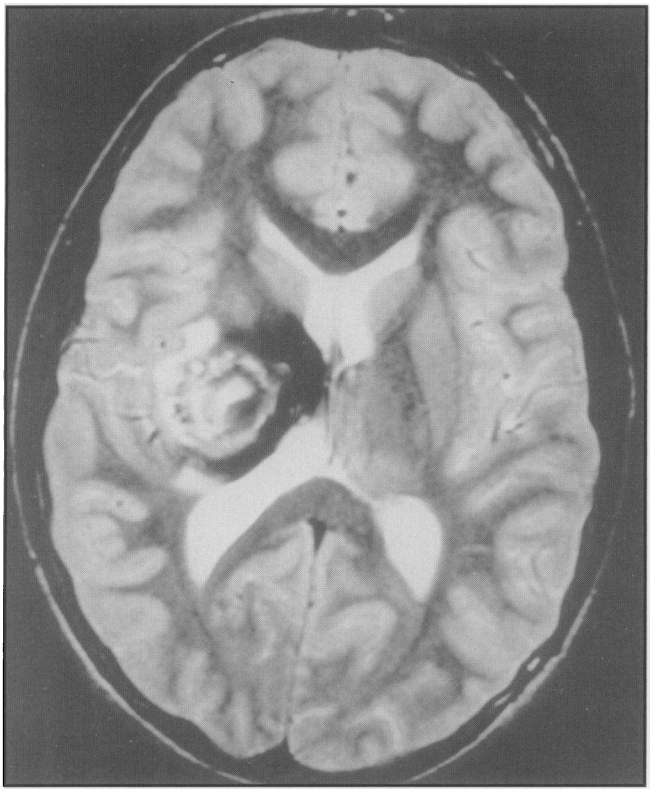

Fig 2b. axial T2 weighted (TR4000/TE84) image

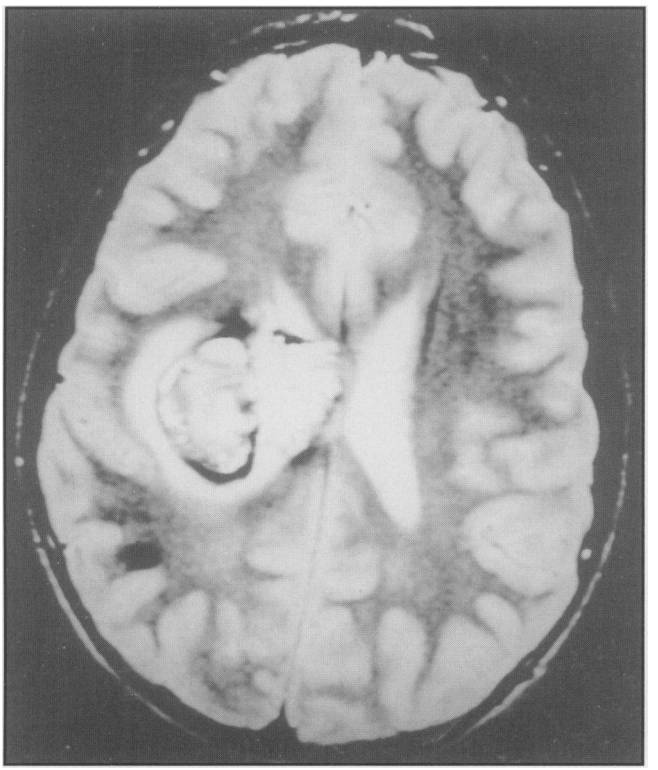

Fig 2c. Axial T2 weighted image

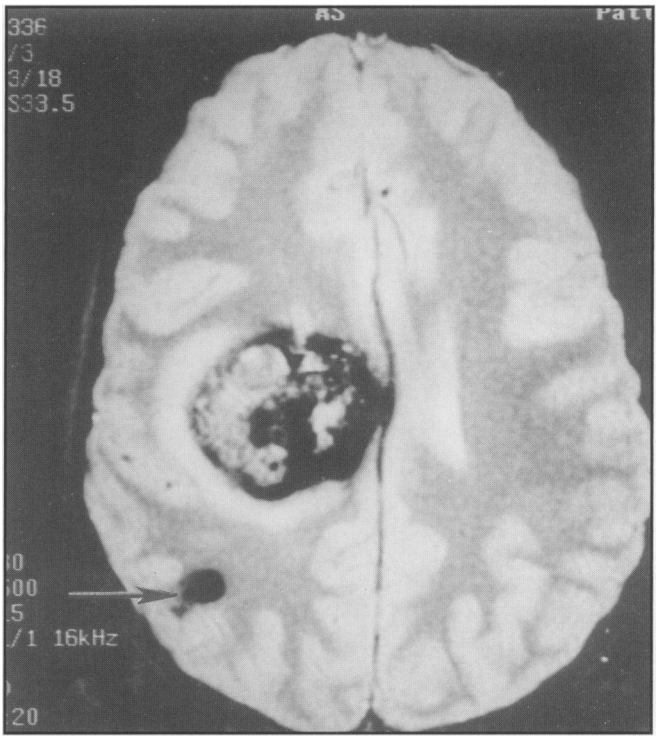

Fig 3a. Gradient echo acquisition (TR500/TE15 flip angle 30°) images. The lesion is of lower signal than on the T2 weighted images and the presence of a second smaller lesion (arrow) which is just visible on the T2 weighted images (figure 2c) is confirmed.

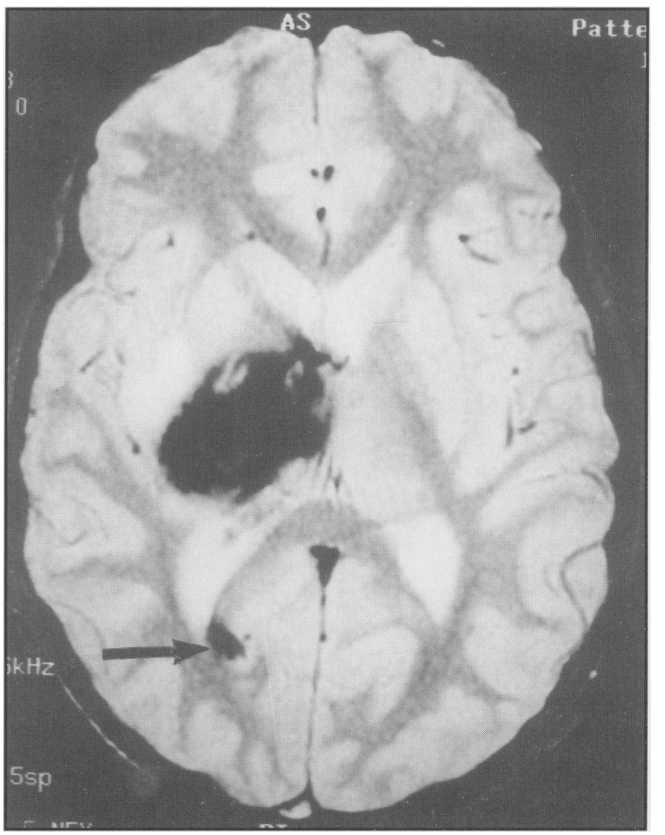

Fig 3b. a third lesion (arrow), not visible on T2 images, is identified.

images represents haemosiderin. A second lesion, not visible on CT, is seen in the subcortical white matter of the right parietal lobe (Figure 2c).

On subsequent gradient echo (GRE) acquisition images the lesion appears more hypointense and the peripheral haemosiderin rim is much more pronounced (Figure 3a). The second lesion is more apparent on the GRE images, which also reveal a third lesion adjacent to the right occipital horn. The diagnosis is supported by the presence of multiple lesions, seen in 50% of all cases.[1]

The largest lesion was surgically evacuated with subsequent clinical improvement. The diagnosis of cavernous haemangioma was confirmed on histology.

DISCUSSION

Vascular malformations of the central nervous system are congenital lesions which are classified into five anatomic types, according to the abnormal vessels identified on histology.[2] These include (1) telangectasias, (2) varices, (3) cavernous malformations, (4) arteriovenous malformations, (5) venous malformations. Cavernous haemangiomas account for 5-13% of all vascular malformations[3] and, with the advent of MRI, are now the most commonly identified angiographically occult vascular malformation,[4] with a reported incidence of 0.47%.[5]

There is a familial form of the disorder, which may be inherited as an autosomal dominant trait with variable penetrance, and the causative gene lies on the long arm of chromosome 7.[6, 7] The familial form is characterized by multiple lesions, occuring in 50-73% of cases, while multiplicity of lesions is found in less than 33% of sporadic cases.[3]

The MR pattern reflects the histological composition of the cavernous haemangioma, which is of a closely approximated collection of endothelial-lined vascular spaces whose walls are composed of collagen and devoid of smooth muscle and elastica, with virtually no intervening normal neural tissue. Haemorrhagic material of varying age is present within the lesion, and there is haemosiderin staining of the surrounding brain.[3]

78% of these angiographically occult lesions are supratentorial,[5] occurring most commonly in the frontal and temporal lobes. Common posterior fossa sites include the pons, cerebellum and medulla. Lesions are also described in the spinal cord and in extra-axial sites.

When symptomatic, presentation most commonly occurs between 20 and 40 years of age with seizures, focal neurological deficit or headaches.[5] Male patients are more likely to present at a younger age (<30years), and often with epilepsy, while female patients usually present at 30-60 years and are likely to have gross haemorrhage and greater neurological deficit.[3] Paediatric patients also have a greater likelihood of overt haemorrhage. Familial lesions tend to be more aggressive and successive generations manifest symptoms at earlier ages.[3]

Frequent occult haemorrhagic episodes occur with a 0.7% annual risk of an overt bleed.[5] The initial bleed is usually self-limiting but there is increased risk of recurrent haemorrhage (14-29%),[8] which is often more severe. This is associated with progressive neurological decline and severe residual deficit. This is particularly significant in the brainstem, where the typical pattern of exacerbation and remission of symptoms results in much greater neurological deficit than normally occurs in supratentorial lesions.

Management strategies must balance the risk of treatment against the natural risk. This is related to the clinical presentation and the site of the lesion. Asymptomatic patients require only clinical follow-up and MRI. The current established indications for surgery are overt haemorrhage, focal neurological deficit and/or intractable epilepsy.[3] This is straightforward for symptomatic lesions in accessible sites. In the case of a more deepseated lesion, e.g. basal ganglia or thalamus, the risks must be very carefully assessed as the risk of surgery is obviously much greater. Radiosurgery may be of value in this situation.[3] Overall results following surgery are generally favourable. A review of many series estimating clinical outcome reports a fair to excellent outcome in 76-100% of patients, with a poor outcome in <19%.[3] Good results have also been reported for surgery of brainstem[9, 10] and spinal cord lesions.[11]

Intracranial haemorrhage demonstrates specific spin echo (SE) intensity patterns, based on the evolutionary stage of the haemorrhage and therefore on the paramagnetic blood breakdown products present.[1, 12] Intracellular deoxyhaemoglobin, present in the acute phase, does not affect T1 relaxation times and therefore appears isointense on T1 weighted images. Intracellular

methaemoglobin appears in the early subacute phase and causes T1 shortening and resultant high signal.

The above substances produce static field inhomogeneities due to their magnetic susceptibility effects, resulting in shortening of T2 relaxation times. They therefore appear hypointense on T2 weighted images. However in the late subacute phase when methaemoglobin is released from disrupted red blood cells, increased signal is seen, possibly due to associated fluid accumulation. In the chronic phase, intralysosomal haemosiderin appears at the edges of the haematoma. This does not affect T1 but produces T2 shortening and reduced signal on T2 weighted images.

GRE studies are more sensitive than routine SE techniques to acute and chronic haemorrhage as T2* effects are present (there is no 180° refocussing pulse). Shortening of T2* relaxation times produces more marked hypointensity in areas of haemorrhage and a more prominent haemosiderin rim. The specificity of MR findings is less with GRE than with conventional SE images, because of the marked hypointensity,[13] as specific lesion signal characteristics may be lost. Neither is the hypointensity specific for haemorrhage (also caused by calcium, ferritin, melanin and air). The best use of GRE studies is therefore as an adjunct to SE sequences.

MRI is therefore the imaging modality of choice in the diagnosis of intracranial cavernous haemangioma. Both GRE and routine SE sequences should be performed to optimise visualisation of intracranial haemorrhage and detect multiple lesions and therefore maximise the sensitivity of the investigation.

ACKNOWLEDGEMENTS

Thanks to Dr J A Lyttle, consultant neurologist, and Mr S Cooke consultant neurosurgeon for their permission to review clinical records, and special thanks to Dr S McKinstry, consultant neuroradiologist, Dept. of Neuroradiology, Royal Victoria Hospital, for his advice and assistance.

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Case Report

Rapid idiopathic osteolysis of the shoulder

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Accepted 3 May 1999

This case reports a patient with idiopathic osteolysis of the shoulder. The clinical, radiographic, and histological features are presented. Complete destruction of bones without known causes was observed only sixteen months after onset of symptoms. The authors believe this to be the first case of such rapid progression of this disease.

Idiopathic osteolysis (Gorham's disease) is an extremely rare occurrence. The etiology of osteolysis is as yet unknown. A history of minor trauma may be a factor. Bones begin to resorb, partially or completely as a localized erosion, and from this, slow centrifugal absorption of a large piece of the skeleton takes place. The osteolytic process may halt spontaneously after years of progression. Even should it, remineralisation typically is not seen and pathological fractures that occur in patients who have idiopathic osteolysis do not heal.[1-13] Bones are usually replaced with fibrous tissue rich in proliferating capillaries and dilated vessels with no symptoms or signs of acute inflammation.[1] In late stages of the condition, vascular proliferation appears to regress, which leaves a largely fibrotic stroma in its place.[4] The results of osteolysis are deformity and impaired function. Some patients die as a direct result of massive osteolysis.[9] The purpose of this paper is to point out the course of severe rapid progression of idiopathic osteolysis.

CASE REPORT We report the case of a 54-year-old man who complained of pain and stiffness in the left shoulder of gradual onset over six months. The pain was not severe, it varied considerably but was becoming worse, leading to restricted movement of the shoulder. We could not find history of any trauma or bone disorders neither with him nor with anybody from his close family. On the first examination, active movements of the shoulder were grossly reduced,

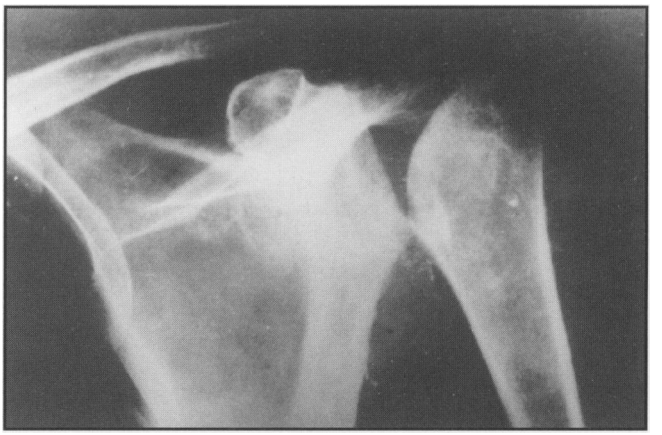

Figure 1

but passive movements were exaggerated and painful. Movements in the elbow and the wrist of ipsilateral side were good as well as grip strength. There was absence of any palpable soft tissue mass. X-rays taken at the time showed atypical formation of humeral head, with areas of absorption in lateral part of clavicle involving acromioclavicular joint and lateral part of acromion (Fig 1). The results of laboratory investigation (sedimentation, full blood count, serum calcium, liver test, RA factor, Nelson's test, antinuclear antibodies) were in the normal range as well as renal function and angiography. On biopsy we found fibrous tissue rich in proliferating capillaries with huge perivascular mononuclear cells. He received a course of physical therapy with some pain decrease. The

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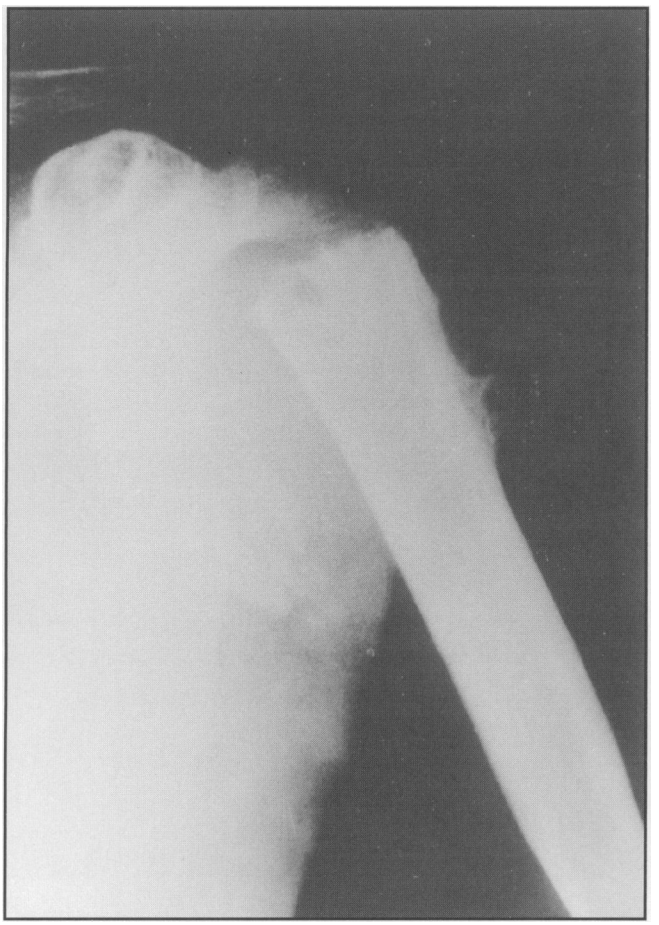

Figure 2

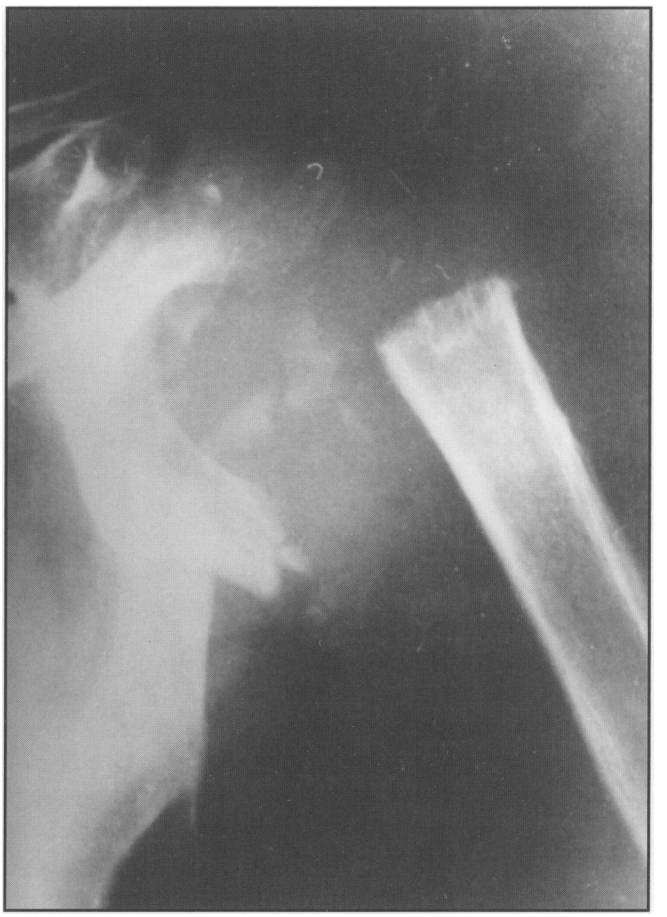

Figure 3

patient returned after 4 months because of exacerbation of pain, which became worse over the outer side of the left arm, top of the shoulder and the scapular region. He complained on losing range of movement and strength. Control radiographs showed absence of the humeral head on left side with destruction of lateral margin, glenoidal cavity and apex of the scapula. We observed progression of osteolytic changes on the clavicle too. There was no evidence of new bone formation (Fig 2).

In the next month we registrated rapid progression of osteolysis. Sixteen months after onset of the symptoms, X-rays showed that the shoulder completely disappeared with dispersed pieces of necrotic bones in adjacent soft tissue (Fig 3). In this phase, progression of osteolysis spontaneously stopped. The patient is still under observation. Regarding the treatment, he was given orthotic appliances as well as exercises to strengthen the shoulder and arm muscles. In spite of this there are activities that he can not perform because of the instability and lack of strength in the involved shoulder.

DISCUSSION

The etiology of idiopathic osteolysis is still unsolved and the prognosis remains unpredictable. The localization of osteolysis may vary as may its spread to adjacent bones. This condition causes considerable concern in the early months, and essentially, it is a diagnosis per *exclusionem*. First one must exclude malignant osteoclastic tumours and inflammatory disorders of bone. Secondly, arterial vascular diseases, neurogenic arthropathies, and other neurological diseases must be ruled out. Thirdly, the post-traumatic osteolyses must be considered because this can present a similar picture to idiopathic osteolysis. Torg *et al* [13] classified osteolysis into four types: idiopathic multicentric osteolysis with dominant transmission, idiopathic multicentric osteolysis with recessive transmission, idiopathic non-hereditary multicentric osteolysis with nephropathy, and Gorham's massive osteolysis. Macpherson *et al* [8] added a fifth type, namely the Winchester syndrome. Because of the rarity of this disease, the assessment of any method of treatment is difficult and unpredictable. Until

now, many methods have been proposed with varying success,[4, 5, 10, 11] but effective therapy is still being sought. Since 1838, when Jackson reported the first case of idiopathic osteolysis,[5] only a few other cases have been reported in the literature under a wide variety of names which include acute spontaneous absorption of bone, massive osteolysis, phantom bone,[4] and disappearing or vanishing bones.[9] This case seems to be the eighth with involvement of the scapula. The progression of the condition varies, but a duration of less than several years is rare.[1-9] The fastest progression of idiopathic osteolysis was described by Kareem *et al* in 1994.[6] They described massive osteolysis of pelvis the pelvic girdle over a three-year period. In the case we present here, complete destruction of the shoulder-bones was observed only sixteen months after the onset of symptoms. To the authors' knowledge, such rapid progression of massive osteolysis has not been previously reported. Further new cases may well provide insight into the clinical and pathophysiological features of this disease.

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Case Report

Rectus sheath haematoma

R T Skelly, S T Irwin, B E Kelly

Accepted 10 April 1999

Rectus sheath haematoma is an unusual, though well recognised condition. It is the most common non-neoplastic condition of the rectus abdominis muscle and sheath.[1] It may mimic acute intra-abdominal pathology and should therefore be considered in the differential diagnosis of the acute abdomen. The diagnosis is easily confirmed using computerised tomography or ultrasound scanning. In this report we present a case of rectus sheath haematoma and a review of the literature.

CASE REPORT A 67 year old lady presented to a district general hospital with an infective exacerbation of chronic obstructive airways disease and congestive cardiac failure. She had a past history of hypothyroidism, diverticular disease and early dementia. She responded well to medical therapy. No anticoagulants were given.

Six days after admission the patient developed sudden severe left lower abdominal pain, radiating to her back. There were no other associated gastrointestinal or genitourinary symptoms. Her temperature was normal. Her pulse was 120 beats per minute. On abdominal examination, she was markedly tender in the left iliac fossa with localised guarding and rebound.

Haematological and biochemical investigations were normal. These included: haemoglobin 12.4g/dl, white cell count 9.2×10^3/ul and serum amylase of 48 U/l. A chest X-Ray showed no sub-diaphragmatic air, and a plain abdominal film was unremarkable. The patient was treated conservatively with a presumptive diagnosis of acute diverticulitis. However she failed to settle over the next 24 hours and it was felt that she should undergo a laparotomy for a presumed localised perforation of diverticular disease.

On transfer to our unit a CT scan of the abdomen was performed in the light of the clinical findings and lack of leucocytosis. This demonstrated a 10 x 6 x 15 cm mass in the left side of the abdomen. The mass was well demarcated and separate from the underlying peritoneal contents. The rectus abdominis muscle could not be identified separately (Figure 1).

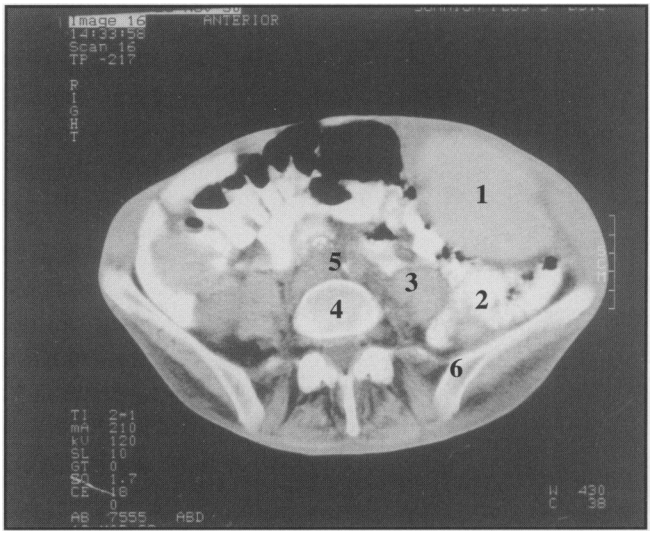

Fig 1. CT scan of abdomen showing:
1. Rectus haematoma
2. Small bowel
3. Psoas
4. Vertebral body
5. Iliac vessels
6. Ilium

The radiological appearances were suggestive of a rectus sheath haematoma. An ultrasound scan confirmed that the mass was cystic and contained

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septations. Aspiration confirmed the diagnosis. (Figures 2a & 2b).

The pain remained severe for several weeks before settling.

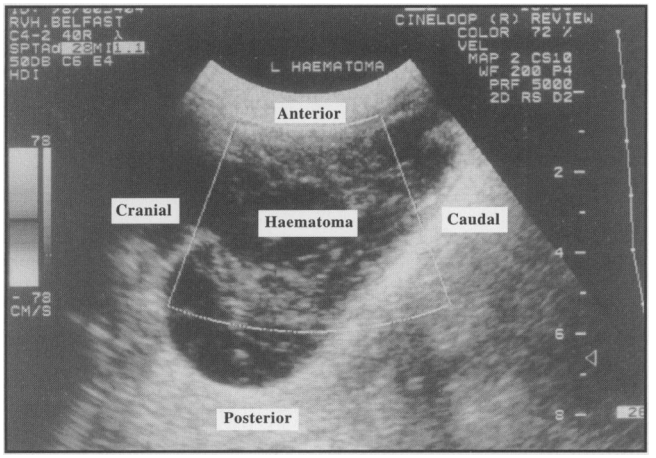

Fig 2a. Longitudinal view of haematoma showing multiple internal echoes consistent with a complex fluid collection.

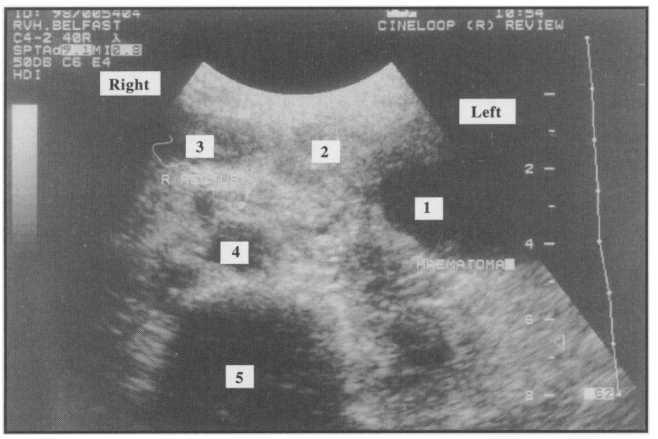

Fig 2b. Transverse section of haematoma showing:
1. Haematoma
2. Left rectus abdominis muscle
3. Right rectus abdominis muscle
4. Aorta
5. Spine

DISCUSSION

This case report illustrates the classical presentation of rectus sheath haematoma. The condition is easily confused with other intra-abdominal catastrophes. The reported accuracy of clinical diagnosis alone in this condition is 17-40%.[2, 3] As a result of diagnostic uncertainty, unnecessary laparotomy is often performed with significant concomitant morbidity. [4] There are a number of causes of the condition and an aetiological classification based upon normal and abnormal musculature was described by Hilgenreiner in 1923. [5] He divided the causes into two groups. Those with normal musculature may sustain a rectus haematoma as a result of either direct or indirect abdominal wall trauma. Alternatively the condition may arise in pregnancy and labour, secondary to other disease and spontaneously in elderly patients.

The adult rectus muscles are 35 cm long, 7 cm wide and 0.8-1.0 cm thick. Each is enclosed within a fascial sheath derived from the anterior abdominal wall muscles; external oblique, internal oblique and tranversus abdominis. The rectus sheath is complete anteriorly but posteriorly it is deficient below the arcuate line. Here it is separated from the peritoneum by the tranversalis fascia. The muscles are divided by three or four transverse tendons into independent muscle masses each of which has its own motor nerve supply. The blood supply is derived from the superior and inferior epigastric arteries which anastomose at the midpoint of the muscle. It has been suggested that spontaneous rectus sheath haematoma may follow pathological rupture of the muscle and/or the epigastric vessels.

The condition presents with an acute onset of well-localised abdominal pain and there may be associated nausea and vomiting. Examination of the abdomen usually reveals marked tenderness at the site of the lesion. There may be a palpable mass or fullness which can be felt even with the abdominal musculature tensed. However tensing the abdominal wall also accentuates the pain on palpation. The classical features of a rectus muscle mass were described by Fothergill as being one which does not cross midline and which remains palpable when the recti are tense.[6] Rectus sheath haematoma is more commonly seen in women, usually in the fifth to seventh decades of life. Recognised risk factors include straining, coughing, anticoagulant therapy, arterial hypertension, trauma, childbirth and scars on the anterior abdominal wall.[4, 7] This patient had pre-existing respiratory disease with a chronic cough. This is believed to result in vascular engorgement within the rectus sheath, predisposing to haematoma formation.

Cross-sectional imaging techniques such as CT and ultrasonography play a key role in establishing the diagnosis. CT delineates the position of the haematoma with reference to the rectus sheath and peritoneal structures. Ultrasound determines

the internal architecture and therefore the two complementary techniques should be regarded as complementary. Characteristic features on CT are a hyperdense mass posterior to the rectus abdominis muscle with ipsilateral anterolateral muscular enlargement.[8]

Sonographically, rectus sheath haematomas are seen to be well defined superficial trans-sonic masses. They appear spindle shaped on longtitudinal section and ovoid on transverse section. Internally they are multilocular lesions with septations.[9]

Once the diagnosis is made conservative management is considered the treatment of choice since surgery carries significant risk of morbidity and mortality. The overall mortality is 4%, which rises to 18% following surgery and to 25% if the patient is anticoagulated.[10]

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Case Report

Extramedullary gastric plasmacytoma

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This report describes a case of gastric plasmacytoma which was diagnosed following an episode of haematemesis and melaena. The patient had a previous orbital plasmacytoma and subsequently developed aggressive disseminated disease with extensive skin and subcutaneous deposits but without marked marrow involvement until the terminal phase. Following the episode of haematemesis and melaena, endoscopy revealed two gastric ulcers and histological examination showed extensive infiltration of the gastric mucosa by a monoclonal population of plasma cells. Gastric plasmacytoma is a rarely described cause of haematemesis and melaena and should be suspected in a patient with a history of plasmacytoma or multiple myeloma. The extensive extramedullary disease in the absence of marked marrow involvement is unusual in the spectrum of plasma cell dyscrasia.

Extramedullary plasmacytoma is relatively uncommon, accounting for approximately 4% of all plasma cell neoplasms.[1] For a diagnosis of primary extramedullary plasmacytoma a normal radiological skeletal survey is required together with an absence of bone marrow involvement.[2] Some patients with extramedullary plasmacytoma, particularly in the upper aerodigestive tract, achieve long term remission following radiotherapy while others progress to multiple myeloma.[1,3] This report describes a patient with extensive extramedullary plasma cell infiltration in the absence of marked marrow involvement which is unusual in plasma cell dyscrasia. Gastric involvement was diagnosed following an episode of haematemesis and melaena.

CASE REPORT A 53-year-old man presented with a two day history of haematemesis, melaena and epigastric discomfort. His past medical history included a right orbital plasmacytoma five years previously. At that time he had an IgA paraprotein of 57g/dl with no associated immune paresis. Bone marrow aspirate and trephine biopsy were normal as was a skeletal survey. He had been treated with five courses of combination chemotherapy. This resulted in the disappearance of his paraprotein and he was maintained on interferon until his present admission. One year previously he underwent radiotherapy treatment for a solitary lucent area in his right hip. Bone marrow aspirate and trephine and skeletal survey again showed no evidence of multiple myeloma. On examination he was mildly anaemic and tender in the epigastrium. Rectal examination confirmed the presence of melaena.

On admission there was an IgA paraprotein of 3.6gldl. Endoscopy revealed two large peptic ulcers on the greater and lesser curvatures of the stomach (figure 1). These had a characteristic bull's eye appearance. Biopsy was performed and histological examination showed extensive infiltration of the lamina propria of the stomach by plasma cells (figure 2a). Immunohistochemical staining with kappa and lamda light chains (Dako, Copenhagen, Denmark) showed light chain restriction with a preponderance of kappa light

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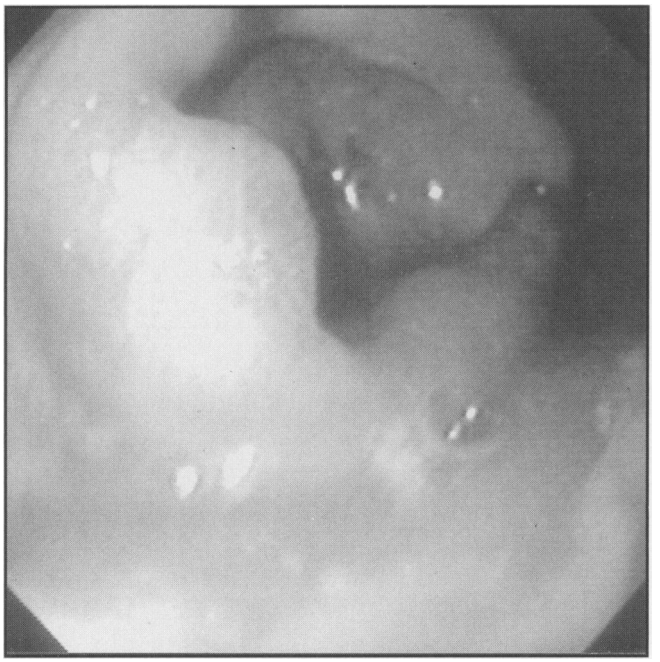

Fig 1. Gastric ulcer curve of stomach.

chains. Bone marrow aspirate was normal but the trephine revealed a small excess of plasma cells which, in the clinical context, was thought to be in keeping with multiple myeloma. He underwent further combination chemotherapy similar to the previous regime. There was no further haematemesis or melaena. Follow up endoscopy at two months showed resolution of the lesion on the lesser curve with healing of the greater curve ulcer. Eight months later he developed multiple skin and subcutaneous nodules, especially involving the head and neck. Fine needle aspiration of one of these showed numerous plasma cells (figure 2b). Bone marrow trephine biopsy showed extensive infiltration by plasma cells in keeping with multiple myeloma. His disease became resistant to further chemotherapy and he died of a chest infection.

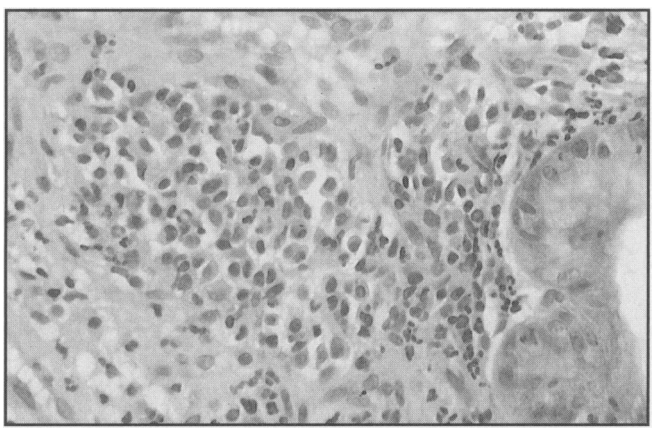

Fig 2a. There is extensive infiltration of the lamina propria of the stomach by plasma cells (haematoxylin and eosin).

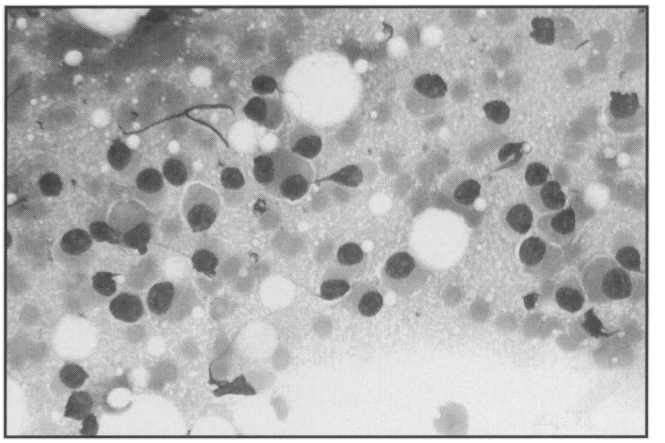

Fig 2b. Fine needle aspirate of skin nodule showing many plasma cells (Giemsa).

DISCUSSION

This report describes an unusual case of gastric involvement by extramedullary plasmacytoma. Extramedullary plasmacytomas are relatively uncommon, the most common site being the upper aerodigestive tract. A recent review of 400 publications between 1905 and 1997 revealed 869 cases of which 714 were confined to the upper aerodigestive tract with 155 cases found in other sites.[1] Only 17 of these involved the stomach and 26 the skin hence confirming the rarity of this presentation. Presenting features in cases with gastric involvement are often non-specific with epigastric pain, weight loss and anorexia. Haematemesis and melaena are unusual.[4-6] Treatment options tor extramedullary plasmacytoma include surgery, radiotherapy and chemotherapy. Surgery and radiotherapy are favoured in many cases, particularly with lesions in the upper aerodigestive tract where long-term remission is common.[1,3] In view of the previous response this patient received further combination chemotherapy. There was no further haematemesis or melaena and follow up OGD showed resolution of one ulcer with healing of the other. There was disappearance of the IgA paraprotein. Such a favourable response to chemotherapy is well documented in extramedullary plasmacytoma.[3,4]

The history of an orbital plasmacytoma and the subsequent development of multiple cutaneous and subcutaneous lesions without extensive

marrow involvement until the terminal phase is rare within the spectrum of plasma cell dyscrasia. The development of multiple skin and subcutaneous lesions coincided with the development of extensive marrow infiltration.

In summary, we describe a rare case of gastric plasmacytoma in a patient with a previous history of orbital plasmacytoma. Gastric plasmacytoma should be considered in the differential diagnosis of a patient with a history of multiple myeloma or plasmacytoma who develops haematemesis and melaena.[7] This case is also unusual in that marked extramedullary disease was present without extensive marrow involvement until the terminal phase.

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Case Report

Hereditary benign telangiectasia – first family in Northern Ireland

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Hereditary benign telangiectasia (HBT), first described in 1971,[1] is a rare autosomal dominant disorder.[2, 3, 4] It is characterised by widespread telangiectases which may be punctate, plaque-like, radiating or merely a diffuse blush. The lesions generally are observed before adolescence, and rarely during the first year of life.[5] It is important to recognise HBT as it may only cause cosmetic disability and usually is not associated with any significant clinical disturbance. This contrasts with hereditary haemorrhagic telangiectasia (Rendu-Weber-Osler disease; HHT), in which there is a major risk of severe haemorrhage in adults.[6, 7] We describe the first family with HBT in Northern Ireland and discuss the differentiation from other primary telangiectatic disorders.

CASE REPORT A 10-year-old girl was referred by her family doctor because of telangiectases affecting the arms, face and legs. The lesions first appeared at the age of 5 years. During the past year the lesions had become more numerous. There was no history of epistaxis, jaundice, liver disease or connective tissue disorders. On examination, small telangiectases were noted over hands (Fig.), arms, upper trunk and face. In total, there were 13 telangiectases, 0.5 mm in size on average. Each lesion was flat and non-tender. The mucous membranes were not involved. There were no other abnormal clinical features.

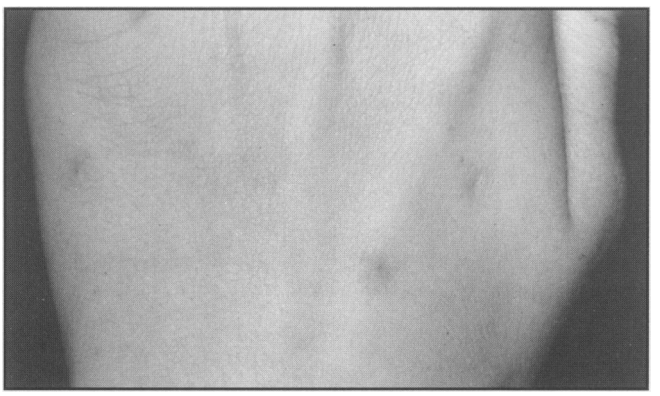

Figure 10-year-old girl: hand showing several telangiectases.

The patient was the eldest of a sibship of three; she has a brother (aged 8 years) and sister (aged 6 years). The brother had three telangiectases on his face and arms. The sister also had a few telangiectases. The mother had no skin abnormality but the father had telangiectases of his hand since childhood. The paternal grandmother had several lesions which also had first appeared in childhood.

DISCUSSION

Telangiectasia is due to the persistent dilatation of pre-existing small blood vessels, usually in the skin or mucous membranes. Primary telangiectasia includes HBT, HHT, generalised essential telangiectasia and spider angiomas. Generalised essential telangiectasia is an

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uncommon disorder which usually has its onset in middle age.[8] Widespread sheets of linear telangiectasias occur on the legs, arms and abdomen.[4] It is more frequently seen in women and is not associated with spontaneous bleeding.[8] A spider angioma morphologically is a red spot from which small legs radiate out. Such lesions are often surrounded by halo of pallor.[9] They occur in healthy individuals but are associated with pregnancy, oral contraceptive pill use and hepatic dysfunction.[4] Secondary telangiectasia occurs as a consequence of a known disease such as connective tissue diseases and in cutaneous conditions such as acne rosacea.[4] Few cases of hereditary benign telangiectasia have been reported.[1-5] It may be because of the benign nature of HBT, as it often goes unrecognised. However, it is important to distinguish HBT from the other primary and secondary telangiectasia, especially HHT, which is a chronic debilitating disease of vascular malformation also transmitted as an autosomal dominant trait.[6, 7] Three types of vascular malformation are found in HHT, namely telangiectases, arterio-venous malformations and aneurysms. The characteristic telangiectasia of HHT is a 1-3 mm red to violet punctate lesion which is sharply demarcated from the surrounding skin, usually found on the face, lips, nares, tongue, ears, hands, chest and feet. The telangiectases often increase in size and number with age.[6,7] The arteriovenous malformations and aneurysmal dilatations of large arteries, which may occur in HHT are not seen in HBT and this can be used to distinguish HBT from HHT. However, as Ryan and Wells state in their original description "there is nothing unique about the pattern of telangiectasias in hereditary benign telangiectasia".

The pathogenesis of HBT is unknown. It is due to an autosomal dominant gene.[1-5] The only treatment that may be required is electrocautery or laser therapy for cosmetic reasons. It is important to be aware of HBT as a cause of generalised telangiectasia and that it is a benign disorder.

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Case Report

Benign neoplastic polyp of the caecum as a rare cause of intussusception in adults

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CASE REPORT A 73-year-old woman was admitted with a one-day history of constant aching pain in the right iliac fossa associated with anorexia, nausea and infrequent vomiting. She had a history of constipation and mild abdominal distension for two days prior to admission. She had a past history of pulmonary embolism three months earlier and was fully anticoagulated with warfarin.

Examination revealed a low-grade pyrexia with localised tenderness and guarding in the right iliac fossa but no abdominal masses could be palpated. Urine analysis was clear and haematological evaluation revealed only a leucocytosis of 15,000 and INR of 2.5. Plain abdominal radiography was normal. A provisional diagnosis of acute appendicitis was made. In view of the anticoagulation, she was treated conservatively with intravenous antibiotics. Warfarin was discontinued. An urgent ultrasound scan of the abdomen revealed a mass in the right iliac fossa suggestive of an intussusception, subsequently confirmed by CT scan and barium enema (Figure).

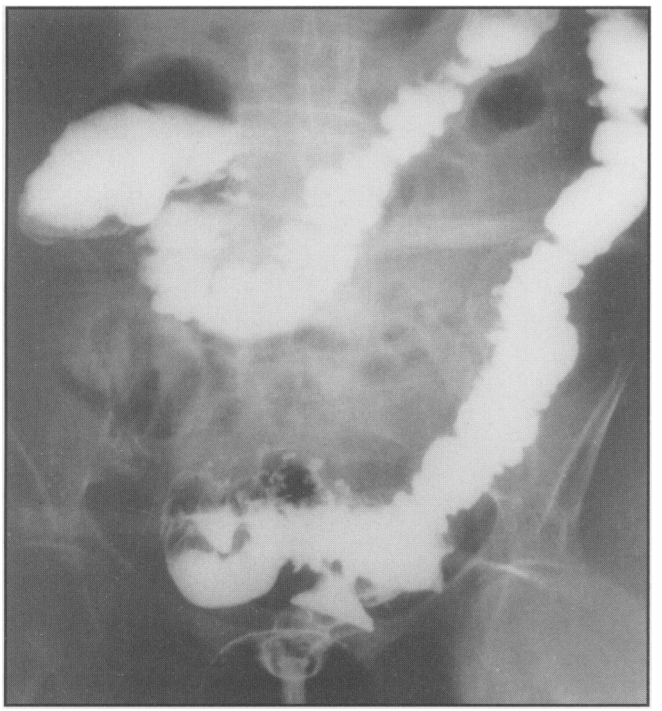

Figure
Barium enema showing typical appearance of ileo-caecal intussusception.

Over the next 24 hours the temperature, pain, tenderness and guarding settled. Reassessment of the abdomen revealed a 3 x 4 cm firm and slightly tender mass in the right iliac fossa.

Once coagulopathy had been corrected, laparotomy revealed ileo-caecal intussusception and a small amount of pus between the caecum and anterior abdominal wall. Right hemi-colectomy and ileo-transverse anastomosis was performed.

Histopathological examination demonstrated a benign neoplastic polyp of villo-adenomatous type forming the lead point of an ileo-caecal intussusception. The patient made an uncomplicated recovery and was discharged home on the 8th post operative day, after full anticoagulation was re-established.

DISCUSSION

Intussusception is the invagination of a part of the intestine into the immediate adjacent part. With few exceptions it proceeds in the direction of peristaltic waves.[1] Intussusception can be

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classified according to aetiology into primary (idiopathic) and secondary (those with explanatory pathological lesion). Anatomically, intussusception can be ileo-colic, entero-enteric, ileo-caecal or colo-colic. Primary intussusception is much more common in children, with adults comprising only 5 – 15% of cases [2, 3] which accounts for only 0.1% of all hospital admission.[4] Secondary intussusception is commoner in adults and may be caused by benign or malignant tumours, Meckel's diverticuli, chronic ulcerations in typhoid fever or tuberculosis, adhesions, aberrant pancreas,[12] trauma, foreign body and visceral purpura.

In a review of 1214 reported cases of adult intussusception, 45% of the cases involved the colon and 55% involved the small bowel.[5] Of the colon intussusceptions 48% resulted from malignant tumours and 21% from benign lesions, mainly lipoma of the ileo-caecal valve.[5]

Acute presentation in adult intussusception occurs in up to 20% of cases, but more commonly it presents as prolonged illness and more than 50% of patients will have had symptoms for one month or more.[3] Common symptoms and signs in adult intussusception include abdominal pain, tenderness and distention, nausea and vomiting, change in bowel habits and a palpable mass. Stools may contain occult blood in 30-60% of cases.[6] Biochemical investigations offer little help in diagnosis.[7] Abdominal X Ray may reveal evidence of bowel obstruction. Barium enema is diagnostic, but it does not rule out small bowel intussusception unless the contrast passes through the ileo-caecal valve into the small bowel.[8] CT Scan has also been reported to be useful.[9]

As adult intussusception has a demonstrable cause in over 90% of cases,[4] the treatment is surgical.[2] There is no place for conservative treatment or attempts at hydrostatic reduction by enemas.[1, 10] As most colo-colic intussusceptions have malignant lesions as a lead point, they require radical wide surgical resection without an attempt at reduction, which could seed the tumour intra-luminally as well as systemically. Since it is not possible to distinguish benign from malignant lead point lesions in ileo-caecal intussusception intra-operatively, all lead point lesions should also be treated in a similar fashion.[11]

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Case Report

Small bowel intussusception in metastatic endometrial carcinoma

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Endometrial carcinoma is the second commonest gynaecological malignancy. Survival is generally better than with other genitourinary malignancies on account of its overt presentation with post-menopausal bleeding and its tendency for local progression as opposed to early systemic dissemination. Consequently, surgery is the gold standard therapeutic strategy, and to date there is little evidence to support the routine use of adjuvant chemotherapy.[1,2]

Adult intussusception is very uncommon and unlike its paediatric counterpart is usually associated with a significant underlying organic focus.[3,4] When due to secondary malignant disease, the primary neoplasm is characteristically aggressive with a propensity for haematogenous spread. Similarly, splenic metastases are rare and characteristically occur in tumours which have a propensity for blood-borne dissemination.[5-7]

We report a unique case of recurrent endometrial carcinoma presenting with small intestinal intussusception and the incidental finding of a solitary splenic metastasis. This pattern of behaviour is very atypical in endometrial carcinoma. We discuss adult intussusception and present the argument for selective systemic chemotherapy in endometrial carcinoma.

CASE REPORT A 64-year-old multiparous woman presented with a three-month history of episodic post-menopausal bleeding. Cervical dilatation and endometrial curettage was performed and histology confirmed the presence of a poorly differentiated endometrial carcinoma. At operation the disease appeared to be confined to the uterus and cervix. Hysterectomy and bilateral salpingoophorectomy was performed with excision of the upper third of the vagina; lymph nodes were sampled from the internal iliac, external iliac and obturator group. Histology confirmed the presence of a poorly differentiated

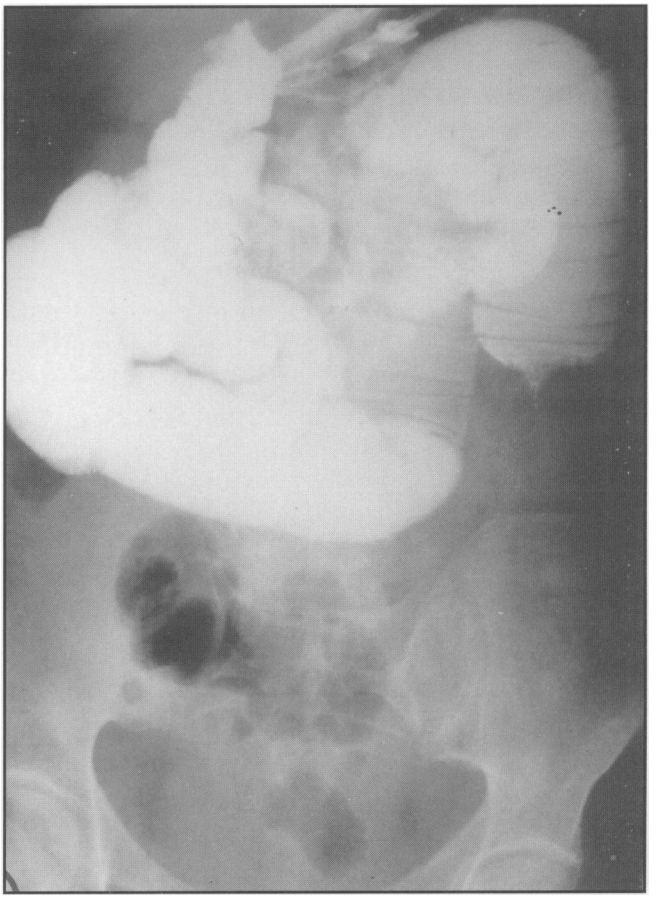

Fig 1. This radiograph shows an obstruction in the mid ileum and the blunted appearance at the site of the obstruction is typical of an intussusception.

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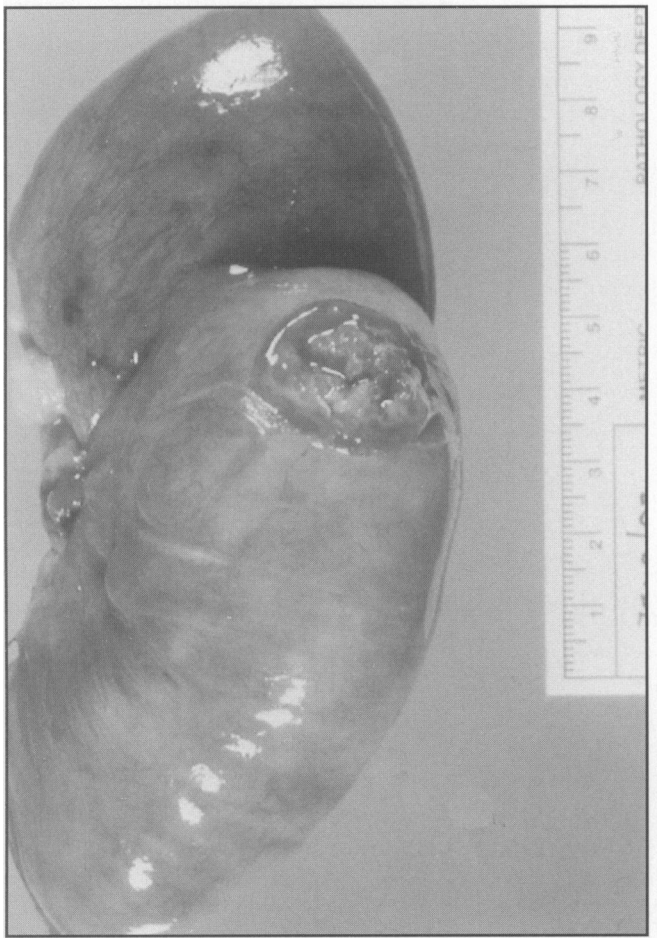
endometrial carcinoma. There were areas of microvascular invasion with lymph node metastases to the internal iliac lymph nodes.

Post-operatively the patient received 50 Gy of external beam radiotherapy and oral progestogen; the receptor status of the tumour was unknown. She remained well and a CT scan performed six months postoperatively showed no evidence of macroscopic disease recurrence.

Ten months later she presented with intermittent crampy abdominal pain and melaena. Clinically she was anaemic and displayed the physical and radiological features of small intestinal obstruction. A small bowel series confirmed the presence of a mid-ileal obstruction and the "elephant foot" appearance, suggestive of an intussusception [Fig 1]. Abdominal ultrasonography showed no evidence of ascites or hepatic infiltration; however a 3 cm solitary metastasis was noted in the upper pole of the spleen. At laparotomy the small intestine was found to be distended proximal to the mid-ileal region where there was an irreducible intussusception [Fig 2 a+b]. Consequently a limited small-bowel resection with primary anastomosis was performed, and histopathological assessment revealed a solitary focus of recurrent endometrial carcinoma acting as a " lead point".



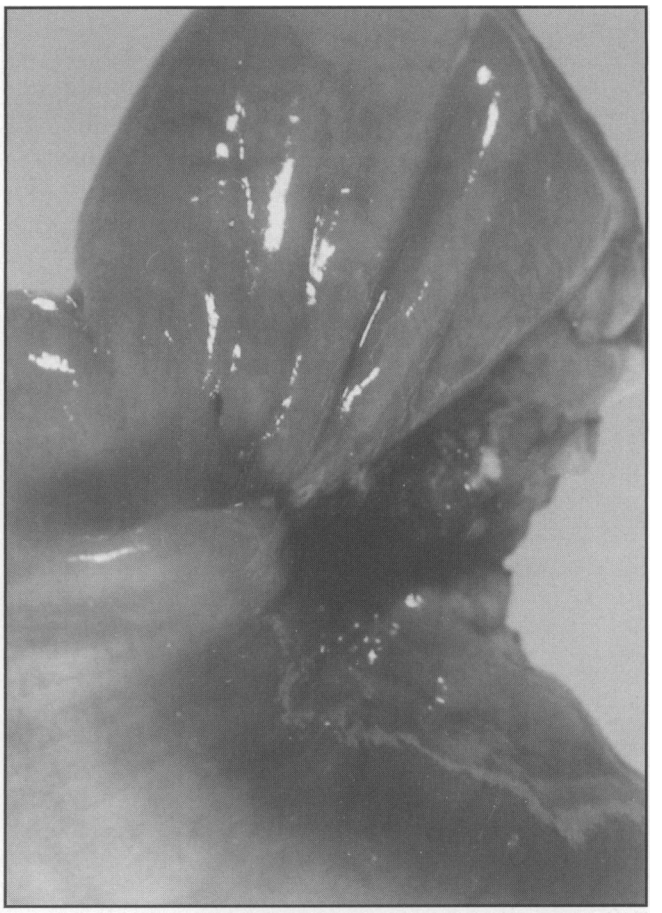


Fig 2a & b. These operative specimens show the ileal intussusception both before and after reduction. The ulcerated area in picture 2a clearly shows the endometrial metastases acting as a lead point for intussusception.

The patient made an uncomplicated recovery and was discharged five days later. She remained well for several months but died from disseminated disease within nine months.

DISCUSSION

Endometrial carcinoma occurs most commonly in postmenopausal women in the 6th decade of life, and the overall five year survival is approximately 65%.[1] The majority of tumours are confined to the uterus and present at an early stage with postmenopausal bleeding. Most of these patients have an excellent prognosis when treated by total abdominal hysterectomy and bilateral salpingoophorectomy alone, providing extraperitoneal disease is absent, the carcinoma is well differentiated and the depth of myometrial

invasion is less than one third.[2] Radiotherapy is used as adjuvant treatment for more advanced endometrial carcinoma, with a reduction in local recurrence rates. The long-term survival remains unchanged.[8] As in this case, hormonal manipulation with progestogens can be used as a first line adjuvant therapy. The basis for this is the presence of tissue-receptor sites in as high as 70% of tumours. Their routine use is of doubtful value. A large randomised placebo controlled trial of 1084 patients showed no survival advantage or progression-free period in patients receiving adjuvant progestogen therapy.[9] In carefully selected patients however, they may be of some value. Neijt [10] reviewed current literature on the systemic treatment of endometrial carcinoma and suggested that first-line treatment for those patients who are receptor positive should be hormonal therapy, providing their life expectancy was greater than four months. If the receptor status is unknown, but the tumour well differentiated, then again first-line treatment should be hormonal therapy. The response rate however is only about 10-15% and is usually short lived.[11] With gynaecological malignancy small bowel obstruction occurs commonly. This is due to direct spread of tumour to small bowel lying within the pelvis. Endometrial carcinoma has not previously been described in association with adult intussusception or with solitary splenic metastases.

Adult intussusception is difficult to diagnose preoperatively although the triad of melaena, intestinal obstruction and the presence of an abdominal mass has been described.[12] Barium studies, ultrasonography and computed tomography have all been employed with limited success.[1, 13, 14]

Adjuvant chemotherapy aims to ablate microscopic bloodborne tumour deposits and has been successfully employed in breast carcinoma, and more recently in colorectal carcinoma.[15, 16] The use of chemotherapeutic agents is associated with well-recognised morbidity and their global administration in the treatment of cancer may be inappropriate in many patients. It would be ideal if we could identify those patients who would benefit most from adjuvant chemotherapy. To this end some investigators have used specific clinical and histological criteria to select patients who may benefit from adjuvant chemotherapy. Lymph node metastases, initial tumour burden, and microscopic parameters of the primary specimen, such as the presence of lymphovascular invasion, a high mitotic index and a poor host immune response may all have positive predictive potential for those individuals who may benefit.[9, 10, 15, 19]

To date, cytotoxic therapy has not been of benefit in the management of endometrial carcinoma with extrauterine spread. Burke et al[18] treated 62 high-risk patients who had stage II and stage III disease . They were given a combination regime of cisplatin, doxorubicin and cyclophosphamide. As expected those with extrauterine disease had a poorer outcome; their results were found to be disappointing and at three years one third of patients had recurrent disease, with a high proportion of cases being extrapelvic metastases. Evidence however is now accruing that a role may exist for adjuvant cytotoxic therapy in the treatment of uterine carcinoma which is either confined to the uterus or resectable but has certain histological criteria.[19] Smith et al in their retrospective review, showed a survival advantage when they looked at 39 high risk patients given combination chemotherapy and radiotherapy. The two-year progression free interval was 72% in those patients with non papillary serous carcinoma, and 22.5% in those with papillary serous tumours. Their data however was limited by small numbers and short follow up, but it did further emphasize the need for prospective randomised trials to evaluate this form of treatment. Our case is of particular interest because of its unusual presentation. It emphasizes that local therapies for such disease are unlikely to be effective without adjuvant systemic therapy to treat and or prevent haematogenous dissemination. Unfortunately the correct timing of this therapy and the patient population likely to benefit are not yet known.

ACKNOWLEDGEMENT

We are indebted to Mr Jim Dempsey for preparing the illustrations.

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Case Report

Incidental bile duct adenomas in a patient with obstructive jaundice

R T Skelly, J Lee, J M Sloan, T Diamond

Accepted 4 October 1999

Adenoma of the bile duct is an uncommon tumour of uncertain pathogenesis. It is benign but can potentially lead to misinterpretation of small liver nodules detected during laparotomy as malignant. We report a case of incidental intra-hepatic bile duct adenoma discovered during laparotomy for obstructive jaundice, secondary to gallstones.

CASE REPORT A 43-year-old lady presented with a two week history of right upper quadrant pain and jaundice. Liver function tests revealed an obstructive picture. Ultrasound and CT scans of the abdomen were suggestive of obstruction due a stone in the lower common bile duct (CBD). However there was no evidence of CBD or intrahepatic duct dilatation. The liver parenchyma appeared normal on ultrasound and CT scanning. An ERCP was technically unsuccessful. Because of the concern regarding the nature of the pathology causing obstructive jaundice she was transferred to our care and underwent a laparotomy. This revealed two small lesions, both measuring 11mm in diameter on the surface of the right lobe of the liver in segments V and VII, which had the appearances of metastatic deposits. These lesions gave concern at the time of operation as they were suspected to be due to secondary disease from a primary tumour obstructing the lower CBD. However no primary tumour was found. The gallbladder and hepatic pedicle were markedly oedematous and inflamed. A stone was palpable at the lower end of the CBD. The gallbladder was removed and the CBD explored. A gallstone was removed with a Fogarty balloon catheter. A post exploration cholangiogram and choledochoscopy were normal. Post operatively her jaundice settled and a T tube cholangiogram was normal. Histopathology of the liver biopsies gave a diagnosis of benign bile duct adenoma.

DISCUSSION

Bile duct adenoma (BDA) is a rare benign tumour of the liver comprising of disorganised but mature peri-biliary gland acini and tubules within a variable amount of stroma.[1] The true incidence of BDA is unknown but post-mortem studies have demonstrated the rarity of this condition. Cho et al [2] reported only 13 cases in a series of 2125 postmortems. Allaire et al[3] reported only 152 cases between 1943 and 1986, all of which were asymptomatic and diagnosed incidentally either at laparotomy or post-mortem. In one reported series, 38 patients were reviewed 156 months after diagnosis. Eight had died of unrelated conditions and the remainder showed no evidence of recurrence.[3] The majority of BDAs occurred between the ages of 20 and 70 years with a mean age of 55 years with no significant difference in sex distribution .[3] They are usually small in size ranging from one to 20mm but may occur as multiple nodules throughout the liver. [4] BDA is composed of non-cystic ductules without exhibiting cellular atypia or increased mitotic activity.[1] BDA has to be distinguished from bile duct harmatoma associated with von Meyenburg complex by the absence of polycystic disease of the liver and kidney.[1, 3, 5]

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Differentiation between bile duct adenomas and malignant lesions based on radiological findings is difficult [6] and accurate diagnosis of this condition requires histopathological examination. Detection by ultrasound and CT can be unreliable as small lesions may be missed. In this report, bile duct adenomas were not detected preoperatively using both imaging modalities.

In this case the incidental finding of BDA demonstrates the potential for misinterpretation of findings at operation and therefore diagnostic uncertainty. It further illustrates the importance of liver biopsy of any suspicious lesion identified at operation in order to obtain an accurate tissue diagnosis and to plan any subsequent investigations and management.

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Book Reviews

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De Broc and colleagues have set out to produce a comprehensive handbook of chemical injury to the kidneys. The work is divided into three parts: a general section, dealing with clinical relevance, renal handling of drugs, immunological and cellular mechanisms, and a detailed exposition of experimental models; the main body of the work, discussing specific drugs; and a section on prevention including chapters on urinary biomarkers and principles and practice of drug dosing.

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Despite the scope of the book there are several areas treated skimpily or ignored altogether. Thus the important association between long term lithium therapy and hyperparathyroidism rates exactly three unreferenced lines of text. The relationship between triamterene and interstitial nephropathy receives little more attention, although references are given. There is a chapter on ACE inhibitors but no mention of ATI receptor blockers. The only anticancer drugs examined are cisplatin and carbiplatin; there is no discussion of the tumour lysis syndrome, and an opportunity for practical guidance on an important area of clinical nephrology is therefore lost. The chapter on beta lactam antibiotics is exactly half the length of the discussion of amphotericin B. Organic solvents, silicon compounds and pesticides are covered together in just 12 pages and there is no information on acute poisoning with any of these agents. These problems are compounded by a hopelessly inadequate index of just three pages.

The work will be of more interest to practising nephrologists than to clinical toxicologists and its worth may have been greater if the attempt to cover environmental as well as therapeutic agents had been abandoned. It will nevertheless be a valuable guide to practical aspects of drug dosing and toxicity in nephrology. The final section on drug doses, in particular, will be a great help to nephrologists both in training and career grades (although information on dosing in continuous haemofiltration would have been useful). The manual is likely to find a place on all busy renal units.

PETER GARRETT

Normal and Malignant Liver Cell Growth. Edited by N E Fleig. Kluwer Academic Publishers. ISBN 0792387481. £105

The mechanisms governing normal proliferation and malignant transformation of liver cells are crucial to the understanding of regeneration and hepatocarcinogenesis. The liver has a huge capacity to regenerate following damage by various viruses and toxins. Primary hepatocellular carcinoma is one of the most frequent malignancies world wide. Knowledge in these areas has expanded in recent years and this book details the Proceedings of the International Falk Workshop, Halle, Germany, 1998 which focused on the issues of normal and malignant liver cell growth. Recent advances in basic science and clinical research in these areas are presented. There is also stimulating discussions from an international panel of experts concerning strategies for development in diagnosis and treatment of hepatoma and regeneration in those patients with acute and chronic functional loss of liver tissue.

This is a book which will be of more interest to specialists undertaking research in this area rather than the practising physician/hepatologist, however, the considerable spectrum of views presented from basic science to clinical applications should help clinicians to understand the principles of liver cell regeneration and carcinogenesis and also the basic scientists to understand some of the important clinical observations and questions. This may stimulate further relevant research by bringing bedside questions to be addressed at the laboratory bench.

F A O'CONNOR

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Chronic inflammatory bowel diseases (IBD) are common and the cause(s) unknown. Although there are effective treatments these have to be administered in a largely empirical way and perhaps more than any other conditions in gastroenterology require a good deal of experience on the part of the doctor.

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had done this. Also no doubt there was very lively debate about the relative validity and importance of the different experimental approaches covered. The reader is presented with a whole range of information, all of which appears to be of equal validity (perhaps deliberately so). It might have been helpful if the editors had reported some of the discussion and highlighted the area(s) considered to be most promising.

The second part of the book deals with clinical aspects of IBD: diagnosis, IBD and malignancy, and therapy in IBD. The most novel issues were a chapter on the association of pancreatitis and Crohn's disease, and another on the use of colonic lavage fluid to look for K-ras and p53 mutations as indicators of malignancy in long standing IBD. The section on therapy adequately covered all the appropriate areas, medical and surgical, based on the available literature. There was also a consideration of alternative treatments such as nicotine, which was effectively dismissed. Dr Present from Mount Sinai Medical Center, New York, wrote the first chapter in this section and expressed his personal view that steroids should not be used as frequently as at present and would in time become a third-line agent for active Crohn's disease behind immunomodulators and immunobiological therapies such as anti TNF-α antibody. Although such views were not "evidence based" his ideas were the result of very sound clinical experience and rather refreshing. As with the first section a commentary by the editors on the issues discussed and any consensus would have been very valuable.

In summary a more useful book for the scientist than the clinician, who must still deal with these conditions as best he/she can in an empirical way. There were however some genuinely novel pointers for the future.

PETER WATSON

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Altnagelvin Hospital Medical Staff Committee

Erratum:

The Throne Hospital and Early Plastic Surgery in Northern Ireland J Colville. Vol. 67 November 1998. Pages 117 - 120

The following reference to Mr Wilbert Dickie was inadvertently omitted from this paper at the proof stage. It should have appeared as follows:

"In 1951 Wilbert Dickie joined the staff as a second plastic surgeon and on 4 February 1951 is noted to have excised a naevus. On 8 February 1951 he and Norman Hughes jointly dealt with what appears to have been extensive burns of the neck, trunk and arms. Dr Love was the anaesthetist."