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The Ulster Medical Journal, Volume 73, No. 2, November 2004.

The Ulster Medical Journal

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

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

THE ULSTER MEDICAL JOURNAL

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

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

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   iv) the year;

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   eg

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The Ulster Medical Journal, Volume 73, No. 2, pp. 75-76, November 2004.

The Ulster Medical Society Programme 2004 – 2005

President Dr Domhnall MacAuley MD FRCGP FFPHMI, FFSEM, FISM

"Oh wad some power the giftie gie us To see ourselves as others see us!"

Thursday 14th October 8.00pm North Lecture Theatre MBC QUB PGEA Category C
PRESIDENTIAL ADDRESS
"To See Ourselves as Others See Us"
Dr Domhnall MacAuley, General Practitioner, Assistant Editor BMJ

Thursday 11th November 2.00pm Ulster Medical Society Rooms PGEA Category C
WORK-LIFE BALANCE – GETTING A MEDICAL LIFE IN PERSPECTIVE?
2.00pm *"Ill Health, Unhappiness, and Uncertainty (Bullying, Racism, Illness), in the Medical Profession Is There a Cure?"*
Dr Rhona McDonald (former GP/Public Health/Tropical Medicine) Editor Careers section BMJ
2.40pm *"From 24 Hour Doc to 24 Hour Doctor Journalist- Living the Dream"*
Dr Muiris Houston (former GP) Medical Correspondent The Irish Times
4.00pm *"How to be Happy....Even in the NHS"*
Dr Maria Kee (former Consultant Psychiatrist / Medical Director) Kee Training
4.40pm *"What Else You Can Do With a Medical Degree"*
Dr Adam Poole, Career Edge (Personal Development for Health Professionals)

Thursday 25th November 8.00pm Ulster Medical Society Rooms PGEA Category C
"Perceiving Medicine (Art and medicine)"
Jan Croot, Picture Editor, British Medical Journal

Thursday 20th January 2.00pm Ulster Medical Society Rooms PGEA Category C
Joint meeting with the Nuffield Trust and the Judge Institute of Management, University of Cambridge
POLICY FUTURES - THE FUTURE OF HEALTH CARE
2.00pm *"The Role of the State"*
Professor Dame Sandra Dawson. Director, The Judge Institute of Management
2.30pm *"Who is Going to Care?"*
Professor Alison Kitson. Director, The Royal College of Nursing Institute
3.00pm *"The Burden of Health: The Reality of Disease"*
Dr Zoë Slote Morris. Nuffield Fellow in Health Policy
4.10pm *"Who Pays and How Should the Money be Spent?"*
Professor Ray Robinson. Director, LSE Health, London School of Economics
4.40pm *"Information Systems and Medical Technology"*
Professor Don Detmer Professor of Health Management, The Judge Institute of Management

Thursday 27th January 8.00pm Ulster Medical Society Rooms PGEA Category A
ROBERT CAMPBELL ORATION
"The Health of Belfast in the 20th Century"
Professor Alun Evans, Professor of Epidemiology, Department of Epidemiology and Public Health, The Queen's University of Belfast

Thursday 3rd February 2.00pm Dunadry Inn, Templepatrick PGEA Category B

Joint Meeting with the Royal College of General Practitioners
FROM NHS TO NATIONAL PATIENT SERVICE
2.00pm *"The Patient's Story-Narrative and the Primary Care Consultation"*
Professor Trish Greenhalgh. Professor of General Practice, University College London
2.40pmm *"Diagnosis, Treatment Decisions, and Implementation"*
Professor Tom Fahey. Professor of General Practice, University of Dundee
4.00pm *"Patients, Information, Engagement and Choice"*
Professor Martin Marshall. Professor of General Practice and Head of School at University of Manchester
4.40pm *"What We Should Know"*
Dr Iona Health, GP, Former Vice Chair of the RCGP and Chairperson of the BMJ Ethics Committee

Friday 11th February 7.15 for 8.00pm Great Hall, QUB
ANNUAL PRESIDENTIAL DINNER

Thursday 24th February 8.00pm Beechhill Country House Hotel PGEA Category C
THE DESMOND WHYTE LECTURE
"Problem Doctors and How the Profession Deals with Them"
Professor Gerry Bury. Professor of General Practice, University College Dublin and Outgoing President of the Irish Medical Council

Thursday 17th May 2.00pm (Malone Golf Club)
ANNUAL GOLF COMPETITION for the Victoria Challenge Cup

Thursday 25th May 5.00pm Ulster Medical Society Rooms
ANNUAL GENERAL MEETING

THE ULSTER MEDICAL SOCIETY

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✂- -

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

The Ulster Medical Journal, Volume 73, No. 2, pp. 77-84, November 2004.

Thrombolytic therapy for myocardial infarction facilitated by mobile coronary care

C Wilson, S O'Mullan, M Moore, M McCarthy

Accepted 13 October 2004

SUMMARY

Background: **The benefit of Thrombolytic Therapy (TT) for acute myocardial infarction is time sensitive. In Northern Ireland widespread availability of mobile coronary care units facilitates delivery of TT to heart attack victims. This region-wide prospective observational study assessed the efficacy of various methods of delivery of TT.**

Methods: **All 15 acute hospitals providing acute coronary care in Northern Ireland participated and data were collected prospectively over six months on all patients admitted with acute myocardial infarction or who received TT. The information was analysed regarding appropriateness of TT, methods and timeliness of delivery of TT and mortality rates. Performance was measured against National Service Framework standards.**

Findings: **Of 1638 patients with acute myocardial infarction 584 were considered eligible for TT and 494 (85%) received it, in addition to 18 patients without infarction. Of the 512 thrombolysed patients 282 (55%) were treated in hospital coronary care units, 131 (26%) were treated pre-hospital, 97 (19%) in accident and emergency departments, and two in general medical wards. Overall median call-to-needle time was 87 (7-1110) mins and this was shortest for pre-hospital treatment when 55% of call-to-needle times were ≤ 60 mins. For patients treated in hospital median door-to-needle time was 46 (0-1065) mins and this was shortest when TT was administered by accident and emergency staff, when 65% of door-to-needle times were ≤ 30 mins. In patients with ST elevation myocardial infarction TT was associated with lower mortality, especially when administered pre-hospital.**

Interpretation: **NSF targets for TT are unlikely to be met in Northern Ireland without increasing pre-hospital delivery of TT and by improving collaboration between coronary care and accident and emergency staff with TT availability in accident and emergency departments.**

INTRODUCTION

The introduction of thrombolytic therapy (TT) for acute myocardial infarction in the 1980's contributed greatly to improvement in both short[1-5] and long term [6,7,8] survival rates. Early studies showed that the benefit achieved was inversely related to the delay between onset of symptoms and delivery of the thrombolytic drug.[1,3,5,9]

Throughout Northern Ireland mobile coronary care became widely available following the pioneering work of Pantridge and Geddes in Belfast in 1966 [10] and reduction of community mortality rate for myocardial infarction achieved by a mobile coronary care unit was clearly demonstrated in the pre-thrombolytic era.[11] With the advent of TT it appeared that the availability of mobile units should facilitate its rapid delivery to victims of myocardial infarction outside hospital. The benefit of prompt pre-hospital TT has been demonstrated when provided by general

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Correspondence to Dr Wilson.

practitioners[12] and by paramedics.[13,14] Numerous studies have demonstrated a superiority of primary angioplasty over TT in reducing mortality[15] but it is unlikely to become widely available in the near future so TT continues to be the mainstay of reperfusion therapy.

In order to assess the efficiency of delivery of TT in a region where mobile coronary care is widely available we conducted a prospective study of the timeliness of administration, appropriateness and effectiveness of this therapy throughout Northern Ireland over a six-month period.

PATIENTS AND METHODS

All fifteen hospitals providing acute coronary care in Northern Ireland (population 1.69 million) participated in the study and data were collected over six months from 1/04/01 to 30/09/01. Documentation was carried out by designated members of medical staff or senior nursing staff with the assistance of audit department staff. All patients admitted to hospital who received TT or who had a final diagnosis of myocardial infarction were included. Information relating to previous history, risk factors, indications and contraindications for TT, delay times for provision of coronary care and TT, sites where TT was administered, diagnostic tests and mortality rates was collected. A copy of the electrocardiograph (ECG) relevant to the decision for TT (usually the admission ECG) was retained to allow the accuracy of the diagnosis and appropriateness of the clinical decision to be checked by an independent assessor (C.W.) in consultation with the patient's consultant physician. The final diagnosis of myocardial infarction was at the discretion of the patient's consultant physician and depended on ECG changes and the results of cardiac enzymes and/or troponin levels as used in the local hospitals. The variable use of troponin levels throughout the hospitals led to a considerable variation in thresholds for diagnosis of non- ST elevation infarction.

Eleven of the fifteen hospitals operated mobile coronary care units of various types; ten were staffed by a doctor, nurse and driver and one was nurse led. The nurse led unit did not routinely provide pre-hospital TT. All patients in Northern Ireland had access to a mobile coronary care unit at the request of themselves, their general practitioner or emergency ambulance personnel. Patients were admitted via mobile coronary care units, or via accident and emergency departments, or directly to hospital at the request of a general

TABLE I

Sex, age and medical history of patients with confirmed myocardial infarction whether or not thrombolytic therapy (TT) was administered.

		TT patients (494)	*Non TT patients (1144)*
Gender	Male	357(72%)	652(57%)
	Female	137(28%)	492(43%)
Mean age (years)	Male	62	69
	Female	72	75
Medical history	Myocardial infarction	111(22%)	377(33%)
	Angina	123(25%)	442(39%)
	Hypertension	177(36%)	447(39%)
	Diabetes	61(12%)	210(18%)
	Cigarette smoking (current)	180(36%)	255(22%)
	Cigarette smoking (ex)	113(23%)	260(23%)
	Family history of IHD	161(33%)	273(24%)
	None of the above	44(9%)	104(9%)

practitioner. The timeliness of administration of TT was related to the various methods of delivery of care and performance was measured against targets for call-to-needle and door-to-needle times as recommended by the National Service Framework for England and Wales (NSF).[16]

Statistics

We considered that statistical analysis of our data would not be appropriate because patients selected or not selected for TT had quite different prognostic indicators and severity of presenting symptoms greatly influenced their selection for the various routes of admission. Comparison of the outcomes of these groups of patients would therefore be inappropriate.

RESULTS

Over a six-month period 1638 patients with a final diagnosis of acute myocardial infarction were admitted to acute hospitals in Northern Ireland. The age, sex and previous medical history of these patients, whether or not they received TT, are shown in Table I. Those who received TT were more likely to be younger, male, current smokers, with a family history of ischaemic heart disease, and with less previous cardiovascular disease.

There was significant ST segment elevation consistent with acute myocardial infarction without left bundle branch block on the presenting ECG in 775 (47%) patients and 77 (5%) had left bundle branch block. Sixty-nine of the patients with left bundle branch block, seven with ventricular pacing rhythm and one with broad complex tachycardia did not receive TT due to the well-recognised diagnostic difficulty in the presence of left bundle branch block[17] although this ECG abnormality is not a contra-indication to TT when there is strong clinical suspicion of myocardial infarction. An additional 191 patients had at least one clinical contra-indication to TT (Table II). Therefore 584 patients were considered eligible for and 494 (85%) received TT. Three patients refused TT and 87 did not receive TT due to difficulties with ECG interpretation.

TABLE II

Clinical contra-indications to TT among 1638 patients with myocardial infarction.

Clinical Contraindications	*Frequency*
Late presentation	125(7.6%)
Potential bleeding risk	56(3.4%)
On anti-coagulant	34(2.1%)
Recent CVA/TIA	31(1.9%)
Age	27(1.6%)
Uncontrolled hypertension	7(0.4%)
Primary Angioplasty	2(0.1%)
Other	30(1.8%)

An additional 18 patients received TT but were later shown to have no evidence of myocardial infarction. Eleven of these patients had acceptable criteria for the diagnosis of acute myocardial infarction on the presenting ECG, eight with ST segment elevation and three with left bundle branch block. Seven patients received TT inappropriately due to incorrect ECG interpretation but no untoward effects of treatment were noted.

The frequency of TT for patients with myocardial infarction varied from 18% to 55% among the 15 hospitals mainly due to local differences in the criteria used for final diagnosis of myocardial infarction in relation to serum enzyme or troponin levels in patients with chest pain without ST segment elevation on ECG. This caused variability of inclusion of patients with non-ST elevation infarction who were ineligible for TT.

Of the 512 patients who had TT 282 (55%) were treated in hospital coronary care units, 130 (25%) were treated pre-hospital by mobile coronary care units, 97 (19%) were treated in accident and emergency departments, two were treated in general medical wards and one patient was treated by his general practitioner.

Timeliness of TT

Of 478 patients whose time of onset of symptoms was recorded the median delay from symptom onset to initiation of TT was 175 minutes. The median time from the patients first request for medical assistance to onset of thrombolytic therapy i.e. call to needle time, was 87 (7-1110) minutes and call to needle time of ≤ 60 minutes was achieved in 152 patients (32%). The shortest median call to needle time was seen in patients treated by mobile coronary care units when call to needle time of ≤ 60 minutes was achieved in 55% compared with 47% in accident and

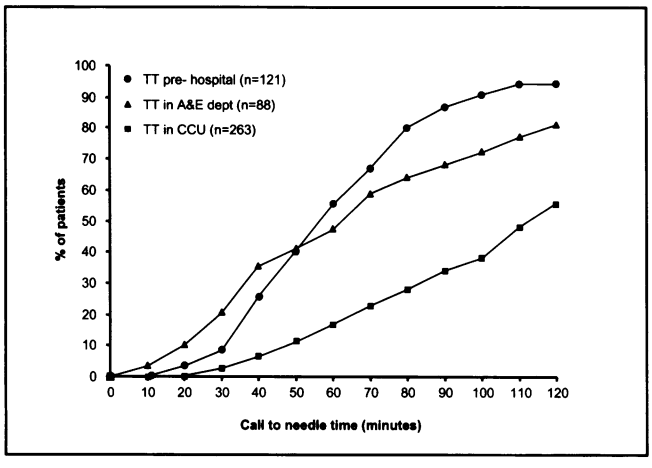

Fig 1. Cumulative distribution of call-to-needle times (times were indeterminate for 40 patients).

emergency departments and 17% in hospital coronary care units (Figure 1). Of 123 patients who received TT pre-hospital and had reliably documented times the median delay from arrival of the mobile unit to initiation of TT was 20 mins. Among 62 patients who were attended by mobile units but were transferred to hospital before TT was administered the median call to needle time was extended by 58 minutes.

Of 394 patients who activated out-of-hospital medical attention by either a general practitioner or emergency ambulance or mobile coronary care unit, the median call-to-needle times were 60 minutes for those treated pre-hospital, 100 minutes for those treated in accident and emergency departments and 126 minutes for those treated in hospital coronary care units (Figure 2). The NSF target call-to-needle time of ≤ 60 minutes was achieved in only 20% and 7% of patients treated in accident and emergency departments

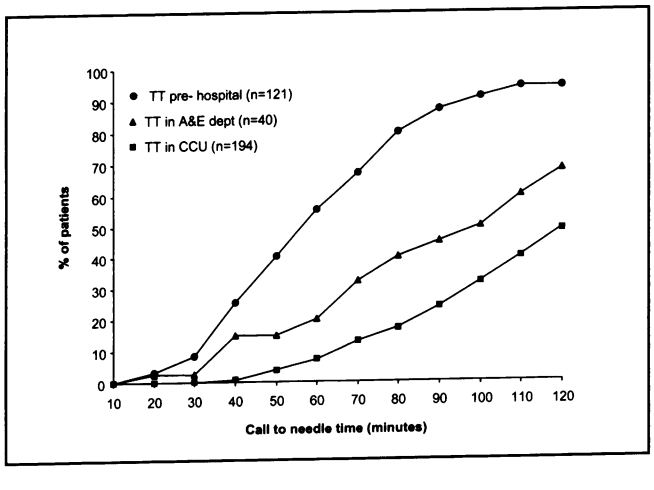

Fig 2. Cumulative distribution of call-to-needle times for patients who initially activated out-of-hospital medical attention (times were indeterminate for 38 patients)

and in coronary care units respectively compared with 55% of those treated pre-hospital.

For patients treated in hospital the median time from arrival at hospital to the onset of TT, i.e. door-to-needle time was 46 (0-1065) minutes. Patients treated in accident and emergency departments had the shortest median door-to-needle time, especially when treated by accident and emergency staff rather than waiting for cardiac unit staff (Figure 3). Door to needle time of ≤ 30 minutes was achieved in 65% of patients treated by accident and emergency staff compared with

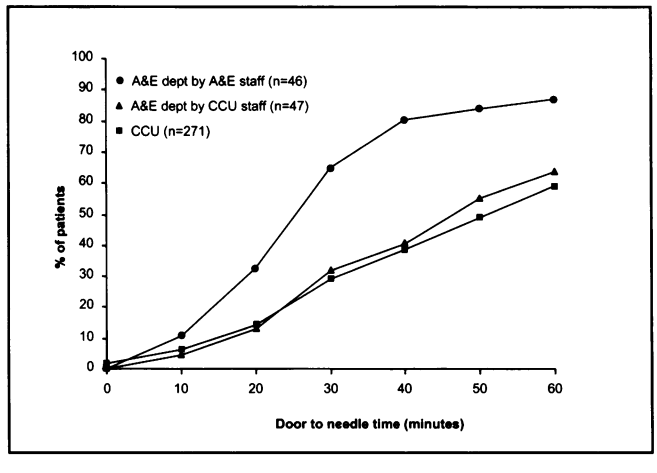

Fig 3. Cumulative distribution of door-to-needle times for patients whose TT was given in hospital (times were indeterminate for 7 patients)

only 32% when treated by cardiac unit staff in accident and emergency departments and 29% when treated in coronary care units.

Among patients whose call-to-needle time was more than 60 minutes important reasons noted for the delay were slow response by the general practitioner in 31(6%) or request by the general practitioner for the patient to attend the health centre in 13(3%), distance from hospital in 24(5%), non-diagnostic initial ECG necessitating repeat ECGs in 38(7%), initial clinical condition requiring stabilization before administering TT in 31(6%), uncertainty of the diagnosis requiring investigations such as echocardiography before administering TT in 8(2%), and consultation with a senior member of staff in 19(4%). In 31(6%) the delay time could not be defined and in 40(8%) no particular reason was identified.

Mortality Rates

Of the 1638 patients with a final diagnosis of acute myocardial infarction 165(10%) died in hospital and 204(12%) had died by six weeks

after infarction. Among patients with ST segment elevation on their presenting ECG who received TT the in-hospital and six week mortality rates were 10% (49/494) and 11% (56/494) respectively, compared with 18%(60/331) and 20% (67/331) respectively for those who did not receive TT. However the higher frequency of adverse factors among those who were not given TT may have contributed to this difference in outcome making statistical comparison inappropriate. When TT was given pre-hospital or in accident and emergency departments mortality rates tended to be lower than when it was given in coronary care units (Table III).

TABLE III

Mortality rates according to the site of administration of TT for patients with confirmed myocardial infarction.

Site of TT	*Hospitl mortality*	*6-week mortality*
Pre-hospital (123)	10(8.1%)	12(9.8%)
A&E dept (92)	8(8.7%)	10(10.9%)
Coronary care (277)	31(11.2%)	34(12.3%)
Other (2)	0	0

DISCUSSION

With the advent of TT for acute myocardial infarction it appeared that, within the UK, Northern Ireland was in a uniquely advantageous situation to achieve the maximum benefit because of widespread availability of mobile coronary care. This provided the means to deliver TT promptly to the coronary patient in addition to providing all other necessary acute treatment to stabilise the patient. The time delay from coronary occlusion, presumed to be onset of symptoms, to TT determines the likelihood of successful reperfusion but its largest component is patient delay before summoning help[18, 19] which, in this study, was about 90 mins. Unfortunately this cannot easily be altered [17] but call-to-needle and door-to-needle times should be amenable to improvement by changes in strategy. In this study pre-hospital TT, which accounted for a quarter of all TT, was associated with shorter call-to-needle times compared with in-hospital administration. Delaying administration of TT by transfer to hospital extended delay to TT by about an hour. Patients treated in accident and emergency departments received TT earlier than those treated in hospital coronary care units but call-to-needle time ≤ 60 minutes as recommended by the NSF was achieved in the majority of patients only when TT was given pre-hospital. Similar reductions in call-to-needle times have previously been achieved when TT was administered pre-hospital by general practitioners,[12] paramedics with hospital based support,[13, 14, 20] and mobile coronary care units.[21, 22] Meta-analyses have shown significant reduction in delay and lower mortality rates associated with pre-hospital compared with in-hospital TT.[9, 23] The National Audit of Myocardial Infarction Project (MINAP) reported that, in its first six months, which was roughly contemporary with this study, 20% of eligible patients were treated within sixty minutes of calling for help.[24] This compares with 32% of patients in this study but only approximately 2% in MINAP received pre-hospital TT. However MINAP showed improvement to 47% achieving target call-to-needle times by the year 2003.

Among patients treated in hospital the NSF recommended door-to-needle time was achieved in only a third of patients compared to 43% of eligible patients in the first six months of MINAP and this figure improved to 78% by 2003.[24] However, in this study, when treatment was administered by accident and emergency staff the target door-to-needle time was achieved in 65% compared with only 32% if intervention by cardiac unit staff was requested. Previous reports have similarly indicated shorter in-hospital delay when TT was provided in accident and emergency departments [18, 25, 26] and the delay was doubled by the need to consult a senior colleague.[18] However, whilst unnecessary delay should be avoided, it is often appropriate to obtain a more senior opinion to ensure accurate selection for this relatively high risk treatment. In addition, the importance of other components of care in acute coronary syndromes, other than TT, must not be underestimated and it is essential that all staff working in this field are appropriately trained. The availability of mainly doctor-led mobile coronary care in Northern Ireland probably contributed greatly to the relatively low overall mortality rate in this study. A task force of the European Society of Cardiology recommended that personnel providing pre-hospital TT should be trained in all aspects of the diagnosis and treatment of myocardial infarction.[27]

About half of all patients with a final diagnosis of acute myocardial infarction had neither diagnostic ST segment elevation nor left bundle branch block on the presenting ECG which is similar to a previous report [28] and a further 12% had contraindications to TT but it was disappointing to find that 15% of patients eligible for TT did not receive it. This compares with previous studies, which have reported 14-33% incidence of administration failure [29-32] while MINAP recently reported only 6% failure rate.[24] It has been demonstrated that increasing the accuracy of ECG analysis by input from consultant staff by means of a fax facility improved decision-making with regard to TT and provided support for junior doctors when the interpretation of the ECG was in doubt.[33] Several mobile coronary care units in Northern Ireland now have the facility to transmit electrocardiograms by modem/fax technology to the central CCU or to a consultant's home for a second opinion.

The recent introduction of serum troponin estimations has led to a dramatic increase in the frequency of diagnosis of myocardial infarction [34, 35] but the number treated by TT has remained relatively unchanged as the increase has been due to inclusion of more patients with non-ST elevation infarction who are not considered suitable for TT resulting in reduction of TT rates for all patients with myocardial infarction from 40% to 26%.[35] This phenomenon explains the apparently low proportion (30%) of myocardial infarction patients who received TT in this study.

It is clear that there are significant shortfalls in achieving NSF targets in Northern Ireland as previously observed in an audit of English hospitals,[36] although MINAP reports marked improvements in performance over recent years.[24] Reasons for delay in this study, which are not realistically amenable to improvement, were identified in at least 30% of patients receiving TT. The target call-to-needle time of ≤ 60 minutes is therefore unrealistic for many of our patients but the most likely method of reducing out-of-hospital delay appears to be increased utilization of pre-hospital TT delivered by adequately staffed mobile units while in-hospital delay could be significantly reduced by improving collaboration between accident and emergency departments and coronary care units. Our findings support the NSF,[16] the NICE guidelines [37] and the European Society of Cardiology task force,[27] all of which have suggested that it is appropriate to provide pre-hospital TT where local call-to-door times are likely to be more than 30 minutes, as pertains throughout the predominantly rural population of Northern Ireland, and that TT should be available in accident and emergency departments.

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Participating Hospitals: Altnagelvin Hospital, Antrim Hospital, Belfast City Hospital, Coleraine Hospital, Craigavon Hospital, Daisy Hill Hospital, Downe Hospital, Erne Hospital, Lagan Valley Hospital, Mater Hospital, Mid-Ulster Hospital, Royal Victoria Hospital, Tyrone County Hospital, Ulster Hospital, Whiteabbey Hospital.

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Aggressive treatment of metastasis to the parotid

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SUMMARY

Objectives: **Assess the value of aggressively treating metastatic lesions in the parotid, taking into account the histology of the disease.**
Study Design: **Retrospective analysis of 13 patients diagnosed with metastasis to the parotid treated by one surgeon in a tertiary referral head and neck unit in the United Kingdom.**
Methods: **The following variables were reviewed and tabulated: age, sex, histology, latent period to secondary tumour, treatment instituted, postoperative facial nerve outcome, follow-up and survival.**
Results: **Twelve patients were treated aggressively with at least total parotidectomy and adjunctive therapy, whilst one patient required only a superficial parotidectomy. Ten patients had metastatic cutaneous tumours, and three had metastatic adenocarcinoma. Seven of these 13 patients (53.8%) are alive and well (six had metastatic cutaneous tumours, one had metastatic adenocarcinoma). Four patients succumbed to tumour (two had metastatic cutaneous tumours and two had metastatic adenocarcinoma), and two patients succumbed from unrelated medical causes (both had metastatic cutaneous tumours). The mean follow-up for those alive is 65.9 months and mean follow-up for those deceased is 15.3 months.**
Conclusions: **In the absence of systemic spread, parotid metastases from primary cutaneous squamous cell carcinoma should be treated aggressively, while metastases from non-cutaneous primary tumours should be approached with caution.**

INTRODUCTION

Primary benign tumours form the majority of lesions seen commonly in the parotid gland. Metastatic lesions are rare and often associated with cutaneous primary malignancies in the head and neck, although adenocarcinoma and rare metastatic lesions have been reported. As part of a combined oncology team, the head and neck surgeon will be faced with the dilemma of making a decision on the optimum management of these cases.

MATERIALS AND METHODS

A retrospective review of 13 patients with metastatic lesions in the parotid treated under one surgeon in the Department of Otolaryngology – Head and Neck Surgery at the Royal Victoria Hospital, Belfast, United Kingdom was undertaken (Table). Variables documented included age and sex of patients, histology of tumours, primary site of tumours, clinical presentation, latent period to secondary tumour, preoperative facial nerve function, treatment instituted, postoperative facial nerve function, follow-up and survival.

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TABLE

Diagnoses and outcomes of patients with parotid metastases

Case	*Age, year*	*Sex*	*Histology*	*Latent period to secondary tumour, month*	*Treatment*	*Postoperative Facial Nerve Function*	*Follow-up*	*Survival to date, month*	*Survival to death, month*
1-8	mean 65.4	7 M: 1 F	SCC	mean 28.4	6 x Total Parotidectomy +	5 Normal	4 Alive:	mean 62.8	mean 16.3
	range (59-76)			range (13-62)	Post-op XRT:	3 Compromised	4 Dead*	range (40-86)	range (13-22)
					2 x Total Parotidectomy + VII				
					sacrifice + MRND +				
					Latissimus Dorsi flap + Post-op				
					XRT				
9-11	mean 54.3	1 M: 2 F	Adeno Ca	mean 29.7	3 x Total Parotidectomy +	2 Normal:	1 Alive:	73	mean 13.5
	range (52-58)			range (13-61)	Post-op hormonal	1 Compromised	2 Dead		range (13-14)
					manipulation				
12	59	M	Basisquamous Carcinoma	63	Superficial Parotidectomy	Normal	Alive	74	
13	63	F	melanoma	8	Induction Chemotherapy +	Normal	Alive	63	
					XRT + Total Parotidectomy +				
					MRND + Latissimus Dorsi flap				
					+ Post-op Alpha-Interferon				

M	Male	AdenoCa	Adenocarcinoma
F	Female	XRT	Radiotherapy
SCC	Squamous cell carcinoma	MRND	Modified radical neck dissection

* 2 of 4 patients with squamous cell carcinoma died from non-tumour related pulmonary and cardiac causes

RESULTS

As shown in the Table, there were nine males and four females with an age range of 52-76 years (mean 62.2 years). Histologically, there was a predominance of squamous cell carcinoma, with adenocarcinoma forming the second largest group and the remaining, being isolated, unusual metastatic lesions. Ten of the 13 cases had a cutaneous primary tumour originating in the head and neck region with the most favoured sites being the scalp and the pinna (Figure). The majority of these cases from cutaneous primary tumours were squamous cell carcinoma in type. There were three patients with metastatic adenocarcinoma; two from breast primary tumours, and one from a prostatic primary tumour.

A mass in the parotid was the sole feature in all cases. All patients, at presentation, had an intact functioning facial nerve on the side of the lesion. All patients underwent a thorough ENT and general examination, fine needle aspiration cytology of the parotid and Computed Tomography (CT) scans of the parotid, neck and chest. Those with cutaneous metastatic lesions were patients who had undergone treatment for their scalp, pinna and neck lesions previously

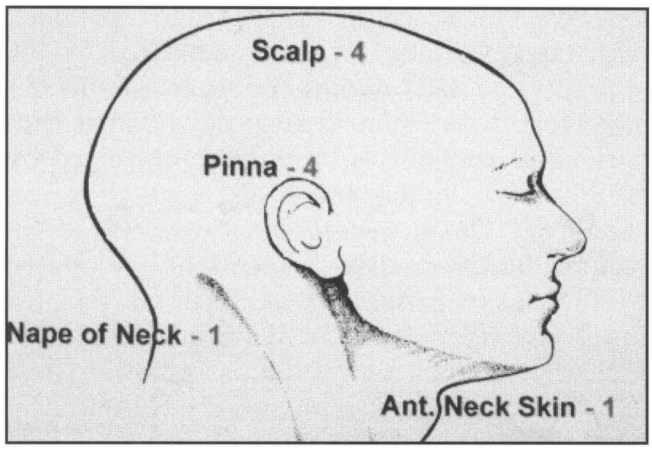

Fig. Sites of the primary tumours of skin which have metastasized to the parotid gland.

under our care. The breast carcinoma patients had been thoroughly evaluated by the breast team to rule out other systemic metastases with CT and radioisotope bone scans, while the prostatic carcinoma patient had a thorough genitourinary work-up before being referred to our department.

The latent period following the primary malignancy was variable, ranging from 8 months to 63 months (mean 29.8 months). The malignant melanoma was extremely aggressive and was the only metastatic lesion in our series that appeared within a year of treatment of the primary lesion.

The treatment options employed varied depending on the extent of the lesion as seen on the CT scan and the histology of the primary lesion. Cases with squamous cell carcinoma underwent either total parotidectomy with post-operative radiotherapy, or total parotidectomy with facial nerve sacrifice, a modified radical neck dissection and latissimus dorsi flap for skin cover, followed by post-operative radiotherapy. The three cases of metastatic adenocarcinoma underwent total parotidectomy with preservation of the facial nerve followed by post-operative hormonal therapy; tamoxifen for the breast carcinoma cases, and goserelin for the single prostatic carcinoma case. The basisquamous carcinoma presented as a 1cm diameter single metastasis in the superficial lobe, and was completely excised by a superficial parotidectomy. The malignant melanoma presented as a very large metastatic lesion involving the parotid and the neck. This was considered unsuitable for primary surgery and the patient underwent induction chemotherapy with cisplatin and 5-fluorouracil followed by radiotherapy to initially shrink the mass, then followed by a total parotidectomy with facial nerve preservation, modified radical neck dissection and latissimus dorsi flap. Post-operatively, the patient was treated with alfa-interferon for a period of 18 months.

At their last follow-up, four of the 13 (30.8%) patients suffered from facial nerve function compromise; in two of these cases the facial nerve had been intentionally sacrificed. Seven of the 13 patients (53.8%) are alive without any evidence of recurrence, and a mean survival to date of 65.9 months (range 40- 86 months). Six of the 13 patients (46.2%) have died with a mean survival to death of 15.3 months (range 13-22 months), although two of them died from non-tumour related causes.

DISCUSSION

Metastatic disease accounts for approximately 9 to 14% of all parotid tumours.[1] Cutaneous malignant melanoma and squamous cell carcinoma of the head and neck region account for approximately 80% of these metastases.[2] Seven of our 13 patients (53.8%) are alive and well, with six of these seven having had primary cutaneous tumours. Three of our patients (two with squamous cell carcinomas and one with basisquamous carcinoma) are now considered cured, having survived at least, five years since treatment of their parotid secondary tumour. In a 123-patient study of patients treated aggressively for metastatic parotid disease from cutaneous primary tumours, O'Brien *et al* [3] have reported cumulative disease-specific five-year survival rates of 58% in those with metastatic cutaneous squamous cell carcinoma, and 40% in metastatic malignant melanoma. In our series, 60% (6/10) of our patients with metastases secondary to cutaneous primary tumours have no evidence of recurrence at their last review, and 20% (2/10) succumbed to causes unrelated to the original malignancy (cardiac and pulmonary).

In a review of 866 reported cases of parotid metastases, Pisani *et al* [4] found that 92 cases (11%) originated from an infraclavicular primary tumour, indicating that a metastatic lesion in the parotid needs to be assessed and investigated quite differently from a lateral neck mass. Infraclavicular primary tumours tend to originate in the lung, kidney, breast and gastrointestinal tract, although unusual sites such as adenocarcinoma of the urachus have been reported.[5-7] Cases with infraclavicular primary tumours generally have a poorer prognosis,

although there have been occasional documented cases with a good outcome.[5,7] Cases with parotid metastases from non-cutaneous head and neck primary tumours also have a poorer prognosis, with a reported five-year survival rate of only 10%. In our series, two out of the three patients with parotid metastases from non-cutaneous infraclavicular primary tumours have succumbed to their disease.

O'Brien *et al*[3] quoted a 26% incidence of clinically involved nodes in cases with metastatic squamous cell carcinoma to the parotid, and a further 35% of those having elective neck dissections had positive histology in the neck. These results are indicative of the likelihood of dissemination of metastatic cutaneous squamous cell carcinoma to the parotid, and indicate that treatment of the neck should be an integral part of the overall therapeutic plan, either in the form of an elective neck dissection or post-operative radiotherapy to the neck. Total parotidectomy with preservation of the facial nerve followed by post-operative radiotherapy to the parotid and neck would be the protocol we suggest for most tumours restricted to the parotid, without clinical involvement of neck nodes. The facial nerve was preserved at time of surgery in 11 of our 13 cases, with nine of these 11 cases now having normal post-operative facial nerve function. The facial nerve may, however, need to be sacrificed for larger parotid tumours involving the overlying skin, whereby preservation of the nerve (whether involved or not by tumour) may compromise surgical margins. These cases may also warrant an additional modified radical neck dissection and latissimus dorsi flap for skin cover, followed by postoperative radiotherapy.

Imaging is important if a metastatic parotid tumour is suspected, either for diagnosis or to delineate its size and invasive nature. The majority of tumours appear as low signal on magnetic resonance imaging (MRI) T1 weighting and as high signal on MRI T2 weighting. However, the paramagnetic effect of melanin causes melanotic deposits to appear instead as high signal on MRI T1 weighting and low signal on MRI T2 weighting, thus aiding in the diagnosis of malignant melanoma.[8] In a study of 54 patients with aggressive non-melanoma skin cancer of the head and neck, 23 were found to have metastasis to the parotid or direct invasion of the gland, requiring parotidectomy for locoregional control of their disease.[9] However, parotid involvement was only diagnosed clinically in six of these 23 patients, with the remaining 17 cases identified by CT scanning and MRI studies. Younger patients (51 vs 75 years) were more likely to have lesions with perineural invasion (P = 0.006), suggested by facial nerve enhancement or thickening, on scanning. Despite parotidectomy, these 23 patients had more disease recurrence compared to the rest of the cohort without parotid involvement (P = 0.0002). Identification of these high-risk lesions at initial presentation, and aggressive treatment with surgery followed by post-operative radiotherapy still offers the best chance of cure for these patients.

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Unrecognised spinal cord compression as a cause of morbidity

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SUMMARY

Predicting outcomes is important in planning patient management and rehabilitation. Two cases, one with illustrative radiology, are described. Each presented with potentially preventable morbidity, secondary to unrecognised compression of the spinal cord. Detailed history and examination may have revealed the underlying problem: a condition with potential associated long-term morbidity.

INTRODUCTION

In this paper, we describe two cases in which there was a delay in reaching the diagnosis of spinal cord compression, leading to increased morbidity in each case. We would suggest that, in each case, a full history and thorough clinical examination would have prompted investigation of the underlying problem, thereby resulting in lessened morbidity. We also suggest that where response to treatment including rehabilitation is not as expected, a clinical explanation should be sought.

CASE REPORTS

Case 1 A 61-year-old lady presented with a fracture at the right ankle following a fall. She reported feeling that her leg had given way. Five months later she presented, following a further fall, with an intracranial haemorrhage. Her initial Glasgow Coma Scale (GCS) was 12/15. CT (computerised tomography) scanning revealed a left parietal extradural haematoma which was subsequently evacuated. Post-operatively, she made a good functional recovery; however mild weakness of her right leg persisted, despite full recovery of function in her right arm, which at outpatient review prompted further mvestigation.

A detailed history revealed a four-year history of reduced balance and falls, two of which resulted in the aforementioned problems. Detailed neurological examination revealed a sensory level at T6 and bilaterally extensor plantar reflexes. An MRI (Magnetic Resonance Imaging) of her

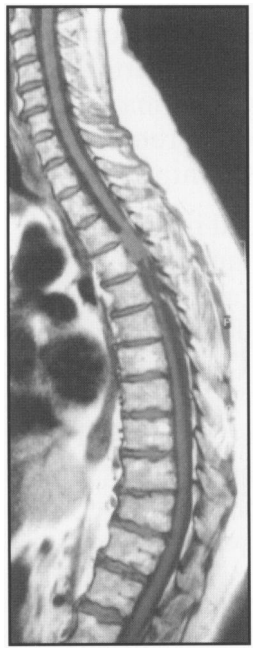

Fig 1. Sagittal MRI of spine revealing a well-defined rounded intradural tumour mass, characteristic of meningioma at the level of the 3rd and 4th thoracic vertebrae.

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spine revealed a tumour characteristic of a meningioma at the level of the 4th thoracic vertebra (Fig. 1). Some 13 months following her initial injurious fall she underwent thoracic laminectomy and excision of a T4 level intradural extramedullary tumour. Histology confirmed a meningioma. Following an initially stormy postoperative course she has recovered power in her legs and her overall mobility and balance have improved.

Case 2 A 34-year-old man with avascular necrosis of the left femoral head underwent left total hip replacement (THR). The avascular necrosis had occurred secondary to steroid treatment for Hodgkin's lymphoma which had been diagnosed ten years earlier. Subsequent to his assessment for THR, and two months before his surgery he was treated with ABVD (adriamycin, bleomycin, vincristine and dacarbazine) chemotherapy and steroids for acute spinal cord compression at the level of the 5th and 6th thoracic vertebrae (secondary to his Hodgkin's lymphoma). At the time of surgery there was no apparent neurological deficit, with only his painful hip limiting his mobility.

He experienced recurrent THR dislocation and a posterior lip augmentation device (PLAD) was implanted as a preventative measure. Weakness of the hip and knee flexors of Medical Research Council (MRC) grade two and three muscle power respectively was noted. Bowel and bladder function was normal. He was subsequently transferred for inpatient rehabilitation. A history of a dose dependent effect of dexamethasone on his strength was noted, with an increase in hip flexor power and the patient reported increasing back pain.

MRI of the spine at this time, eight weeks post-THR, revealed marked kyphosis and compression of the spinal cord to 3mm diameter by collapse due to lymphomatous infiltrate of the 5th and 6th thoracic vertebrae (Fig. 2). He underwent anterior and posterior decompression and corpectomy at this level with posterior stabilisation.

Following this he had a further period of inpatient rehabilitation. Pre and post spinal surgery lower limb American Spinal Injury Association motor scores[1] were 34 and 39, out of a maximum 50, respectively. He achieved an increase in his mobility and functional skills, which he retained until his death two years later due to Hodgkin's lymphoma.

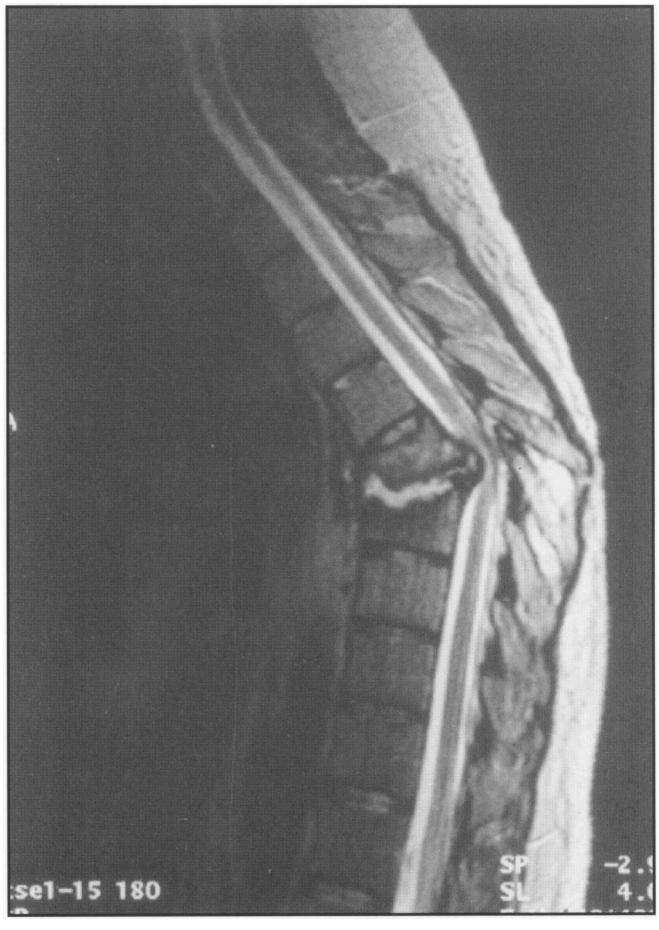

Fig 2. Sagittal T2 weighted MRI of thoracic spine shows spinal cord compression and vertebral collapse at the level of the 6th Thoracic vertebra.

DISCUSSION

Simple trip and fall is a common presentation, however few will have spinal cord disease. Patients with mild limb weakness secondary to spinal cord compression may present in a similar manner and if a detailed history and examination is not performed, potentially reversible causes of spinal cord pathology may be missed. Moreover the patient will be susceptible to the potential injurious sequelae and morbidity of their spinal cord disease. Spinal cord compression, in the form of cervical spondylotic myelopathy, has been described as a cause of gait disturbance and falls in the elderly.[2]

In case one, diagnosis of the spinal cord compression at the time of initial presentation to hospital would have, in all probability, prevented the later fall and consequent head injury and extradural haematoma. Her failure to progress in rehabilitation, in retrospect seen to be secondary to her underlying thoracic meningioma, might have prompted further investigation at an earlier stage.

In case two the recurrent dislocation of the THR was in all probability due to weakness of the pelvic musculature secondary to spinal cord dysfunction. We would suggest that his mobility was reduced by the presence of spinal cord compression in addition to left hip joint pain. Spinal cord compression has been variably noted in up to 5% of patients with Hodgkin's lymphoma. There are no specific figures for long term survival following spinal cord compression.

Osteotomy is often considered in cases of avascular necrosis,[3] given that THR is expected to require revision in 10 to 20 years. Our patient was offered THR, as his life expectancy was short. However, it is probably the case that, with clinical evidence of underlying spinal cord dysfunction, the use of PLAD would have been considered earlier; thus reducing the risk of the prosthetic hip dislocating [4] and preventing the subsequent increase in his morbidity. There is little in the way of published evidence on the interrelationship between myelopathy and the outcome of joint replacement, although in patients with rheumatoid arthritis it has been demonstrated that subsequent development of cervical myelopathy is a limitation to good outcome following multiple major lower limb joint replacement.[5] Missed compressive lesions, causing paraplegia, at the thoracic vertebral level have been reported following surgery for lumbar spinal canal stenosis.[6]

Prediction of rehabilitation outcomes is important in planning patient care, and depends upon an accurate diagnosis of the cause of a patient's impairments. These cases also demonstrate the need to review reasons for failure to achieve the expected outcome and where appropriate undertake investigation to seek concomitant pathology.

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Antenatal HIV testing:

evaluation of uptake and women's attitudes in a low risk population

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SUMMARY

The number of HIV-positive heterosexuals in the UK is increasing, with a resultant increase in the number of pregnant women who are HIV-positive. The benefits of diagnosing an HIV-positive woman antenatally are well established. The Department of Health of England issued guidelines recommending named voluntary antenatal testing, with a view to achieving a maternal diagnosis rate of 90% by December 2002. In Northern Ireland the policy was distributed in 2003. The screening programme in our hospital had an uptake rate of 98.7%. Responses to a questionnaire to evaluate the process indicate that HIV testing was associated with low levels of anxiety and that patients were well satisfied with the counselling they received.

INTRODUCTION

The number of HIV-positive heterosexuals in the UK is increasing, and this has resulted in an increase in the number of pregnant women who are HIV-positive. In the year 2000, 46% of the 2,868 newly diagnosed cases of HIV in the UK were likely to have been acquired heterosexually, the majority originating from high prevalence areas such as sub-Saharan Africa. Data from unlinked anonymous screening suggests that 450 HIV-positive women gave birth in the UK in 2000, with two-thirds occurring in London. Throughout the rest of the UK, the incidence has remained at less than 3 per 10,000.

The benefits of diagnosing an HIV-positive woman before delivery, and preferably in the first trimester of pregnancy, are well established: avoidance of breastfeeding [1] and anti-retroviral therapy [2] decrease vertical transmission from 30% to 5-8%. The benefit of other interventions, such as elective caesarean section is less clear: one study showed a five-fold reduction in rates of transmission rate in the caesarean section group,[3] whereas Beckermann's group have been advocating normal vaginal delivery in women receiving anti-retroviral therapy.[4]

The idea of antenatal screening for HIV is not new. One of the first pilot studies in the UK was reported in the BJOG in 1996,[5] and soon afterwards the UK National Screening Committee recommended that all pregnant women in the UK be offered antenatal screening. It wasn't until 1999 that the Department of Health in England issued guidelines recommending named voluntary antenatal testing, with a view to achieving a maternal diagnosis rate of 90% by December 2002.[6] This was reinforced by a Royal College of Obstetricians and Gynaecologists draft Greentop Guideline published in February 2003.[7]

Currently, antenatal screening policies vary from universal testing to selective testing (for those with recognised risk factors), and even request only testing. There are also differences in the amount of information given prior to the HIV test, ranging from comprehensive to minimal. An important factor to remember is that actually offering the test to low risk women may in itself

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cause anxiety and also disharmony between health provider and patient. A study performed in Edinburgh showed that neither anxiety nor satisfaction was affected by the amount of information given.[8]

The Ulster Community & Hospitals Trust was identified as a pilot site for implementation of universal antenatal HIV screening in Northern Ireland. Patients were posted a locally produced information leaflet prior to their first antenatal clinic. This highlighted the benefits of screening for HIV and other infections. At the booking clinic, trained midwives initiated a pre-test discussion and obtained written consent before performing HIV screening. Part of the pilot scheme involved evaluation of the process, including assessment of the women's attitudes towards it.

METHODS

The evaluation was conducted from 1st May 2003 to 31st July 2003. All women attending for their anomaly scan at 20 weeks gestation were asked to complete a questionnaire measuring their knowledge about the HIV test, attitudes to the test, concerns or anxieties about it, and reasons for agreeing to it or declining it. The women were informed that participation was voluntary and they were assured of anonymity. Written consent was obtained from each woman.

A literature search was carried out in Medline to identify publications on antenatal HIV screening. On the basis of this, a patient questionnaire was devised to avoid leading questions and to allow the patient to record options not encompassed in the questionnaire. Once completed, the questionnaires were returned to the clinic and the information was collated by the quality and effectiveness department.

RESULTS

From May 2003 to July 2003, 232 questionnaires were completed and returned. Of the 232 women questioned, 229 (98.7%) opted to have the HIV test. The reasons for opting in or out are shown in Tables Ia and Ib, respectively. The main reason for opting in was that women felt it was beneficial for themselves, their baby, or both (114/229, 49.8%), whereas the main reason for opting out was because of perceived low risk (2/4,50%).

TABLE Ib

Reasons for opting out of the HIV test

Reason for opting out	*Number*	*Percentage*
Didn't think she was at risk.	2	50
Didn't know if she was tested.	1	25
Just a routine test.	1	25

Prior to becoming pregnant, 57.4% (132/230) of women were aware of HIV screening and 86% (197/229) thought all women should be screened. At the first antenatal appointment, 89.7% (201/224) of women had the opportunity to discuss the blood test; 97.1% (204/210) stated questions were answered to their satisfaction and 84.7% (189/223) felt the information given about the test was just right.

Of the 232 women, 6.5% (15) had concerns about having the test; the concerns identified are shown in Table II. Of the 221 responses regarding anxiety about having the test, 94.6% (209/221) were either slightly anxious or not anxious at all. At the time of testing, 74.3% (162/218) felt there was enough privacy to discuss testing and voice any concerns. 70.4% (157/223) stated that they signed

TABLE I

Reasons for opting to have the HIV test

Reasons for opting in	*Number*	*Percentage*
Beneficial to respondent or baby to know.	114	49.8
Respondent felt the test would be negative.	75	32.7
It was offered and therefore respondent felt she should accept.	41	17.9
Midwife advised respondent to have the test.	17	7.4
Respondent concerned about her own health.	20	8.7

TABLE II

Concerns about having an HIV test

Concern	*Number*	*Percentage*
It might be positive.	5	33.3
It might affect my insurance.	9	60
It might not be totally confidential.	4	26.7

a consent form prior to testing, whereas 25.1% (56/223) couldn't remember. Of the 70.4% who recalled signing consent, 96.8% (152/157) felt the consent obtained was appropriate.

Table III shows the time at which decision to have the test was made. If the woman was accompanied, she was asked if the individual present influenced her decision to have the test and 98.4% (184/187) stated that they had not.

DISCUSSION

There has been much debate concerning the best way to offer antenatal HIV screening, be it universal, selective, or on request. This study has shown a very high uptake rate with a universal policy. The uptake of 98.7% compares very favourably with other studies such as the Edinburgh study in 1999 which had an 88% uptake [9] and a tertiary referral hospital in the West Midlands with low prevalence similar to our study had a 80% acceptance rate.[10]

The most common reason for opting out was that the women felt they were at low risk, and this was also the case in the West Midlands study.[10] It is possible that the acceptance level in our study was particularly high because the prevalence of HIV, and thus perceived risk, in the local population is extremely low, and there is only a very small ethnic minority community. In the West Midlands study, ethnic minority women were almost twice as likely to opt out as Caucasian women (28% Afro-Caribbean and 25% Asian compared with 15% Caucasian).

A common misconception is that having the test may affect insurance or life assurance. In the event of a negative test, this is not the case. The misconception has probably arisen because, in the past, insurance proposal forms asked the respondent if they had ever been tested for HIV, and this was used as a measure of risk. Now, forms issued by companies affiliated to the British Association of Insurers ask if the respondent has tested positive for HIV. This is a point which requires explanation and reassurance.

Our study showed that a high acceptance rate could be achieved by a simple patient information leaflet and a suitably qualified midwife with a short period of time dedicated to explaining the test. It was also notable that the women were happy with the amount of information they received, and the majority had little anxiety or concern about having the test.

An area which could be improved was the level of privacy afforded to our patients, with only 74.3% feeling there was enough privacy. This was probably a result of patients being counselled in a large room with 4 alcoves. This issue will be resolved in the future when the maternity unit moves to a new building, which will have individual booking rooms.

CONCLUSION

We have shown that with forward planning and adequate training of medical staff it is possible to

TABLE III

Timing of decision whether or not to have the HIV test

Time of decision-making	*Number*	*Percentage*
Prior to receiving hospital information.	40	19.1
After receiving hospital information but prior to attending for booking visit.	86	41.2
When attending for the booking visit but prior to discussion with the midwife.	38	18.2
At the booking visit and after speaking to the midwife.	45	21.5

have a high acceptance of HIV testing as well as having a high level of patient satisfaction.

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Knowledge, attitudes and behaviour in the sun:
the barriers to behavioural change in Northern Ireland

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SUMMARY

To inform future health promotion programmes, we studied the knowledge, attitudes and behaviour of the Northern Ireland population to sun care. An interviewer-administered questionnaire was applied to one adult per household from a random sample of 1242 addresses. Lower levels of knowledge were found among respondents who were male, aged under 25 years or over 65 years, in a manual occupation or living in the west where health promotion activity on this topic was less active than in the east. Younger adults, females and professional groups were more likely to indicate that a suntan was important, healthy or attractive. Use of high factor sunscreen was inversely proportional to perceived importance of a suntan. Sunburn was more common in younger adults but more men reported multiple episodes of burning. Regular skin checks were uncommon and self-assessment of skin type was unrealistic indicating that sun care advice based on self assessment should be avoided in this population. Future campaigns should target appropriate messages at specific population subgroups. The study highlights the importance of collecting baseline information before implementing health promotion programmes and suggests that repeat monitoring is essential to ensure that key messages remain relevant. This study also indicates that Care in the Sun campaigns here impacted on general awareness in the population even with limited resources. There is, therefore, potential for greater impact with high funding levels.

INTRODUCTION

Similarly to many developed countries,[1] Northern Ireland's population of approximately 1.7 million has experienced a recent increase in the incidence of skin cancer. Data from the Northern Ireland Cancer Registry indicate that the number of cases of malignant melanoma has risen from an average of 48 cases per year (1974-1978) to 190 cases per year (1998-2001) and that approximately one quarter of all newly diagnosed cancers are non-melanoma skin cancers.[2] The aetiology of malignant melanoma remains under debate. Exposure to ultraviolet radiation causing burning and a genetic predisposition have been cited as probable risk factors.[3,4] Northern Ireland has a mainly homogeneous, fair-skinned population with less than 1% identified as belonging to ethnic minority groups.[5] As the vast majority of people have skin Type I or II,[6] they are at greater risk of burning if they do not take adequate protective measures in the sun.

Increased exposure to ultraviolet radiation as a result of changing lifestyles may help to explain the rising incidence of malignant melanoma. The Northern Ireland Tourist Board indicates an

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increase in the number of residents travelling abroad, with the number taking holidays of more than 4 days' duration outside Northern Ireland increasing by 20% between 1989 and 1999.[7]

A "Care in the Sun" campaign began in Northern Ireland in 1990 as part of the "Europe Against Cancer" initiative. This campaign aimed to raise public awareness of the dangers of the sun, sunburn in childhood, and the early detection of malignant melanoma. Initiatives were co-ordinated locally within each of the four Health and Social Services Board areas and varied according to the level of interest in sun care issues among staff. This effort was supplemented by a regional 'Strategy for the prevention, diagnosis and treatment of malignant melanoma and other skin cancers in Northern Ireland" which was launched in 1997 and which advocates a multi-agency approach to reducing morbidity and mortality from skin cancer.[8]

This survey aims to augment the limited information available on sun care issues within Northern Ireland by examining current knowledge, attitudes and behaviour, and to identify if there are subgroups of the population who require particular attention in future health promotion campaigns.

METHODS

Sixteen questions relating to sun care knowledge, attitudes and behaviour were included as a module of a household Omnibus Survey in May 2000. The questions were adopted from those used previously in population surveys on sun care issues.[9,10] The survey, used by public bodies, is carried out four or five times each year to collect data on a range of issues. This was the first time that a sun care module had been included.

A random sample of 2050 addresses was drawn from the Valuation and Lands Registry list of

TABLE I

Characteristics of the respondents

Factor	*Sample size*	*Survey Population(%)*	*N Ireland population(%)*
***Gender**			
Male	522	47.1	48.2
Female	587	52.9	51.8
***Age group**			
16-24	191	17.2	16.7
25-34	162	14.6	20.2
35-49	319	28.8	26.1
50-64	244	22.0	19.7
65+	194	17.5	17.2
† Social Class			
Professional (I)	186	16.7	2.8
Non-manual (II+IIInm)	313	28.2	36.1
Skilled manual (IIIm+IV)	412	37.1	30.5
Unskilled manual (V)	56	5.0	6.0
Unclassified	144	12.9	24.7
***Geographical area of residence**			
Belfast	168	15.1	16.8
East of Province	539	48.6	45.4
West of Province	402	36.3	37.8

Sources of N Ireland data:

* General Register Office, Northern Ireland Statistics and Research Agency, 1999 mid-year population estimates

† Registrar General Northern Ireland, The Northern Ireland Census 1991, Economic Activity Report

TABLE II

Respondents' knowledge of sun care issues

	Agreement (%)						
	Gender		Age (years)				
	Male	*Female*	*16-24*	*25-34*	*35-49*	*50-64*	*65+*
Areas previously included in health promotion programmes							
In the sun people need to drink fluids to avoid dehydration	99	99	98	100	99	99	98
It is not OK to fall asleep in the sun (gender $p<0.001$)	98	99	98	98	99	98	98
You can help protect yourself by wearing a hat/T-shirt	99	98	98	98	99	98	98
Sitting under a tree/umbrella can provide some protection (age $p<0.001$)	98	96	91	99	97	99	99
Areas not specifically included in previous health promotion programmes							
You can burn on a cloudy day (gender $p<0.05$, age $p<0.001$)	83	88	84	91	90	87	75
You are not protected from sunburn while in the sea (gender $p<0.001$, age $p<0.001$)	90	96	94	94	95	95	86

addresses. An interviewer called at each address and, in the first instance, established the number of households resident at that address. If more than one household was resident, the interviewer selected one household to be included using a selection table. The interviewer listed the members of the household who were eligible for inclusion (i.e. all persons aged 16 or over living at the address). One eligible adult from each household was 'selected' at random by the computer to complete the interview.

Contingency tables were constructed according to age, gender, social class and area of residence. These were weighted to adjust for the fact that selection of individual participants occurred at household level rather than from the general adult population. Chi-square analysis was carried out using SPSS statistical software.

RESULTS

A sample of 1853 eligible addresses was obtained and an interview achieved in 67% of these. Table I describes the characteristics of the respondents.

Knowledge

Six questions were used to establish the level of knowledge about sun care issues. Questions relating to key messages previously included in local health promotion campaigns were answered correctly by the majority of respondents (Table II) but knowledge on other issues was noted to be poorer. Only 2% indicated that it was OK to fall asleep in the sun, 7% believed that the sea provided protection from sunburn and 14% recorded wrongly that it was not possible to burn on a cloudy day.

Statistically significant differences in knowledge were found between different subgroups. Males and respondents aged 16-25 years or 65+ years had a poorer level of knowledge in particular areas. Respondents employed in skilled manual occupations had poorer knowledge about the likelihood of burning on a cloudy day, the lack of protection provided by the sea and the protection provided by a hat or T-shirt, than the group as a whole. Knowledge about burning on a cloudy day was higher amongst respondents living in the more urban eastern areas.

When asked to categorise their skin type into one of five groups, 34% replied they rarely or never burned with 43% replying they burn always but may tan later. Statistically significant differences were noted for gender with only 38% of men

TABLE III

Respondents' attitude to a suntan

	Agreement(%)						
	Gender		*Age (years)*				
	Male	*Female*	*16-24*	*25-34*	*35-49*	*50-64*	*65+*
Personal importance of a suntan (gender p<0.05, age p<0.001)							
very important	4	8	10	7	7	4	5
fairly important	13	15	24	15	14	12	9
I agree or strongly agree that:							
. . . having a suntan makes me feel healthier (gender p<0.05)	33	40	37	41	39	34	32
. . . having a suntan makes me look more attractive (gender p<0.01, age p<0.001)	42	51	53	48	50	45	34
. . . I believe I can reduce the risk of getting cancer (gender p<0.05, age p<0.001)	68	74	57	71	72	79	74
. . . too much sun might cause skin cancer to develop	97	97	99	96	97	98	94

reporting 'burn always' compared to 50% of women (p<0.01). Younger (16-34 years) people were less likely to report burning than older people: 38% vs 45% (p<0.001).

Attitude

Twenty percent of respondents indicated that it was "very" or "fairly" important to have a suntan. Twenty-three percent of female respondents rated a suntan as important compared to 17% of males (p<0.05), while 34% of 16-25 year-olds rated a suntan as important compared to 14% of those aged 65+ years (p<0.001) (Table III). Although not statistically significant, professional occupational groups were more likely to rate a suntan as important than those in skilled manual occupations (25% vs. 18%).

Forty percent of female respondents and 33% of males indicated that a suntan made them feel healthier (p<0.05). Statistically significant differences occurred between social classes (p<0.001) where 54% of those in professional occupations and 44% of those in non-manual occupations rated a suntan as healthy, in comparison to 25% of skilled manual workers and 29% of unskilled manual workers (Table IV).

Over one half of females agreed that a suntan made them look more attractive compared to 42% of males (p<0.01). Viewing a suntan as attractive also differed significantly with age (p<0.01). and social class (p<0.001). A suntan was more likely to be seen as attractive by younger respondents (53% of 16-24-year-olds) than by those aged 65+ years (34%). This attitude was also more common in respondents in professional (58%) and non-manual occupations (52%) than in skilled manual (36%) or unskilled manual workers (39%) (p<0.001).

Although 71% of all respondents believed they could reduce their risk of cancer, only 57% of those aged 16-25 years agreed. However, 99% of this age group did agree that too much sun might cause skin cancer. A similar contradictory pattern was found in males (68% and 97% respectively). Differences in self-perceived risk were noted between geographical areas with respondents resident in the west less likely to agree that they could reduce their risk than those resident in the east of the country (66% vs 74%) (Table IV).

Behaviour

Only 9% of males and 15% of females reported that they never go out in the sun but this behaviour increased with age, from 4% of 16-24 year olds to 24% of those aged 65+ years. Eighteen percent of males recorded that they go out in the sun but never use sunscreen, compared to 7% of females.

Of those who did go out in the sun and use a method of protection, 41% used only one method of sun protection while only 2% used all five methods (Table V). Males and respondents aged 65+ years were more likely to use only one method of sun protection. Significant differences between social classes were again noted, with those in professional and non-manual occupations tending to use more methods of sun protection than those employed in manual occupations. Respondents living in the east were also more likely to use multiple methods of sun protection than those in other areas.

Only 6% of females and 4% of males recorded that they performed regular skin checks. The proportions increased with age from 3% of 16-24 year olds to 7% of respondents aged 65+ years.

Sunscreen was used by 45% when sunbathing in this country and 59% of respondents when sunbathing abroad. This was highest in the 16-24 year age group at 79%, falling to 28% in those aged 65+ years. Overall, 50% reported using sunscreen when outdoors abroad but not sunbathing. Those who were most likely to state that they never used sunscreen were male (16%) or aged 65+ years (27%). Although professional and non-manual occupational groups tended to use sunscreens on more occasions than those in manual occupations, they were more likely to use a sunscreen with a low Sun Protective Factor (SPF): 40 % reported using SPF 15 compared to 52% of non-manual workers and 49% of skilled manual workers. It was also noted that those aged 16-35 years tended to use lower factors of sunscreen than respondents in other age groups. Sunscreen was used on more occasions by respondents in the east of Northern Ireland. Respondents who viewed a suntan as "not important" tended to use a higher factor of sunscreen (54% used SPF 15 or over) than those who rated a suntan as "very important" (21%) or "fairly important" (35%).

Sunburn at least once in the past year was most likely in those aged 16-25 years (Table V). Although similar proportions of males and females reported one episode of sunburn in the past year,

TABLE 4

Respondents' knowledge of and attitude towards sun care by social class and geographical area of residence
(statistically significant results only shown)

	Agreement (%)						
	Social class				*Area of residence*		
	I	*II+ IIInm*	*IIIm+ IV*	*V*	*Belfast*	*East*	*West*
Knowledge							
You can help protect yourself by wearing a hat/T-shirt (social class p<0.05)	99	99	99	93	98	99	98
You can burn on a cloudy day (social class p<0.001, area p<0.05)	95	90	82	84	81	87	81
You are not protected from sunburn while in the sea (social class p<0.001)	96	96	91	88	90	94	94
Attitude							
I agree or strongly agree that . . .							
. . . having a suntan makes me feel healthier (social class p<0.001)	54	44	25	29	39	37	34
. . . having a suntan makes me look more attractive (social class p<0.001)	58	52	36	39	46	46	47
. . . I believe I can reduce the risk of me getting cancer (area p<0.001)	74	71	70	69	67	74	66

TABLE V

Behaviour of respondents in the sun

	Agreement (%)						
	Gender		Age				
	Male	*Female*	*16-24*	*25-34*	*35-49*	*50-64*	*65+*
Number of methods of sun protection used (gender p<0.001, age p<0.05)							
One	45	37	45	36	40	36	49
Two	27	27	30	31	22	29	24
Three	19	21	16	20	24	23	16
Four or more	9	15	9	13	14	12	11
base	*486*	*556*	*185*	*154*	*296*	*226*	*186*
Number of occasions when sunscreen is used (gender p<0.001, age p<0.001)							
Never	16	7	4	7	8	11	27
One	29	30	24	20	29	34	41
Two	26	20	31	31	23	21	11
Three	14	18	18	20	17	14	9
Four or more	15	25	23	22	23	20	13
base	*484*	*556*	*184*	*153*	*298*	*229*	*181*
Factor of sunscreen used most often (age p<0.01)							
2-5	12	9	7	18	10	10	10
6-10	28	32	39	29	30	23	31
11-14	12	11	12	14	6	16	10
15 or over	48	48	42	39	54	52	49
base	*346*	*435*	*165*	*135*	*234*	*167*	*83*
Number of times in the past year when sunburnt (redness and soreness of the skin lasting for at least 1-2 days) (gender p<0.01, age p<0.001)							
Never	77	80	59	66	79	85	97
Once	16	17	32	22	17	10	3
Twice or more	8	3	10	12	4	5	0
base	*514*	*585*	*188*	*162*	*320*	*244*	*191*

males were more likely to have had multiple episodes of burning (8% vs 3% of females). There were no significant differences in the factor of sunscreen used by those who reported sunburn in the past year and those who did not.

DISCUSSION

The use of the Omnibus Survey to administer a sun care module limited the range and number of questions which could be included in this study. However, this methodology facilitated access to a larger and more representative sample than would have been possible using a specific sun care survey. Comparison with the Northern Ireland population (Table I) shows an under-representation of 25-34 year olds and an over-representation of 35-64 year olds in the survey sample. This finding would be expected for a survey, such as this, which is administered by personal interview at home visit. There is also a marked over-representation of professional occupational groups. It is recognised that the results pertaining to the attitude and behaviour of respondents may be subject to bias as answers may have been influenced by the fact that respondents knew they were being studied. However, as respondents would tend to give a perceived 'appropriate' answer rather than a 'true' answer, the reported results are likely to be an underestimate.

As populations differ in their approach to sun exposure, the findings of this study may not be generalisable. However, the survey has highlighted a number of key issues to be considered when planning health promotion campaigns. The most notable are the differences between subgroups in their knowledge, attitudes and behaviour. Men tended to have a lower level of knowledge about sun care issues, used fewer methods of sun protection and were more likely to report burning. These findings suggest that health promotion initiatives targeted at men need to address their gaps in knowledge. In comparison, women showed better knowledge of sun care issues and reported more use of sun protection methods. However, they indicated a higher level of personal importance in a suntan, suggesting that initiatives aimed at addressing attitudinal barriers to sun care may be most effective in women.

Similar conclusions can be drawn for the other subgroups studied. Young adults and those aged over 65 years had a poorer level of knowledge than other age groups. However, while young people considered a suntan as important, the elderly population did not. Effective health promotion campaigns for young adults should, therefore, address both knowledge gaps and attitudes. While a high percentage of those aged over 65 years reported not going out in the sun (24%), those who did go out tended to use fewer methods of sun protection and were less likely to use sunscreen. The value of sunscreen in preventing actinic keratoses in the elderly has been reported in a large study in Australia, so it is important that knowledge of sun protection measures should also be promoted to this age group.[16] Analysis of social class differences indicated that those in social class I had a high level of knowledge about sun care issues but considered a suntan to be important. Those in lower social class groups indicated poorer knowledge but gave less importance to a suntan. This suggests that behavioural change may be best achieved by targeting higher social class groups with initiatives to address attitudes, while concentrating on the knowledge gaps for those in lower social class groups.

Differences in population subgroups have been demonstrated in countries such as Australia,[11] the USA[12] and Sweden[13] but they have also been reported locally in two smaller studies in Northern Ireland, which found high levels of sunburn especially in males and young people.[14,15] To date, many health promotion campaigns on sun care in Northern Ireland have been aimed at the whole population. Target groups for whom specific resources have been developed are children, outdoor workers and holidaymakers going abroad. However, this study indicates that there are major differences between adult groups in their health promotion needs regarding sun care and, hence, a more targeted approach to delivering key messages based on age, gender and social class should be considered.

Sun care advice is often based on self-assessment of skin type as an indicator of risk. Although Northern Ireland has a homogeneous population with a small ethnic minority, 24% of respondents categorised their skin as Type IV (rarely burns and tans easily) and 10% stated they had skin Type V (never burns and tans easily).[6] This is contrary to dermatological experience which would indicate that the majority of the population have skin Type I or II. These figures imply that individuals may not have the ability to accurately categorise skin type and are subsequently at risk of misinterpreting advice that is based on this assumption. Using self-assessment of skin type as a method of delivering sun care advice should, therefore, be avoided in this population.

Campaigns have aimed to encourage the use of sunscreens of a high protective factor, with an SPF of at least 15 now being recommended. The findings suggest that the personal importance given to a suntan is inversely related to the factor of sunscreen used most often; respondents who placed less importance on a suntan tended to use higher factors of sunscreen. However, the factor of sunscreen used most often did not correlate with the occurrence of sunburn in the last year. Those who used a sunscreen of SPF 15 and above reported similar occurrences of sunburn as those who used lower factors. This may be explained by the findings of a Liverpool study which reported that patients did not apply adequate thickness of sunscreen to provide protection.[17] As well as promoting the use of high factor sunscreens, initiatives should highlight that sunscreens need to be used appropriately and that other methods of sun protection such as seeking shade and avoiding the midday sun are preferable and more effective.[3]

Regular skin checks were not routinely carried out by the survey population but they have an

important role in secondary prevention as demonstrated by a public campaign to promote early detection of melanoma in the west of Scotland in June 1985.[18] This succeeded in reducing the absolute number of thick tumours and melanoma related mortality in women, but not in men. This correlates with a Belfast study where men were reported as being less likely to carry out routine skin examinations than women.[14] A large epidemiological study is currently underway in association with the Northern Ireland Cancer Registry to evaluate the success of local campaigns aimed at promoting early detection of disease. However, the findings reported here suggest that the benefits of regular skin examination require widespread promotion. Learning from the Scottish experience, particular attention should be given to the way in which this message is targeted at men.

Sun care initiatives in Northern Ireland have traditionally been organised within the four Health and Social Services Board areas to meet the needs of local populations. These campaigns have been of varying intensity and quality, have been supported by minimal resources and have largely been driven by staff with a particular interest in sun care. The study indicates that the "Care in the Sun" campaign may have impacted on the level of general awareness among the population, even within these limited resources. There is, therefore, potential for even greater impact if adequate funding were available.

Geographical differences noted in the survey should be highlighted for action. Some variations may be accounted for by differing social structures and lifestyles, however, it is noted that the "Care in the Sun" Group has been more pro-active in Belfast and the east of Northern Ireland, where a higher level of awareness of sun care issues is evident. There is an identified need to raise awareness of all sun care issues in the west of the country. A co-ordinated regional approach to promoting sun care is currently underway to help address these geographical inequities.

Sun care initiatives are in their infancy in Northern Ireland when compared to the years of experience in primary prevention programmes obtained to date in Australia. Evidence suggests that knowledge about sun care does not equate to behaviour [11, 19] but the Australian experience demonstrates that campaigns aimed at knowledge and attitude can succeed in modifying behaviour.[20, 21] A lack of knowledge and the attitude that a suntan is important, healthy and attractive are barriers to achieving behavioural change. As significant differences exist between population subgroups, the specific health promotion needs of each group must be met in order to overcome these barriers and achieve maximum gain.

This survey highlights the importance of collecting baseline information prior to implementing any health promotion programme. Although baseline data had not been obtained in this case, the previous sun care campaigns in Northern Ireland appear to have had some impact, as evidenced by the higher level of awareness on issues included in these campaigns. Obviously other outside influences, such as the media, may also have had an effect. Learning from the experience gained in countries such as Australia and Scotland, we can use the results of our survey to provide us with a way forward to reduce the incidence of skin cancer in Northern Ireland. This data will focus the implementation of the strategy, however, it is recognised that this is only a beginning and it is important that the survey be repeated in three to five years' time. Questions on the use of sunscreen should be considered if planning a repeat survey; such as the frequency of reapplication and if the use of sunscreen encourages respondents to stay in the sun for longer periods of time. Research on the travel habits of different population subgroups within Northern Ireland would also help to inform the targeting of future initiatives. Only by continuing to monitor the impact of health promotion campaigns on the knowledge, attitudes and behaviour of the population will it be possible to ensure that key messages remain appropriate and long term sustainable effects are achieved in preventing skin cancer.

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All-Rounders and 'Equanimity'

Terence John Millin (1903-1980), Irish Urological Surgeon

A Lecture to commemorate Professor Gary Love (1934-2001)

A Paper based on a Lecture given on 13 November 2003 under the auspices of the Ulster Society for the History of Medicine

P Froggatt

INTRODUCTION

Gary Love strode a wide stage from a local base and background. Obituarists, notably Professor Stout, have summarised his outstanding career.[1] I would repeat that Gary gained first place in each undergraduate year and in the intercalated BSc in Physiology. By my count he won 18 of the 21 prizes and awards for which he was eligible and gained first-class honours in all the major examinations, a record unparalleled at Queen's though Sir Ian Fraser came close in the nineteen-twenties. Nationally, Gary was one of the best-known physicians on the Queen's staff since Sir William Whitla nearly a century before, while he surpassed all except Sir John Henry Biggart in his influence over medical developments in Northern Ireland.

Gary was also exceptionally versatile. At school (Bangor Grammar) he won rugby and cricket colours and the Devon Medal for Debating to put with his academic successes. In 1956, aged just 22, he won the Irish close championship at the former Malone golf course and was selected to lead the Irish team in the home international matches at Muirfield later that year but unfortunately was unable to play. He later became an accomplished helmsman and gained his yacht master's certificate. He was a skilled equestrian and it was a cruel irony that his sudden death occurred in the saddle. He never raced Formula cars but he could drive his own saloons as if he had. Gary in fact combined intellectual distinction, professional success and unusual versatility with a natural grace of manner and a seemingly effortless skill in the many fields in which he excelled. He was the very model of a modern 'all-rounder'.

Like many so gracious and richly talented Gary was self-composed and imperturbable which, with his debonair aura and modish dress code, could suggest to the unwary a dandified, even foppish, languor. It was not, however, languor but tranquillity of a type which Sir William Osler called 'equanimity' and which he considered to be the greatest attribute of the successful doctor. In his much quoted Valedictory Address at the University of Pennsylvania on 1 May 1889 and entitled simply *Aequanimitas* he wrote:

> 'In the first place, in the physician or surgeon, no quality takes rank with imperturbability . . . which means coolness and presence of mind under all circumstances, calmness amid storm, clearness of judgement in moments of grave peril . . . the physician without it . . . loses rapidly the confidence of his patient'.[2]

I intend, I believe appropriately, to honour Gary's memory by referring not to Gary's own work, I leave that to posterity, but to another Ulster-born medical 'all-rounder' who, like Gary, was professionally famous, intellectually gifted and an exceptional sportsman, who exerted a considerable influence in medical (specifically surgical) matters in Ireland and possessed 'equanimity'. He is Terence John Millin (1903-1980) once a household name in retropubic surgery but now all but forgotten; a local son who has received scant local recognition. Conveniently for this lecture, 2003 is the centenary of Millin's

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birth. Conveniently for myself as lecturer I can bathe in some reflected glory since Millin and I were trained in the same Dublin hospital (Sir Patrick Dun's) though Millin more successfully!

Terence John Millin (1903-1980)

Background and Schooling

Millin was born on 9 January 1903 at Sheridan Lodge (now 3 Bridge Street), Helen's Bay, the older of the two children (Elizabeth - 'Betty' - was born in 1905; she was to become headmistress of Mill Hill Girl's School) of Samuel Shannon Millin and Ella Catherine (*née* Morton) daughter of Colonel David Morton of Stirling. The Millins were a commercial family but Samuel chose the Bar. Briefs were scarce and this allowed him to develop his life-long interest in local history and social affairs which led to useful publications on, for example, local Dissenters (especially Non-Subscribing Presbyterians), Belfast and its institutions, Irish social and economic problems and the activities of *The Statistical and Social Inquiry Society of Ireland* of which he became honorary librarian. His limited professional success was attributed to progressive deafness, possibly profound: his initials 'S.S.' led mischievously to the soubriquet 'Single Shilling' since the customary professional fees were often beyond his reach! In 1907 the family moved for reasons now obscure to 'Deramore', 28 St Kevin's Park, Dartry Road in Dublin, where they lived in modest if (usually) comfortable gentility.

Terence was educated privately but in 1914 entered St Andrew's College (then on St Stephen's Green) with an open schools scholarship. An Erasmus Smith scholarship in 1916 enabled him to board at the Abbey School, Tipperary, but he returned to St Andrew's two years later because of the Abbey's uncertain future (it closed in 1923). He was now sixteen. He excelled as an all-rounder winning the Haslett Memorial and Kidd Exhibitions to Trinity College (TCD) in 1921 as well as gaining his school colours at rugby, cricket and athletics. He was Irish schools high jump champion in 1920, captained the St Andrew's team which won the Leinster schools cup and was selected for the Leinster schools team, both in 1921, and crowned these achievements that year by winning the Percy Cup and Gold Medal for sportsmanship.[3]

University Career (1921-1927)

Millin took Trinity by storm. He entered the faculty of arts in September 1921 and won one (of the two) foundation scholarships in mathematics most precociously at the end of his junior freshman year. He at once transferred to read medicine. He was the sole Medical Scholar in 1923, was placed first in each of his undergraduate years and won, by my count, every prize and scholarship for which he was eligible. He took a 'Class 1' moderatorship in natural science in 1925 and graduated MB, BCh, BAO in June 1927 being the only student in his year to obtain 'high marks' in all subjects (medical degrees were general degrees and so did not have an honours categorisation). He was also awarded the Haughton Medal for surgery and the Fitzpatrick Scholarship.[3,4] This was an outstanding and in modern times unique undergraduate career. It bears an uncanny resemblance to that of Gary.

Millin was also an excellent athlete being TCD high jump and 120-yard hurdles champion. But rugby was his first love. He was a member of the University first XV, 1923-1927, was captain in 1925-1926 when the team won the Leinster senior cup, the (now discontinued) all-Ireland Bateman cup, and defeated the major British universities including Oxford, the strongest, by 26-3 (at Oxford), and in March 1925 he played at centre three-quarter for Ireland against Wales at Ravenhill, Belfast, scoring the first try of the match after only three minutes in Ireland's 19-3 victory. *(Fig. 1)*. Unfortunately he never played for Ireland again, anecdotally because of a 'suspect shoulder' but more likely because there was no room for him in the 1925-6 team whose 'back-line was arguably the greatest fielded by an Irish side' with George Stephenson (QUB), Denis

Fig 1. The Irish rugby XV versus Wales. Ravenhill, Belfast, March 1925. Millin is standing on the extreme right.

Cusson (Dublin University) and the two youthful prodigies Frank Hewitt (Instonians) and his brother Tom (QUB) as Millin' s competitors.[5] He introduced an unusual (and successful!) '8 backs, 7 forwards' formation which was later sporadically used by the New Zealand All-Blacks, and also allegedly decided the Dublin University 'colour' – a 'pink' – (just as Oxford and Cambridge each award a 'blue') it being the supposed racing colour of Queen Elizabeth I, the University's founder.[6] Millin and Gary were each twenty-two when they were picked for Ireland respectively at rugby and golf.

Professional Achievements

Early Career (1927-1931)

In July 1927 Millin was appointed 'honorary assistant surgeon', i.e. house surgeon, at Sir Patrick Dun's Hospital, where he had trained as a clinical student. He took the London 'Conjoint' (MRCS Engl.; LRCP Lond.) *and*, remarkably, completed the Fellowship of the Royal College of Surgeons in Ireland (FRCSI) in June 1928 within one year of graduation. In 1927 TCD had awarded him the Postgraduate Surgical Travelling Prize, worth £100, and the Edward Hallaran Bennett Medal [7] and he used the money to study at Guy's and the Middlesex before moving as house surgeon to the Northampton General Hospital, a position recognised by the Royal College of Surgeons of England (RCS) for their aspiring Fellows. He then moved as senior house surgeon to All Saints' Hospital, Pimlico, an exclusively urological institution whose founder and proprietor was a fellow-Dublin University graduate (Edward) Canny Ryall FRCSI, a cousin of the Dublin surgeon Sir Thomas Myles. Myles had given Millin a letter of introduction to Ryall who became Millin's mentor. All Saints' had only eleven beds (it was to have more later as well as changes of address) and to further his training Millin, in 1929, again moved now as house surgeon to the Royal National Orthopaedic Hospital in Great Portland Street. He passed the FRCS in 1930 at the first attempt and returned to All Saints' as assistant surgeon and personal assistant (at £150 p.a.) to Ryall. The following year he proceeded MA and took first place in the MCh (Dubl. Univ.) examination in 'clinical surgery, operative surgery, surgical pathology, general surgery, surgical anatomy (on the dead subject)', and an optional subject from 'an approved list', in his case it was genito-urinary surgery.[8]

Millin at twenty-eight was now fully credentialed to follow his chosen career as a urological surgeon. He was of formidable intellect, corporeally skilful and of mature judgement, industrious, ambitious and possessed of considerable personal charm. The ingredients for success were in place but even one as talented and self-assured as Millin would hardly have dared to believe how rapidly his fame was to grow and how extensive it was to become.

The Road to Success (1931-1945)

Millin now entered the fiercely competitive world of London surgery lacking any silver spoon other than his own exceptional abilities. He was not within the charmed circle of London medical school alumni; he had no connection with the great and the good; he had no attachment, nor indeed ever would have, to the principal London urological hospitals of St Peter's, St Paul's and St Phillip's; he wasn't even English. He soon had a great stroke of luck: Ryall died suddenly and unexpectedly on 11th February 1934 and Millin as his *protégé* and *defacto* professional heir inherited his position at All Saints' and also much of his practice including his rooms at 75 Harley Street.

Millin seized these providential opportunities with both hands and at once set about mastering all the standard urological techniques and in developing his already evident skills in instrument design, objectives which he unquestionably achieved. From about the late nineteen-twenties the perineal approach to the prostate had fallen out of whatever favour it had once enjoyed and the surgical choice was between the transurethral approach using either the 'cold punch' or diathermy loop resectoscope – the so-called 'closed prostatectomy', or removal of the prostate transvesically using the abdominal incision – the so-called 'suprapubic' or 'open prostatectomy' eponymously associated with (Sir) Peter Freyer, like Millin a London-based Irish graduate (QUI, 1874).[9] Both operations had a high incidence of often distressing complications and while Millin was proficient in both techniques he was always contemplating the possibility of a 'better way'. It was not until 1944-5 that this 'better way' presented itself due largely to his own perseverance.

Millin's practice during the nineteen-thirties grew rapidly. He now sought more operating facilities and was appointed as part-time urologist to the

Surrey County Council with beds at St Helier Hospital, Carshalton, and Wilson Hospital, Mitcham, a (modestly) remunerated position and the only such that he ever held other than during the wartime emergency. By 1945 he held appointments also to Southall, Norwood and Cray Valley Hospitals and was genito-urinary surgeon to, amongst others, the Royal Masonic Hospital and the Chelsea Hospital for Women as well as having his main facility at the enlarged All Saints'. The clinical pressure, however, did not prevent him from contributing to the professional literature and attending professional meetings. His articles then as later had a strongly practical emphasis – unusual case reports or comments on new techniques – while he was a regular attendee at meetings of the section of urology at the Royal Society of Medicine and was later to be president of the British Association of Urological Surgeons and much more besides (see Appendix).

Marriage, Family and Wartime

On 16 December 1939 the highly eligible Millin married Alice Neville 'Molly' Guernsey at Marylebone registry office. He was 36 and she 32. Molly was from a wealthy family of Kamloops, British Columbia, and had previously been married to Colonel Charles Calvert Street from Salcombe in Devon, whose mother (*née* Eden) was related to Sir Anthony Eden and was also a Princess of the Holy Roman Empire. Molly and Street were divorced in 1938 and had one son, Timothy, about whom little is known. Street was killed in action in Burma in 1941. The Millin' s marriage was a happy one lasting until Terence's death at which time Molly returned to British Columbia and died at Oliver on 7 January 1996 aged 88, much debilitated through smoking-related diseases. There were two daughters: Deirdre, congenitally profoundly deaf, was born on 19 September 1940 and who married in 1963 and had three children; and Zoë, of normal hearing, born on 6 June 1942 and who married in 1969 but had a less settled life. Both daughters were present at Terence's death, while Zoë attended her mother during her terminal years.

At the outbreak of war Millin, like many, was recruited into the Emergency Medical Service (EMS) and served as surgeon (at £500 p.a.) to the 60-bed Putney Hospital. As an Irishman and proud of it (he became an Irish national in the nineteen-fifties after the repeal of the External Relations Act in 1949 confirmed the constitutional status of the Republic), soon to be married and making his way successfully in a not over-congenial surgical world, he may have felt under no compelling obligation to join the uniformed services. There is a belief in the family that he had volunteered for the Royal Naval Volunteer Reserve in 1937 but if so it came to nothing. His failure to join the forces may have told against him in some quarters and together with his later indifference to the practices and possibly also the principles of the National Health Service, and no doubt some professional jealousy, may have hastened his decision to base himself in Ireland part-time (from 1950) though it must be said that an interview he gave in 1967 indicated other personal and wholly understandable reasons.[10]

We may have to look elsewhere to understand the scant regard he has received in his native Province though perhaps no further than that he is seldom identified as being one of Ulster's 'Wild Geese' since he rarely set foot here after the age of four nor showed any special interest in Ulster's medical affairs, personnel or institutions.

Millin worked hard as EMS surgeon at Putney Hospital but found time to continue with what the exigencies of war had left of his private practice and to enjoy his gregarious life-style ably supported as ever by the engaging, if sometimes direct, Molly who was a generous hostess at their home, 59 Stockleigh Hall, Baker Street. Crucially for his career and for untold numbers of prostate sufferers, his EMS hospital work, intense during the 1940-1 Blitz and again during the 1944-5 V-1 and V-2 emergencies was relatively undemanding during the three-year hiatus and this gave him time to think, and to Millin that meant thinking about 'the better way'.

Millin's Retropubic Prostatectomy in the Ascendant

On 1 December 1945 *The Lancet* published Millin's pioneer article 'Retropubic prostatectomy. A new extravesical technique. Report on 20 cases'.[11] It ran to just over three pages and finished with the cryptic note '*Addendum* – since this paper was submitted for publication I have employed the procedure in a further 29 cases'. The same issue carried (p.711) an anonymous first Leader entitled (in Greek!) *Eureka*. It opened:

> 'The citizens of Syracuse seeing Archimedes running naked through the streets no doubt agreed that his conduct was justified by the importance of the occasion . . . and . . . in this year of 1945 . . . in the surgery of the prostate, a branch of operative technique commoner, more important, more closely studied and more widely pursued than most, T J Millin has discovered a method that is not only quite new but also simpler, safer, and better than those now in use . . .'.

And it concluded:

> 'Millin's new operation seems to avoid the dangers and discomforts of the transvesical approach, and the *sequelae* of the perurethral operations, and bids fair to supplant them all . . . Everyone likes it . . . Patients have reason to be loudest in their approval for they are relieved of one of the most distressing afflictions known to man, by an operation that involves scarcely more pain and no longer convalescence than an interval appendicectomy'.

The author is widely assumed to have been Sir Heneage Ogilvie, senior surgeon at Guy's. Two years later Millin published his land-mark book *Retropubic Urinary Surgery* which ran to 206 pages with 163 illustrations. It did not deal exclusively with prostatectomy but 'details further methods employed in my retropubic approach to a number of surgical problems'.[12]

In these two publications Millin set out the operative details of his technique. They need not concern us here: prostate *aficionados* may consult them in their original and (later) modified forms in the literature. The concept itself was simple and had long appealed to Millin: why remove the prostate, an extravesical organ, through another organ, the bladder (Freyer's approach) instead of directly?; or why persevere with the discredited perineal approach or the 'closed' transurethral methods when the necessary instruments were not sufficiently sophisticated to avoid common distressing *sequelae*?. Early in 1944 before the V-1 attacks (which started in June), Millin experimented on cadavers using a subpubic route [12, 13] and subsequently on 16 patients but unsuccessfully and 'The route was abandoned'.[11] Later that year during a total cystectomy 'I saw the anatomy of the prostate laid bare from the outside instead of . . . from inside the bladder'.[10, 13] It was a revealing experience and prompted a personal *Eureka.* He now reckoned that the retropubic approach was possible if handled skilfully and the dreaded infection potential of the retropubic space ('Cave of Retzius') could now be minimised by the use of the increasingly effective sulphonamides. He made the first public presentation of his operation to the French Urological Society meeting in Paris in October 1945 as a prelude to his *Lancet* paper. Like most innovations it had its critics and doubters but by 1949 he had extended his reported series to 757 cases by which time all but his most carping and self-serving critics were silenced.[14] Millin's operation had proved to be both a revolution and a revelation and the laudatory *Lancet* Leader (cited above) had turned out not to be unjustifiable hyperbole but accurate prophecy.

Millin was now a surgical celebrity. Demand for his clinical services and for lecture and demonstration tours poured in as abundantly as did patients whose fees were said to generate for Millin one of the largest incomes (allegedly over £50,000 p.a. by 1949) enjoyed among the London surgical *coterie*. It certainly kept him and family in some style. In 1946 he moved to Inwood, Roehampton, where he was joined by his parents. He acquired a chauffeur-driven Buick to match his wife's Cadillac, entertained lavishly and travelled extensively combining 'business' with pleasure but never took his eye off the professional ball even though running with it was by now making excessive demands on his time and strength. His clinical outlets including the enlarged All Saints' were no longer adequate and he converted three large adjoining Victorian terrace houses, 31-33 Queen's Gate in West Knightsbridge, into a sumptuous 37-bed private clinic which he shared with two partners – David Wallace a well-known London urologist and (Sir) Charles Read later to be president of the Royal College of Obstetricians and Gynaecologists. (Read married Frances Edna Wilson, honorary anaesthetist to All Saints' and St Mary's Hospital. She was a sister of T G Wilson the Dublin ENT surgeon, writer, artist and wit and who, like Millin, originated in Co. Down his father, Charles, being a Belfast stockbroker. Wilson was the first, and best, biographer of Sir William Wilde, Oscar's father). Ivan (later Sir Ivan) Magill from County Antrim and who qualified at Queen's in 1913 worked for many years with Millin and was his anaesthetist of choice. The pace however was crippling even for one of Millin's stamina and he knew that it couldn't last. In 1950 at the height of

his success he decided to live in Ireland with consequent semi-retirement from the lucrative London scene.

Return to Ireland (1950-1980)

Millin had always wanted to farm; like many surgeons he wished for literally a 'hands-on' activity. He decided to return to Ireland: he felt strongly its call (he adopted Irish nationality in the early nineteen-fifties); was not attracted to the National Health Service; had never achieved insider status in London; was not on the staff of any of the London teaching hospitals nor of the prestigious London centre urological hospitals and, a major consideration, post-war taxation in Britain was crippling. His father had died in Inwood, Roehampton, in February 1947, and his mother was soon to enter a sheltered home for the elderly in Harpenden, Herts, where she died in 1955. Whatever the reasons for his decision it was not declining health: despite the frenetic lifestyle, frequent convivial evenings, his smoking sixty cigarettes a day ('Players Please') equalling Molly's consumption of the less lady-like Wills Woodbine, and robust enthusiasm for what life had to offer, both were in buoyant health. They decided on County Cork for reasons now obscure, possibly its remoteness from London yet close to the Cork-Fishguard ferry. Here Millin bought a rambling 1786 estate of 150 acres, 'Byblox' in Doneraile near Mallow, intending to develop its potential and at the same time preserve much of his lucrative practice by alternating months at Byblox and London. He welcomed the farming challenge, kept careful almost clinical records of plantings and crop returns, drove his own tractor, soiled his own hands and later became a sizeable pig-breeder. Despite eschewing the traditional out-door 'huntin' and shootin" activities of his adopted class, he and Molly easily merged into county society entertaining regularly and regally in their 50-room mansion attended by a complement of never less than five indoor staff and with a driver for the new Bentley. Each alternate month Millin travelled to London on the overnight ferry from Cork to Fishguard and then the eight-hour train journey to London, a route he followed until the advent of air travel. In London he often slept above the shop at the Queen's Gate Clinic, maintained his still lucrative practice with many notables as patients, operated abroad on, amongst others, the president of Turkey and his son, Malaysian royalty and (in Malacca) leading Chinese communists, and received many honours (see Appendix). But inevitably as the nineteen-fifties wore on his practice fell off. His 'home and away' schedule was not the best way to run a practice and increasingly his potential patients were seeking treatment from others often through the National Health Service whose surgeons had now adopted Millin's retropubic approach. In alternate months in Ireland he never practised but would lecture and demonstrate. (As a resident clinical student at Sir Patrick Dun's Hospital in 1949 I assisted, i.e. held a retractor, at one such operation!). Inevitably his fee income fell away while the swingeing fiscal policies of post-war Britain meant that he had to draw increasingly on his capital.

Other factors now entered the equation. Millin' s increasing time spent in Ireland had not gone unnoticed at RCSI and he at last agreed to stand for the council (as a prelude to the presidency) and was elected on 7 June 1960. The following year he progressed to vice-president (effectively president-elect) and in 1963 finally to president in the event for three rather than the then invariable two years. In 1963 he also formally retired from clinical practice. Since election to the council he had considered moving closer to Dublin which would clearly be advantageous for his college duties. There were also, however, domestic considerations. His younger daughter, Zoë, was attending TCD, 180 long miles from Byblox and moreover Molly was starting to hanker for a less provincial and bucolic life. In 1961 they moved to a smaller Palladian house, 'Knockmore', one mile from Enniskerry, County Wicklow, with views over Dublin Bay and with a three-acre garden overlooking the river Dargle and close to some 'society' families notably the Slazengers (of Powerscourt), and Sir Basil and Lady (Valerie) Goulding, daughter of the prominent British politician Walter Monkton. Millin, in comfortable if less affluent circumstances than at Byblox, now turned his energies to what had up to then hardly concerned him, namely the wider interests of his profession especially its organisation, recruitment, training and regulation. He had never been active in professional bodies in England, had never held an appointment at a teaching hospital, had never had any university connection, and his Queens' Gate Clinic as a private partnership was not formally recognised for professional training purposes. Now he had time on his hands to devote to the affairs of RCSI which he did while continuing to receive with

characteristic graciousness the further honours which were heaped upon him.

The Final Years (1963-1980)

Millin's work for RCSI has been well documented.[15, 16, 17] Under his presidency and with the able assistance of Dr Harry O'Flanagan, the astute and energetic registrar, the college was re-born. Millin's fingerprints were on many of the plans and developments and he never spared himself in any of the roles he undertook. He is eponymously honoured by the college to-day in an annual meeting and lecture in November and a student residence (Millin House), while his portrait in oils with the inevitable cigarette hangs on the college walls (*Fig. 2*). But his main legacy is the current success and vibrancy of RCSI.

Sadly, as the years passed he became increasingly pressed financially. His golden rule not to undertake private practice in Ireland remained (almost) inviolate and he relied on his investment income which was subject to swingeing taxes. He had seemingly never made arrangements for a personal pension or annuity. Molly's tobacco-related pulmonary dysfunction was progressing inexorably and on 19 August 1966 they left Knockmore for Coolakay Lodge, Waterfall Road in Enniskerry, also with three acres, also with a magic view though of the Sugarloaf Mountains rather than Dublin Bay, but a bungalow easier to manage. Five years later on 14 February 1971 they made their final move, to 'Wayside', a small cottage with a tiny garden in the main street of Kilcoole further south in the county. Millin still attended to his college duties until he effectively resigned his council seat in April 1975: he pleaded not sapping of vigour but increasing deafness – which though moderate and unilateral concerned him in that it evoked the silent world into which his daughter Deirdre was born and which his father had prematurely entered. It was not long to be. In November 1977 he consulted a close friend and former president of RCSI ('Mac' Curtin) who found both vocal cords inflamed and this progressed to leukoplakia accompanied later by a mid-line malignant granuloma. Radiotherapy was only temporarily efficacious but Millin declined laryngectomy and had to settle for a permanent tracheostomy. Sadly, he suffered much pain and distress until his death brought relief on 3 July 1980 with his family and some close friends around him. He was 77. He had carefully planned his own funeral and was buried in the churchyard of Christ Church (Church of Ireland), Delgany. The small headstone reads: 'In memory of Terence J Millin 1903-1980 and Betty Millin 1905-1989'. His estate in Britain and Ireland including 'Wayside' and personal possessions was probated at only some £110,000. His later years had been straitened ones materially and also somewhat dispiriting ones professionally as he watched from what was for him an unaccustomed touch-line while his retropubic prostatectomy fell out of general favour (except, in modification, for radical prostatectomy) being largely replaced by transurethral procedures which modern instruments now made the approach of choice. This however is another story.

Fig 2. Portrait in oils of Millin by the Hungarian artist Pan, and which hangs in RCSI.

I must leave it to those suitably qualified to pass judgement on Millin' s place in urological surgery. I will only quote the opinion of Dr Pat Walsh, the Urologist-in-Chief, Johns Hopkins Hospital:

> 'Millin's ultimate contribution to the surgical management of prostate cancer is very significant . . . [He] made a great breakthrough by introducing the retropubic approach . . . Every surgeon who has laboured in the field of radical retropubic prostatectomy in an attempt

to improve the procedure has to stand on the shoulders of Terence Millin.' [18]

Millin and 'Equanimity'

Of my five putative similarities between Terence Millin and Gary Love (provenance in County Down; international recognition; all-round outstanding academic and athletic abilities; national professional influence, Millin through RCSI and Gary through the medical and academic structures in Northern Ireland; and 'equanimity'), only the last-named remains to discuss. Gary we know had it. But had Millin? Here I must rely on vicarious evidence since little is recorded and few now alive knew Millin in his heyday. One is his biographer, Mr Barry O'Donnell, a recent past-president of RCSI. Throughout his book he speaks of Millin's charm, his charisma, his forceful personality, his skill as a speaker whether it be a lecture, an address or an after-dinner speech, his humour, his energy, his operative *sang-froid,* his lack of vanity, his generosity and his convivial inclinations.[19] In a most felicitous phrase he says 'Millin was able to disagree without being disagreeable'.[20] He admits 'there was a little petulance from time to time but nothing to undermine a most admirable personality';[20] and in the theatre 'Millin was highly skilled, deft, fast, confident and unflustered . . . he was at his best when dealing with bleeding . . . accurate, rapid suturing in a deep hole with blood welling up is one of the ultimate tests of surgical skill and here Millin was a master'.[21] When we remember that much of Millin's surgery was done in theatres without proper ventilation let alone effective air-conditioning, with lights that produced as much heat as light and often more, operating without headlights or magnifying loupes, with inferior instruments such as poor suction apparatus, fairly primitive diathermy, and so on, all guaranteed to produce not 'equanimity' but its very opposite, I think there is a good *prima facie* case that Millin had 'equanimity'. His major obituarists confirm O'Donnell' s opinions [22, 23] and Professor Lyons refers specifically to Millin's 'lucidity of mind and a capacity to organise his work'.[15] Moreover, Millin attracted loyalty in his staff: both his senior theatre sister and his personal secretary were with him in London for over twenty years. His assistants and associates were for the most part equally loyal: the best-known (C L O Macalister, urologist at the Bradford Royal Infirmary) named his son Terence in Millin's honour. Those with 'equanimity' inspire more loyalty than those not so favoured. Furthermore, when defining 'equanimity' Osler had mentioned specifically 'coolness and presence of mind under all circumstances, calmness amid storm, clearness of judgement in moments of grave peril'. He did not talk about 'forcefulness' or 'disagreement' still less about 'a little petulance from time to time'. Add to this the fact that Millin showed himself, when president of RCSI, to be a consummate negotiator with exceptional patience and calmness and most would agree that he came up to Osler's expectations.

Epilogue

Millin is a neglected figure despite the fact that his retropubic prostatectomy was arguably one of the most successful and easily mastered operative innovations for a urological condition in recent surgical history. From his first report in 1945 until the successful re-launching of the transurethral approach in the early nineteen-seventies made possible with state of the art instrumentation, that is for some 25 or more years, Millin's operation with variants and sophistications was the preferred option for benign prostate enlargement, and for upwards of 15 years Millin himself was the operator of choice. The operation carried negligible mortality and low morbidity, had usually a successful outcome yet was straight-forward enough to be in the repertoire of most general surgeons. It had the advantages for all concerned which the *Lancet* Leader had listed so enthusiastically and to which I have earlier referred. The frequent horror *sequelae* of many perineal, early transurethral and Freyer's operations were virtually banished for ever. Untold thousands benefited world-wide. Millin's obituaries were very positive and he was honoured in life – though (be it noted) not excessively. No university, not even an Irish one, honoured him; neither did the English, Edinburgh or Glasgow surgical colleges though his professional specialist societies and the Royal Society of Medicine as well as many overseas bodies did. He never appeared in *Who's Who* and is listed, briefly, in only one of the recent abundant crop of Encyclopaedias of famous Irishmen and women, viz. in the second (1988) and third (1998) editions of Henry Boylan's *Dictionary of Irish Biography*.[24] Until recently he has attracted no biographer and Barry O'Donnell's excellent, informative and non-hagiological biography is the only extensive source available.[19]

Part of the explanation lies in the virtual disappearance of Millin's operation for anything short of radical prostatectomy usually for malignancy. Part also is Millin's premature retirement from the London scene and his being a lone practitioner in the private sector with no teaching hospital or university post, no research group or surgical firm, no swarm of acolytes and disciples ready to spread and sustain the master's message or to succeed him. Moreover, though somewhat flamboyant, Millin was essentially modest: his entries in the Medical Directory are brief and almost self-deprecatory. While more nebulous was his standing among the London surgical establishment which, I have suggested, was not close with one foot, and later both feet, in County Cork, with none of the desirable war-time service in uniform for one of his age seeking a career in England, and with Irish nationality to boot. This litany of reasons is not exhaustive but it does give cause for thought!

As a final measure of this unusual neglect I will give just one example, and from very much nearer to home. *Retropubic Urinary Surgery* his ground-breaking text-book describing 'details . . . of my retropubic approach [in] a number of surgical problems' and published by the leading medical publishers E & S Livingstone in 1947,[12] is not and never has been in the Queen's University Belfast Medical Library! Fame can no doubt be fickle but it is almost bizarre that arguably Ireland's most famous surgical innovator of the past century and widely acknowledged as such, who was born in Helen's Bay, County Down into an established Belfast commercial family and whose father attended Queen's College Belfast and practised at the Belfast (and later Dublin) Bar, is in Queen's University something of a non-person and not just because of his unordered text-book. It is as if Winston Smith, of Orwell's *Nineteen Eighty-Four,* had been at work, the man whose job it was to remove from the records all mention of those whom the Party wished to erase from history. No doubt, like so much in history, this sidelining of Millin is an oversight or human error and not conspiracy. If it is then perhaps the Medical Library could now consider obtaining a copy of his book! Gary Love would have insisted on it.

APPENDIX

The Millin Archive in RCSI contains an (undated) curriculum vitae prepared probably in the early nineteen-seventies and possibly by Millin himself. It is not without minor errors of dates. It lists the following under 'Honours'.

'President, Royal College of Surgeons in Ireland, 1963-66

President, British Association of Urological Surgeons, 1953-55

President, Section of Urology, Royal Society of Medicine, 1947-8

Honorary Fellowship, American College of Surgeons, 1952

Honorary Fellowship, Royal Australian College of Surgeons, 1968

Membre Etrangère, French Academy of Medicine

Hon. Member French Urological Association

Hon. Member Belgian Urological Association

Hon. Member American Urological Association

Hon. Member Italian Urological Association

Hon. Member Romanian Urological Association

Hon. Member Turkish Urological Association

Corresponding Member, American Association of Genito-Urinary Surgeons

Amory Prizeman and Orator, American Academy of Arts and Sciences, Boston. 1958

Ferdinand Valentine Prizeman and Lecturer, New York Academy of Medicine, 1968

Gold Medal for Therapeutics, Society of Apothecaries, London, 1968

St. Peter's Medallist, British Association of Urological Surgeons, 1951

Medallist, Province of Brabant, 1950

Arnott Gold Commemoration Medal, Irish Medical Schools and Graduates Association'.

After this list was compiled Millin received at least one further honour, viz. Honorary Fellowship of the Section of Urology of the Royal Society of Medicine in 1978.

ACKNOWLEDGEMENTS

Professor Barry O'Donnell's pioneer biography (*Terence Millin. A Remarkable Irish Surgeon.* Dublin: A & A Farmer, 2002) made my topic possible by providing many details of Millin's life and work previously unrecorded. He graciously encouraged me to plunder this material which I did with enthusiasm and in my text unreferenced facts are from O'Donnell's book. I am also indebted to the President and Council of the Royal College of Surgeons in Ireland for permission to re-produce the Pan portrait of Millin and arranging access to the Millin Archive compiled by the College Archivist, Mary O'Doherty.

Gary Love's widow, Margaret, and their son, Tony, honoured me in being present at the commemorative lecture.

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A new RVH for a new century: maintaining clinical excellence

Annual Oration: Royal Victoria Hospital, Belfast, October 2003

AB Atkinson

The need for a new RVH

This oration, and the record of it for publication, mainly focuses on the new Royal Victoria Hospital building opened officially on 2 September 2003, but it is interesting to compare and contrast the needs of the Royal Victoria Hospital at the ends of the 19th and 20th centuries. At both times there was increasing dissatisfaction with the hospital's accommodation while the demands on the hospital were increasing rapidly. For example, it was felt that more complicated surgery was much safer in a central facility. In 1900 this was the contrast between home and hospital surgery while towards 2000 the need for intensive facilities for complex major operations was apparent. In both eras the case for a new build was compelling but finances were a major issue. The process for the move to the RVH site and the process for the new build in 2004 had similarities. Firstly, the site of the rebuild had to be established (Figs. 1 and 2). Secondly, it was necessary to change the management of nursing. Thirdly, it was vital to involve medical staff. On both occasions members of the RVH medical staff were closely involved in decisions on the type of hospital and the facilities needed. Even 100 years later one has to acknowledge the dedication and fund raising ability of Lady Pirrie who was instrumental in raising the capital required to allow a foundation stone to be laid in 1901 and the official opening in the summer of 1903 by King Edward VII and Queen Alexandra. For a comprehensive account of these events see the official bicentennial history by Professor Richard Clarke.[1]

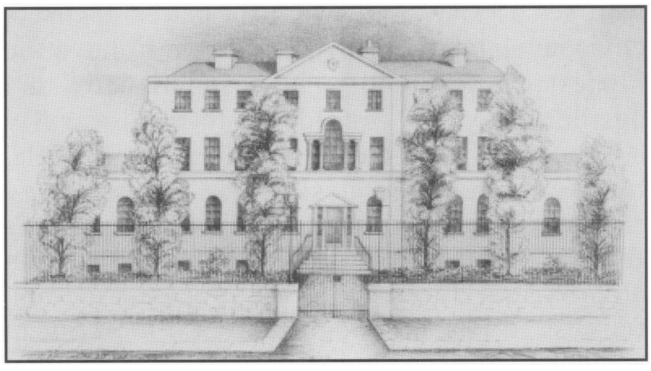

Fig 1. *The General Hospital, Frederick Street after 1847.*

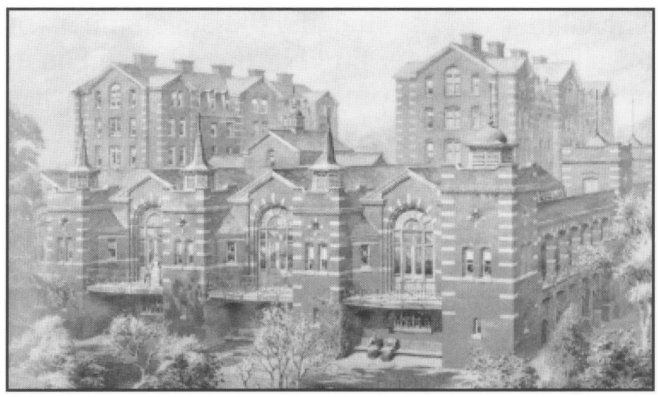

Fig 2. The Royal Victoria Hospital viewed from the South; architect's drawing, 1901.

Developments on the Royal site in the 20th century

Throughout the 20th century there were further changes to the fabric of the RVH. These can be divided into pre-NHS and post-NHS changes. After the initial beds were opened on the new Grosvenor Road site there were the additions of

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the King Edward Building in 1915, the new mortuary in 1924, the Institute of Pathology with Queen's University Belfast in 1933 and extensions to the ward units and new wards between 1925 and 1938. These changes are well reviewed in other publications.[1]

Since the institution of the NHS there have been a variety of additions to the site. The Pharmacy was opened in 1951, the Institute of Clinical Science in association with Queen's in 1954, the Metabolic Unit and Quin House in 1957, the Eye & ENT Building in 1965, the Dental Hospital with Queen's in 1965, the Outpatient Building in 1969 and A Block in 1973.

The changes to the site, and the development of the specialist services for Northern Ireland on it, in the first 25 years of the NHS, was of immense benefit to the people of Northern Ireland. Sadly, there was then a planning blight on site for many years while the existing fabric deteriorated to an unacceptable level. It became increasingly necessary to arrest this insidious decline and a series of important decisions were made in the late 1980s and early 1990s. In 1988 William McKee was appointed as Acting Group Administrator. He is of course now the Chief Executive. In 1989 John Cole, now Chief Executive Officer of the Estates Department, DHSSPS, established close links with the site. In 1991 the new government Trust status was applied for and after a year as a Shadow Trust in 1993 the Royal Group of Hospitals and Dental Hospital Health & Social Services Trust was established with Sir George Quigley as the first Chairman. The Royal Hospitals Community is greatly indebted to the three men mentioned above (Fig. 3) for their vision in beginning the process of making the hospital fit to serve the needs of both the local area and of the entire population of Northern Ireland.

In 1990 the hospital provided 32 specialties and had approximately 1,000 beds, but much of the estate dated from the early part of the century and had major problems. A Ceri Davis report suggested major health and safety issues, poor condition of buildings, many of which needed to be demolished, a large backlog in terms of maintenance, poorly located entrances and inadequate facilities for patients, staff and visitors. Despite this poor quality environment the hospital could still be proud of its work and ethos but the need for better accommodation was paramount.

Fig 3. From left: William McKee, Sir George Quigley and John Cole (2003).

Between 1992 and 1997 new facilities were provided for cardiac recovery, neonatology, laboratories and the School of Dentistry and Phase I of the Children's Hospital development was completed. The old Kelvin School building was upgraded to modern laboratory facilities and a new mortuary was built. New car parking was also provided. It was then essential to set out to develop a new RVH and this account describes the process for Phase I of it.

Phase I of the new RVH

A steering group was set up to develop a preliminary brief after widespread consultation within and outside the hospital. It also established membership of a project board which would have medical staff representation. Management Consultants were appointed to develop the brief and there was a wide discussion between them and users with RVH medical staff committee representatives, myself and Mr Roy Maxwell, attending these meetings as observers. This brief then had to be approved by the Area Boards and the Department of Health in terms of both functional content and funding. Quality objectives were set. The new build was to be patient focused, environmentally sensitive, and was to have the highest design quality, both functionally and aesthetically. It should be technologically advanced, should include art, should be accessible, have an integrated design and offer energy efficiency and low maintenance solutions. It was felt that the best way to progress this was with an architectural competition,[2] this process providing fairness and the best opportunity for the Trust to achieve its aims. A competition also had the great merit of avoiding the cheapest option concept.

A fixed capital sum and a fixed architect fee were set. The distinguished English architect, Sir Philip Powell, was the senior assessor with representatives from the Department of Health, senior medical, nursing and management representatives from the Royal site as well as representatives from the RIBA and RSUA. Mr Jim Grant from the Department was the competition manager. Sir Philip Powell's conclusions are important. He thanked the competition manager for his work in having skilfully compiled with the RIBA/RSUA the conditions and brief and thanked and praised the promoter "Royal Trust", and in particular John Cole of the Estates Department of the ESD, for having the good sense and imaginative wisdom to have this competition. Percy Thomas Partnerships/Ferguson & McIlveen were announced as winners, with some of the comments made regarding their scheme being that there was a strong sense of organisation, that there was potential for further development after the start of client consultation, and that the layout was immediately understandable with two distinct sides to the activity within the hospital, these being facilities for the acutely ill and for the more planned specialist medical and surgical services. The winning architectural partnership was later joined by Graham/Martin as the chief contractors and they had the distinction of delivering the building ahead of time.

However, after the competition, the Hospital Trust had still to await a financial decision from government and on 5 June 1995 the then Health Minister, Mr Malcolm Moss, announced a 64.5 million pound redevelopment package stating that the investment was evidence of the government's commitment to the health of the population, and also was recognition of the RVH's role as the keystone of the pattern of acute hospital service for Northern Ireland. However the Minister, as many others had in the light of a poor report from Professor Bernard Tomlinson on the bed numbers in London, seriously under-estimated the bed numbers required in Northern Ireland, expressing the concept that 277 beds in the new building might prove to be too many. This has already been shown to be grossly inaccurate.

After the announcement of the results of the architectural competition and the financing of it, there was then an intense period of consultation work with the design consortium and the various

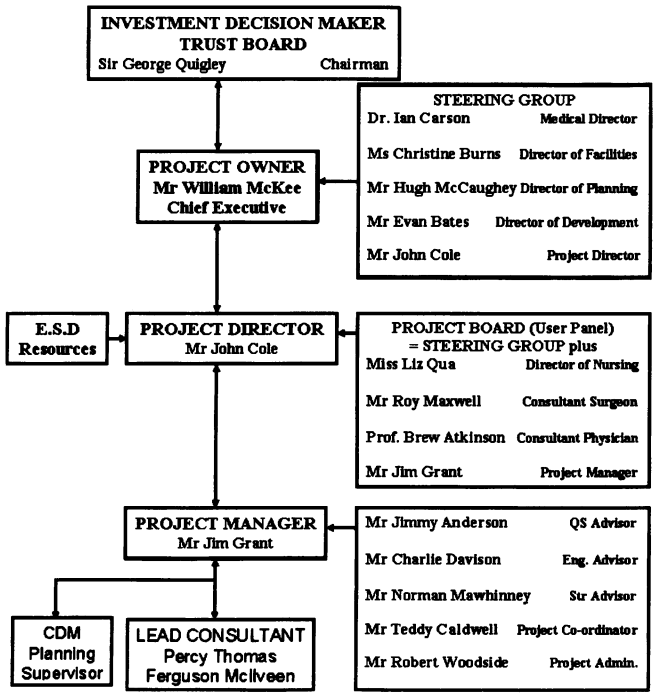

Table 1. Boards used for the development of the new phase I RVH.

Fig 4. Perspectives of the new Phase I, RVH (2003) – the building from the Kelvin site and the new intensive care unit facility.

project boards within the hospital resulting in a variety of design modifications and adjustments (Table 1). Work then began on site and things kept strictly to time with first commissioning and use of the new build in autumn 2001 for some outpatient use, first bed occupancy in 2002 and an official opening by HRH, the Prince of Wales in 2003 (Fig 4).

One added floor, designated as a rattle-space floor design for future needs, allowed expansion before opening to 400 beds. The foresight to negotiate and include this flexible space has proved vital already in the work of the hospital. Four new theatres and a new recovery unit were built as part of a 10 theatre suite. Three theatres were provided for day procedures and a three room endoscopy unit was also incorporated. In addition there is a 20-bed intensive care unit, a fractures clinic, a central investigations unit, one 9-consulting room outpatient department suite and a new endocrinology and diabetes outpatient centre. The building also contains the pharmacy, restaurants and a new and appropriate main entrance to the hospital.

The process was not without difficulties. Bed numbers were a major issue as was the acute hospitals' reorganisation process which had made it very difficult to assess which specialties would be sited at the RVH. There was also at this time no definite blueprint for future hospital services in Northern Ireland. Careful consideration had to be given to the possible hub and spoke arrangements for specialties and their impact on the RVH. Despite these difficulties the project moved ahead with close consultation but tight closing of that process at correct deadlines. It was also possible to complete the financial negotiations for the project without having to go to a public finance initiative. Today I think it entirely appropriate that we indulge in some self-congratulation as a hospital community on having achieved such a state of the art new hospital. It has happened because of a lot of planning, hard work, negotiation and cooperation by very many people in the RVH and in the wider community.

Future Site Plans

The completion of Phase I begins but does not complete a new era for the Royal Hospitals Group. Site plans have been agreed for the next 10 years and include work on a new maternity hospital, a hotel and education centre, completion of development of the Children's hospital, expanded parking developments and a new open square at the front of Phase I. These will all follow on from Phase II, for which plans had already been made and which are currently being developed. On site, in late 2003/early 2004 are the first signs of the first podium in Phase II, with it new imaging centre, being prepared.

The Importance of Clinical Excellence

Clinical excellence is a vastly important topic in today's NHS. This new building alone cannot bring it about but it is essential that a hospital such as the RVH aims for it for every aspect of a patient's care. Suggested solutions have included appraisal, revalidation, clinical governance, audit, charter marking, CHI and the extensive use of guidelines and protocols. All of these are important and many of them in time should lead to all-round improvements in the care of patients. However, this oration will focus on the important role to be played in maintaining clinical excellence by two other aspects of medicine, clinical investigative research and the development of specialist teamwork.

If we turn to clinical investigation and research, much can be learnt from the study of how some key advances were made and since my own specialty is that of endocrinology I have chosen some illustrative aspects of it. A medical student or practising doctor would do well to read a wonderful description of clinical research on bone disease as detailed by Dr Fuller Albright in his text "Uncharted Seas".[3] Albright was perhaps the greatest endocrinologist of the 20th century. He worked for most of his life in the Massachusetts General Hospital, having previously studied with Erdheim in Vienna, a pathologist whom he described as quite simply the man who knew more about human disease than any other living person. Albright in a relatively short career described the renal effects of parathormone, post-menopausal osteoporosis and the benefits of oestrogen, vitamin D related rickets, Klinefelter's syndrome, and therapy for hypoparathyroidism. Among a variety of hypotheses he suggested that oestrogen plus progesterone would act as a contraceptive and also discussed the concept of end-organ resistance to hormones, nowadays a most important and well validated concept in endocrine disease.

To emphasise the importance of clinical investigation Albright described the case of Captain Charles Martell born around 1900.

Between 1918 and 1932 he developed back pain, leg pain, loss of height, gravel in his urine and fractures of his legs and arms. His X-rays showed transparent bones and he was eventually referred to a Dr Eugene Du Bois in New York. Albright comments that every hospital ward, and this continues to be the case in 2004, has its quota of patients suffering from conditions which are understood either imperfectly or not at all. He stated that "hope depends on careful investigation. All sorts of orifices must be explored by various specialists. Body fluids must be withdrawn and chemical estimations made. Animals should receive injections with these fluids and changes noted. Every lead must be run down and any unusual findings must be compared across the world. Importantly, the doctors must have the investigative point of view and must become familiar with the techniques of scientific and experimental study." After seeing many other doctors Martell eventually met Du Bois who was aware that this was an unusual and previously undescribed case. At this stage the association of bone disease with parathyroid tumour was unknown. However, Du Bois was widely read and knew of Collip's work on parathyroid extracts and their importance in the transport of calcium between the stores in the bone and between blood and urine. He measured calcium in the Captain's blood and it was high. Other metabolic measurements showed that more calcium was going out than in. He then deduced that the results paralleled the findings in dogs which had received Collip's bottled parathyroid products. Although bone disease was not his field he made a tentative diagnosis of overproduction of parathyroid products. He then transferred the patient to the Massachusetts General Hospital Research Investigative Ward where it was proven across six months that the results were the same as in normal subjects being given parathyroid extracts. Eventually an operation was recommended but there was no happy ending as no tumour was found at neck exploration. Despite this, other patients were found with similar conditions and did have successful operations, and eventually after many operations, a tumour was found in Captain Martell but this did not prevent an early death from the renal failure which had developed as a result of the longstanding hypercalcaemia.

What application does such a story have for the modern teaching hospital? It is essential that as we move into the new century, the Royal Group of Hospitals give an appropriate priority for research. They must employ clinical investigators and must provide appropriate facilities. They must ensure that the research pathway which has become increasingly complex nationally and internationally is made as smooth and facilitating as possible by the hospital. There must be recognition that adequate time is required by those involved in clinical research and adequate funding should be made possible. This is, of course, key to the Royal Group's Mission Statement which states that it is our fundamental purpose to provide highest quality cost-effective health care as an outstanding acute general hospital and tertiary referral centre through exceptional service to our patients, staff and community in an environment of education, teaching and research. We must never forget that one of our duties is to forward research for the betterment of our patients. Albright stated that the investigating doctor should be trying constantly to push forward the frontier of medical knowledge. "The large majority of them of course make no world startling shove but a surprising number nevertheless contribute a slight push in some direction. The important effect of this arrangement is that those would be Pasteur's, working on their problems, know their frontiers and keep the whole community of doctors with whom they are in contact current and up to date. James Packer, a well known theologian, writing in a different context, states that by standing on the shoulders of giants, little people like ourselves may hope to see more than we would if we stayed on the ground.

Exactly where basic research will lead is often unclear and we must not be narrow enough to think that so-called blue skies research is inappropriate for our NHS and for our Research and Development Office in Northern Ireland. A good example of this is found in the renin-angiotensin system. This was discovered when crude extracts of rabbit kidneys were injected into other rabbits in 1898 and the blood pressure was shown to rise. Then in 1938 Goldblatt clipped renal arteries and again showed that the blood pressure rose. A renal pressor extract was standardised and named renin and eventually the hormonal cascade of the renin, angiotensin I, angiotensin II and aldosterone system was identified. For many years it was thought that this was of interest but not of great importance, and the implication for research funders might have

been that this was pretty far from the real killer disease of hypertension and probably irrelevant to less specific forms of hypertension than renal artery disease. It could also be dismissed as pretty much animal research work or as blue sky research with little application to the Department of Health or to a University. However, ongoing work in which I was privileged to play a small part has led to the development of angiotensin converting enzyme (ace) inhibitors, angiotensin receptor blockers, aldosterone antagonists and combination of these drugs with other drugs such as diuretics has been shown to have an important effect in reducing morbidity and mortality in hypertension, cardiac failure, myocardial infarction, incipient and established diabetic kidney disease (Fig 5). Severe cases of refractory hypertension can be controlled with a combination of ace inhibitor and high dose loop diuretic,[4] while in the Hypertension in Diabetes Study of the United Kingdom Prospective Diabetes Study (UKPDS), the tight blood pressure control groups, one of which was based on therapy based on the use of ace inhibitors, reduced risk for any diabetes related end-point by 24%, with a 32% reduction in diabetes related deaths, 44% in stroke, 37% in macrovascular disease, 56% in heart failure and 34% in retinopathy progression over an eight year period.[5]

Another implication for this UKPDS study is that multicentre drug studies such as this are often not just simply drug studies but answer vital and fundamental pathophysiological questions which one centre cannot. The RVH has to facilitate and encourage those who wish to join such studies. The increasingly difficult national and international research process must not be allowed to interfere. The new Royal Research Office has made a most promising beginning and for the future has a pivotal role to play together with all of our new divisions in fostering and encouraging the role of research. Newly appointed NHS and University Staff should be encouraged to actively pursue research in their chosen disciplines.

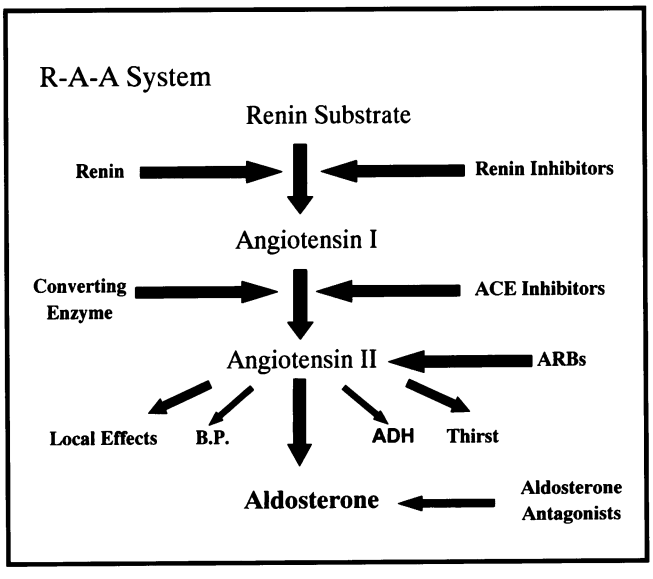

Fig 5. The renin – angiotensin – aldosterone system and its inhibitors and antagonists.

One recent development in endocrinology has been the increased understanding of the role of genetics. Over the coming decades the linkages between genetics and endocrine disease will become increasingly important. In Cambridge a Dublin graduate, Professor Steve O'Rahilly, has begun to make great advances in the study of the major health problem of obesity by looking at rare families of Pakistani origin in whom he has demonstrated major hormonal defects in production of the regulating hormone leptin.[6] This work has been recognised by the award to him of an FRS at a very early age. Other developments with this work and with other work in London point the way forward in that genetic studies plus hormone studies on the integrated relationship between hormones of hunger and satiety (including leptin, agouti-related protein, NPY, ghrelin, and neuropeptide Y) offer many exciting insights into the general problem of obesity.

Of what relevance are these particular studies to us? I would like to point out that we must nurture special talent such as that of Professor O'Rahilly. This is increasingly being done in some centres. We must ask ourselves whether or not our hospital and our university would recognise such a talent and develop it. This is essential. Interestingly also, many of these studies have also prospered because of national disease registers to which various hospitals including our own contribute. We should increasingly become part of these and should be encouraged to do so. At the same time specialists must be given the opportunity to meet and interact with cutting edge science. Proscriptive study leave formats will kill the teaching hospital ethos of being at the forefront of medical advance. Until now the Royal Group has had an enlightened attitude towards this and this must be maintained for the future.

Finally today, I want to point out the importance of research and teamwork in our own Regional

- Diagnosis
  - intravenous dexamethasone
  - low dose dexamethasone
  - cyclical Cushing's diagnosis
- Pathophysiology
  - cortisol feedback studies/insulin resistance studies
  - insulin hypoglycaemia and GH status,hypertension
- Differential diagnosis
  - petrosal sinus sampling, CRH and high dose dexamethasone
- Acute therapy outcomes
  - bilateral adrenalectomy and pituitary surgery
  - ketoconazole , rosiglitazone protocols
- Long-term outcomes after treatment
  - mortality rates and incidence of Nelson's syndrome

Table 2. RVH Endocrinology Unit Research Studies in Cushing's Syndrome.

Endocrinology and Diabetes Centre where I am privileged to work. The Centre has had an active interest in Cushing's syndrome, the clinical manifestations of excess production of cortisol, for approximately 50 years. This work was pioneered by the late Professor Desmond Montgomery soon after cortisone acetate had been isolated from adrenal extracts.[7] Years later there are still major problems in Cushing's syndrome – these involving the diagnosis of the condition, the differential diagnosis, the interpretation of imaging studies, the limitations of current therapy, and the adequacy of studies on the long term outcome of the disease. Some of our research studies in Cushing's are shown in Table 2. Studies involve the cooperation between the unit's specialist medical and nursing staff, the Regional Endocrine Laboratory and the expertise in our department of radiology. Particular points of interest in the various studies have been the ability to recruit suitable control subjects and to study patients with possible and probable hypercortisolism with prolonged follow-up and hence correctly categorise them for diagnostic test protocols. A very careful investigational nursing procedure is essential but I believe impossible except in specialist wards such as our own 7D (or the old Metabolic Unit – ward 25) with nurses trained in careful investigative nursing procedures (see also comments from Albright also regarding this in his publication). Other outcomes of the research have been developments with Mr Brian Sheridan and the Regional Endocrine Laboratory of the use of early morning urinary cortisol to creatinine ratios to allow study of cortisol excretion as outpatients over an extended period of time. This allowed demonstrations of the fluctuations in cortisol from day to day and helped us establish cyclical Cushing's syndrome as a much more common disease entity than had previously been recognised.[8] This has then been shown to have important ramifications for the diagnosis, differential diagnosis and assessment of outcome of the disease.

We have also been very fortunate in our collaboration over the years with the radiology department with first Dr Teddy McIlrath and more recently Dr Peter Ellis. Their expertise and innovation have allowed us to look carefully at new pituitary imaging techniques and also to use the technique of bilateral inferior petrosal sinus sampling to establish the site of production of excess ACTH.

All of these research studies in Cushing's Syndrome show a wide team involvement with specialist laboratory expertise, specialist investigative nursing staff, radiological innovation and expertise. In addition there is a fundamental role for the specialist pituitary neurosurgeon, the specialist endocrine surgeon, the expert radiotherapist and the educational and investigational role of the endocrine specialist nurse. Over the years we have also been fortunate to have high quality junior medical staff and research fellows, many of whom have gone on to distinguished careers in endocrinology.

In many other departments of the Royal Group of Hospitals such specialist teamwork allows tertiary referral work to proceed and new investigations and management to be implemented rapidly. It is essential to the work of the RVH, not just for investigational research, but to ensure continuing high quality outcomes for each patient. I also strongly believe that an active research philosophy spills over into the care of all patients whether involved in a specific research project or not. It is already well documented that patients taking part in research projects have a higher standard of care than those not offered such an opportunity.

In conclusion our new hospital and our plans for future development of its fabric provide a wonderful opportunity for us all to learn and to develop our teaching, our research and our patient care. I encourage our medical students and indeed all of us to develop a thirst for knowledge and for new information and I wish our new students well in their clinical studies. I believe that a correct

emphasis on investigative medicine and on the appropriate funding and facilities for this is essential to the future of the Royal Group of Hospitals. This together with adequately staffed specialist teams throughout the hospital will enhance our care of patients and allow us to be a teaching hospital fit for the new century.

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Case Report

Lemierre syndrome: Remember the forgotten disease

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Lemierre syndrome is a rare clinical entity which is characterised by septicaemia arising from a head and neck source, complicated by thrombosis of the ipsilateral internal jugular vein with embolisation to various sites, most usually the lungs. It is important to diagnose the syndrome correctly since its treatment is different from pulmonary emboli and uncomplicated ENT infections and if untreated may be associated with high mortality. We present the occurrence of this syndrome in a 14 year-old girl whose site of primary infection was the middle ear; the outcome in this case was favourable.

INTRODUCTION

Lemierre syndrome, described as the 'forgotten disease'[1] although very uncommon[2] is an infection-related syndrome which is important to diagnose accurately since its mortality may be high.

CASE REPORT A 14-year old girl, with a history of chronic mastoiditis, who gave a three-week history of left otalgia and headache presented to hospital with worsening pain, dizziness, vomiting and rigors following seven days of oral amoxicillin for presumed acute otitis media. She was febrile and had cervical lymphadenopathy with neck pain and tenderness. A diagnosis of acute suppurative otitis media was made for which she received intravenous cefotaxime 2g 8-hourly and metronidazole 500mg 8-hourly.

Over the following five days she had persisting fever and worsening left-sided neck pain. Furthermore, she became dyspnoeic, developing pleuritic chest pain and haemoptysis; measured oxygen saturation on room air was 88%.

Computerised tomography (CT) revealed thrombus, bubbles of gas in the left internal jugular vein (*Fig. 1*) and several ill defined

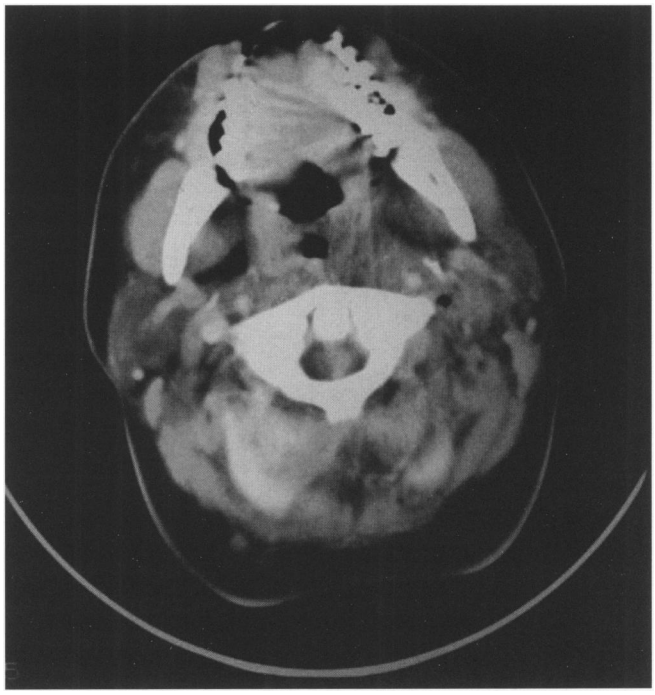

Fig 1. CT scan of neck highlighting the thrombus (manifest by the lack of contrast agent seen) in the left internal jugular vein.

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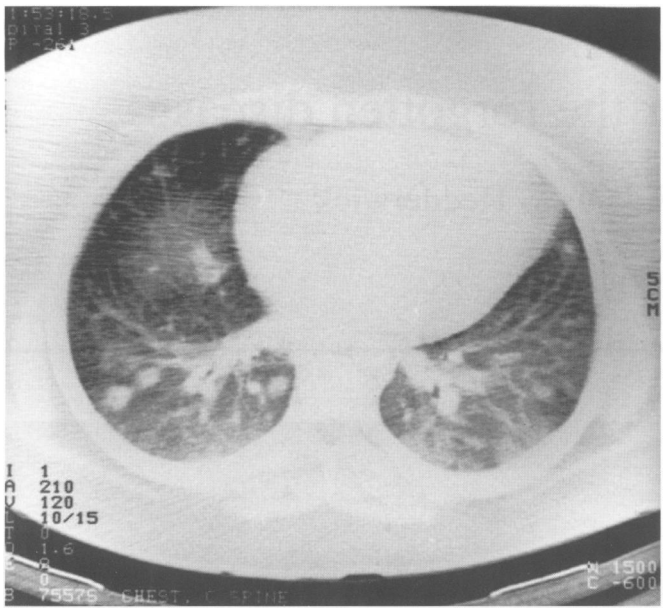

Fig 2. CT scan of chest showing several opacities with surrounding infiltrate attributed to septic emboli.

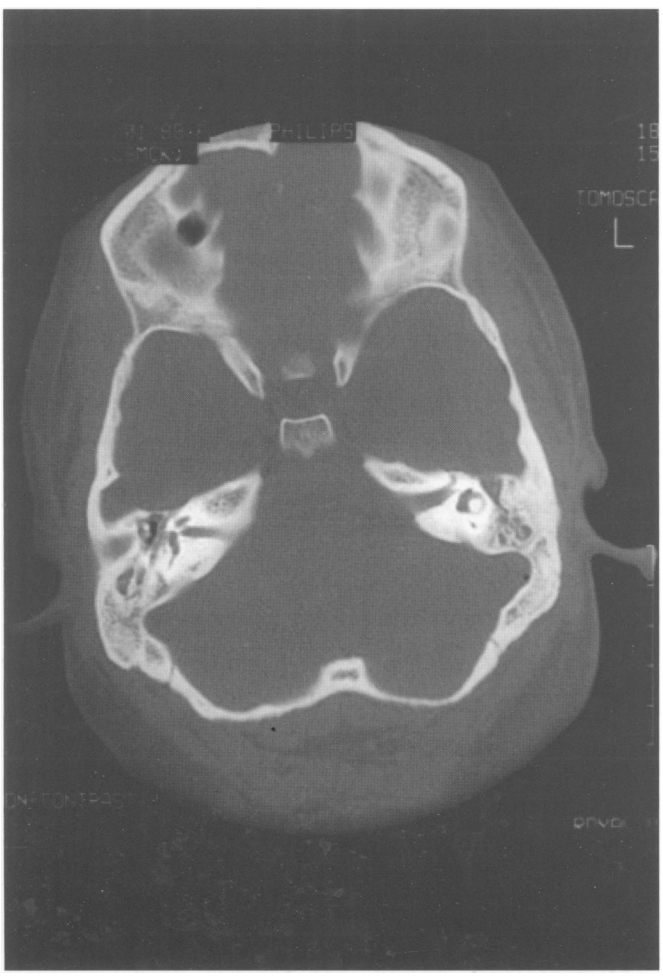

Fig 3. CT scan of head showing mastoid sclerosis, especially on left.

opacities in the lung fields consistent with septic pulmonary emboli (*Fig. 2*). Further imaging identified bilateral sclerosis of the mastoids, greater on the left, consistent with chronic mastoiditis; small gas collections and soft tissue changes consistent with acute inflammation were also present *(Fig. 3)*. Blood cultures were positive for *Bacteroides fragilis* and an unidentified anaerobic Streptococcus sp.

The patient underwent a left sided modified radical mastoidectomy and removal of granulations. She received 14 days of intravenous piperacillinl/ tazobactam 4.5g 8-hourly and metronidazole 500mg 6-hourly followed by a further 14 days of oral co-amoxiclav and metronidazole. Initial anticoagulation was with subcutaneous enoxaparin 100mg daily and, subsequently, warfarin for a total of two months. She remains well six months later.

DISCUSSION

Although the correlation between oropharyngeal infection and sepsis was first described by Courmant and Cade in 1900,[3] Lemierre was the first to characterise the syndrome in 1936 and published a series of 20 cases, 18 of whom died.[4] Alston subsequently reported a series of 280 episodes; these typically occurred in young, otherwise healthy patients.[5] The most frequent site of primary infection was the oropharynx and ranged from mild to fulminant in severity. The syndrome characteristically associates such infection with ipsilateral internal jugular vein thrombosis complicated by septic emboli, usually to the lungs, with persistent fever; the usual organism isolated from blood is *Fusobacterium necrophorum.*

Lemierre, in his original description, acknowledged alternative extrapharyngeal sources of infection which included the middle ear, female urogenital tract and gastrointestinal tract. Subsequently many sites of septic emboli have been identified such as bone, meninges, abdominal viscera, peritoneum and soft tissue.[5] Furthermore several alternative pathogens have been proposed, including *Bacteroides*, as organisms capable of precipitating the syndrome.

It is important to make the correct diagnosis to allow selection of appropriate treatment; this is different from that which is usual for pharyrigitis, otitis media, or thromboembolic disease. Debridement of the primary focus is an important

intervention and broad spectrum antibiotic therapy with potent anaerobic activity is the cornerstone of management; examples may include either clindamycin or a combination of a beta-lactam and metronidazole. The preferred duration of antibiotic therapy is 2-6 weeks, with conversion from intravenous to oral administration when marked improvement with defervescence, resolution of leucocytosis and falling inflammatory indices are observed. Mortality today is less than 17%,[6] much lower than in the preantibiotic era.

Furthermore, the role of anticoagulation remains unclear since no randomised controlled trials exist to test the hypothesis that this is beneficial. Interestingly, case series suggest that those who are anticoagulated have similar outcome to those who are not; indeed a small number suffer adverse events attributable to warfarin therapy.[7] Some have recommended that, except when cavernous sinus thrombosis is present, anticoagulation is withheld.[6]

Lemierre remarked, in his original description, that upon observation of the constellation of findings which characterise the syndrome "mistake is almost impossible".[4] However, unfamiliarity with this disease may confound the diagnosis and lead to missed therapeutic opportunity. The clinical lesson is, therefore, straightforward: when presented with a young, previously well patient who has a primary head and neck infection but a clinical illness out of proportion with this, often with symptoms at a discrete site, remember the forgotten disease.

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Case Report

Gastrobronchial fistula – a complication of splenectomy

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Delayed perforation of the stomach following splenectomy leading to gastrobronchial fistula, although rare has been reported, although it more commonly occurs following trauma, subphrenic abscess and gastro-oesophageal surgery.[1,2] We report a case of gastrobronchial fistula following splenectomy for a ruptured splenic artery aneurysm and present a pertinent literature review.

CASE REPORT A 51-year-old male patient with previous history of acute pancreatitis was admitted with sudden onset of severe epigastric pain, hypovolaemic shock and signs of peritonitis. Haemoglobin was 8g/dl with normal indices. Other blood tests were normal. A provisional diagnosis of a perforated viscus was made and a laparotomy was performed. However this revealed a large haemoperitoneum and an infarcted spleen secondary to rupture of a splenic artery aneurysm, located at the hilum of the spleen. The aneurysm was ligated and a splenectomy performed. The patient had a difficult postoperative recovery with persistent drainage in excess of 500mls from the left subphrenic drain after day 4. A water soluble contrast meal performed on the following day demonstrated a track between the fundus and the drain. This was managed conservatively. However on day 17, the patient developed a persistent cough and a further water soluble contrast meal confirmed a fistula between the fundus and the left lower lobe segmental bronchus.

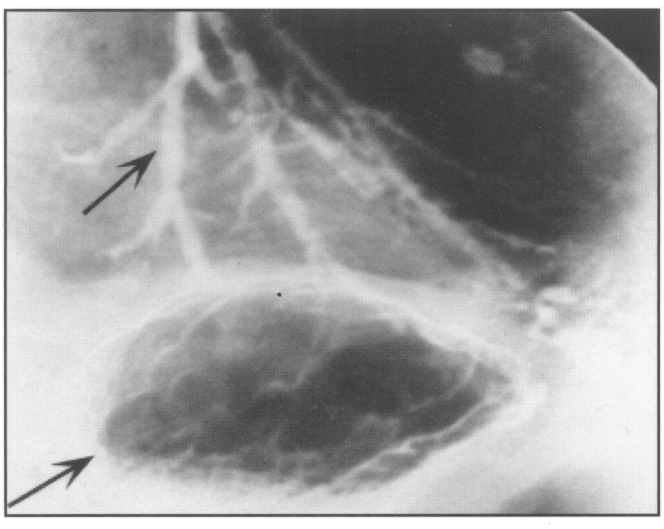

Figure Water soluble contrast meal demonstrating gastrobronchial fistula. (Top arrow pointing to bronchi; lower arrow pointing to stomach).

The patient responded well after treatment with a left-sided chest drain for a reactive effusion and a feeding jejunostomy, and was allowed home subsequently. The patient presented with haemoptysis six months later and the fistula was confirmed on an oesophagogastroduodenoscopy (OGD), water soluble contrast meal (*Fig*ure) and a computerised tomography (CT) scan. Bronchoscopy showed bloodstained secretions coming from the left lateral basal segment. While awaiting surgery, his symptoms settled. He was closely followed-up in the out-patient clinic and remained well for a year, but unfortunately the haemoptysis recurred. He underwent a laparotomy and fundectomy with excision of the fistula. The postoperative course was uncomplicated and the patient remains well at 3 year follow up.

DISCUSSION

Gastrobronchial fistula is a rare condition which can occur in the setting of benign and malignant disease. Benign causes can further be subdivided into those resulting from trauma, gastro-

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oesophageal surgery, subphrenic abscess and gastric ulcers.[3] Its occurrence following splenectomy is extremely rare.

The first descriptions of gastric fistula following splenectomy were published in 1967 by Bryk and Petigrow although the danger of injury to stomach during splenectomy was mentioned much earlier by Mayo in 1913.[4,5] At the apex of the triangular shaped gastrosplenic omentum is the danger zone, where the superior pole of the spleen is in its closest proximity to the stomach, and direct injury to stomach wall may occur while ligating short gastric vessels.[5]

Inadvertent damage to the gastric wall during splenectomy or hiatal surgery can result in an occult leak, subpbrenic abscess and ultimately fistula formation.[2] Gastro-cutaneous fistula is most commonly reported in the literature. Other factors, which predispose to gastric fistula following splenectomy, include compromised vascularity in the gastric wall (especially in elderly patients with arteriosclerosis), haematoma formation within the gastrosplenic omentum secondary to rupture of the spleen, interruption of a reflection of gastric muscle fibres within the gastrosplenic ligament, and any condition predisposing to stress ulceration.[4]

Subphrenic sepsis with transdiaphragmatic spread via lymphatics has been implicated in the aetiology of gastrobronchial fistula. Gastric ulceration following fundoplication has been attributed to gastric hypersecretion as a result of gastric distension secondary to gastric dysmotilty or inadvertent damage to vagal fibres.[6]

It is very likely that gastrobronchial fistula development in this patient was due to inadvertent abrasion or denudement of the serosal covering of the greater curvature of the stomach while ligating the short gastric vessels. This would be insufficient to have caused overt gangrene but sufficient to prevent healing of minor and otherwise insignificant injuries or serosal tears as demonstrated by Kilgore *et al.*[7] Harrison *et al* recommended that in selected cases of splenectomy where the risk of fistula development is high, i.e. very short gastric vessels, the upper aspect of the greater curvature should be inverted with several seromuscular sutures. Drainage after splenectomy has not been cited as a cause of gastric fistula, though it is believed by some to result in an increased incidence of subphrenic abscess.[4]

A diagnosis of gastrobronchial fistula should be suspected when a patient coughs gastric contents, develops recurrent lower respiratory tract infections or haemoptysis.

Investigations include OGD, bronchoscopy, barium meal and a CT chest to identify lung pathology.

In the past, patients with a gastrobronchial fistula often required major resection sometimes with a cervical oesophagostomy. The mortality with these procedures was extremely high. Nowadays a more conservative approach is possible. Control of sepsis with adequate drainage is a priority, meanwhile ensuring that the patient is adequately nourished prior to attempting definitive surgical management. The anatomy is frequently obscured due to inflammatory reaction and timing of surgery is of critical importance. Limited resection is preferred, as in the case presented, where fundectomy and excision of the fistula was performed. Should pulmonary contamination persist, debridement and decortication of chronic empyema is necessary although the majority of cases settle spontaneously.

This condition can present a difficult diagnostic dilemma and a high index of suspicion is required for prompt diagnosis. Delay in diagnosis is associated with a high morbidity, and mortality.[4] Supportive care with special attention to nutritional support and control of sepsis should be the primary aim. A successful outcome depends upon good supportive care and precise timing of definitive surgery.

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Case Report

Acute presentation of lymphangioma of the retroperitoneum

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CASE REPORT

A 20 year old female student presented to A&E with a one week history of epigastri discomfort radiating to her back with associated nausea and mild constipation. On examination her abdomen was tender but soft. There were no other significant symptoms or signs. She was admitted with a working diagnosis of biliary colic. Routine blood tests were normal. She subsequently underwent abdominal ultrasound and CT imaging.

Abdominal ultrasound demonstrated a large anechoic mass in the upper abdomen postero-inferior and separate from the head of pancreas. However no acoustic 'through enhancement' was seen. There were no gallstones or other significant abnormality. At this stage it was suspected that the lesion was a duplication cyst and CT was performed for further assessment.

CT confirmed the presence of an 8cm by 7cm mass. It was closely related to the duodenum, had

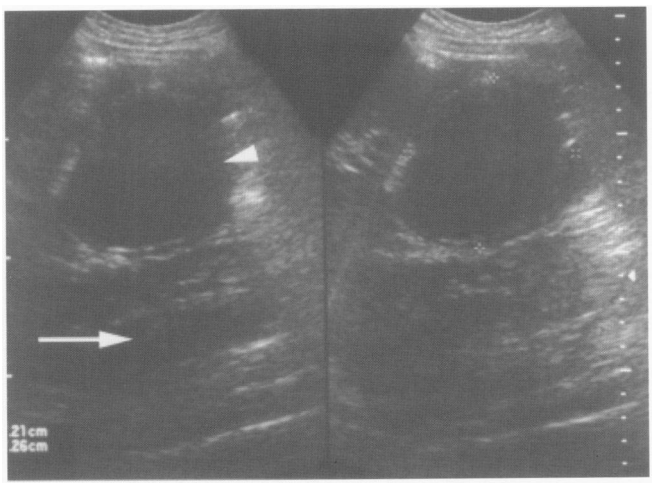

Fig 1. Ultrasound image showing the retroperitoneal lymphangioma (short white arrow). Note the lack of expected 'through transmission' normally expected from a serous cyst (long white arrow).

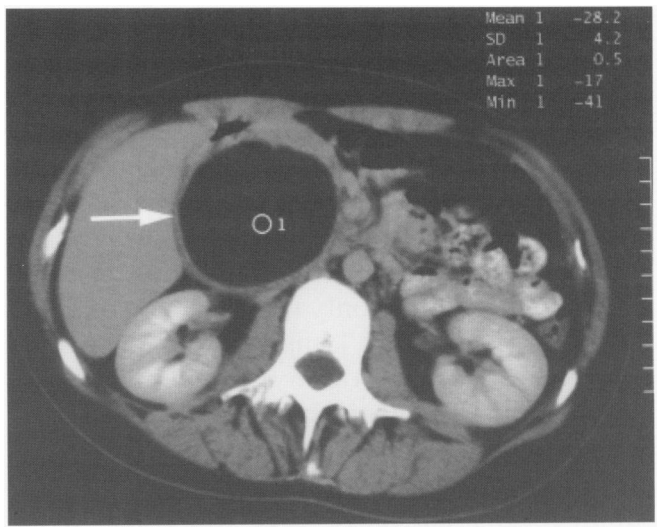

Fig 2. Axial intravenously enhanced CT scan of the upper abdomen with oral radiographic contrast, which shows the large retroperitoneal lymphangioma (short white arrow). An attenuation value has been measured, (less than 0) Houndsfield units (HU), signifying fatty content.

a thick wall and contained homogenous material with an attenuation value of –28 HU i.e. fat density. It did not enhance post administration of intravenous contrast. Differential diagnosis included a lipoma or lymphangioma. An atypical duplication cyst or a large choledochal cyst was also considered. The patient underwent laparotomy and the cyst was resected completely. It contained a 'milky' fluid and a lymphatic vessel was identified entering into it.

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Histopathological examination of the cyst wall demonstrated fibrosis, an inflammatory cell infiltrate, and the presence of endothelial lined vascular channels. These findings confirmed a benign lymphangiomatous cyst. The patient remains well.

DISCUSSION

Lymphangiomas are benign lesions of the lymphatic system whose exact aetiology remains uncertain. An acquired abnormality of lymphatic drainage and a congenital lymphatic anomaly are proposed aetiologies, and it is possible both mechanisms are involved. Lymphangiomas are classified by their microstructure into capillary, cavernous and cystic types, although some lesions show a mixture of morphologies, leading to weakness in the classification.[1] The exact morphology of the lesion may depend on the tissues surrounding them. No capillary types have been described in the retroperitoneum. 90% of lymphangiomas occur in patients less than two years old most commonly in the neck or axilla in locations of primitive lymph sacs and are often referred to as 'cystic hygromas', or intra abdominally as 'omental cysts'. Intra-abdominal and particularly retroperitoneal lymphangiomas are uncommon. Lymphangiomas can occur submucosally and have been described in the stomach and duodenum. In lymphangiomatosis they are numerous and affect many organs including bone. First presentation in adulthood is uncommon, but retroperitoneal cystic lymphangiomas may present incidentally in later life, typically slowly enlarging and remaining asymptomatic for a long period although if large they can present with pressure effects on adjacent organs. If a complication such as infection, haemorrhage, rupture, or torsion occurs presentation can be acute with abdominal pain, and be an unexpected finding at laparotomy. Imaging by USS, CT and MRI is useful in diagnosis and forewarns the surgeon. USS can demonstrate the cystic nature of the lesion which typically appears with sharp margins and scattered internal echoes. Lymphangiomas can be unilocular or multilocular. CT gives a more accurate assessment of relationship to neighbouring organs. Typically at CT, the lesion displaces solid organs, has uniform septa which slightly enhance and has contents of attenuation near that of water. Some groups have found little difference in attenuation readings between serous and chylous-containing lymphangiomas.[2] In our case the attenuation of the contents was clearly below that of water. MRI usually demonstrates the typical signal changes of a fluid filled cyst. MRI also can more accurately assess local organ involvement, which can occur with cavernous haemangiomas. Differential diagnoses that should be considered for cystic lesions in the retroperitoneum include duplication cysts, pancreatic pseudocysts, ovarian cysts, retroperitoneal haematomas, retroperitoneal sarcomas, teratomas and abscesses.[3,4]

Often the diagnosis of lymphangioma can only be confirmed histologically.[6] Surgical excision is the accepted treatment for symptomatic lymphangiomas and often total excision of the lesion is readily possible with cystic lymphangiomas,[1] however cavernous lymphangiomas are difficult to excise as multiple local adhesions can be present sometimes making excision of a locally involved organ necessary and having high recurrence rates.[1] In some lymphangiomas a stem with a small base can be identified macroscopically. It is important this is excised to prevent local recurrence. If the stem of the cyst and the feeding lymphatics are not ligated chylous ascites will occur.[5] Recurrence rates for cystic lymphangiomas are low. Rarely do lymphangiomas undergo malignant change or spontaneous regression though both have been documented. Retroperitoneal lymphangioma is an uncommon lesion in adults with the potential to present acutely. Radiological investigation provides important pre-operative diagnostic information essential for effective surgical approach and management.

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Case Report

Solitary extramedullary plasmacytoma of the tongue

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Accepted 13 August 2004

Solitary extramedullary plasmacytomas are uncommon malignant neoplasms accounting for 5-10% of all plasma cell malignancies.[1,2] The majority of extramedullary plasmacytomas are seen in head and neck region and frequently arise from the upper aerodigestive tract.[3] Solitary plasmacytoma of the tongue is extremely rare, with only a few cases having been reported in the English literature.[4-7] But magnetic resonance (MR) imaging findings have not been described previously. We report a case of solitary plasmacytoma of the tongue in a 72-year-old man, and present the MR findings.

CASE REPORT A 72-year-old man presented with a three-month history of a tender swelling and ulceration in the tongue, which had been growing slowly. His past history and family history were not remarkable except for rheumatoid arthritis, pulmonary fibrosis and chronic renal failure which had been treated for six years. Physical examination revealed an elastic hard mass (4 x 1.5 cm) with an irregular surface and deep ulceration that affected the ventral surface of the tongue (*Fig. 1*). There was no cervical lymphadenopathy.

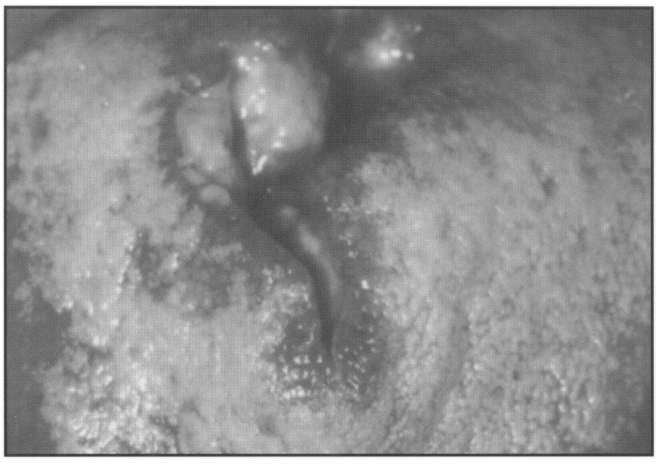

Fig 1. Photograph of the patient's tongue shows an irregular surface and deep ulceration.

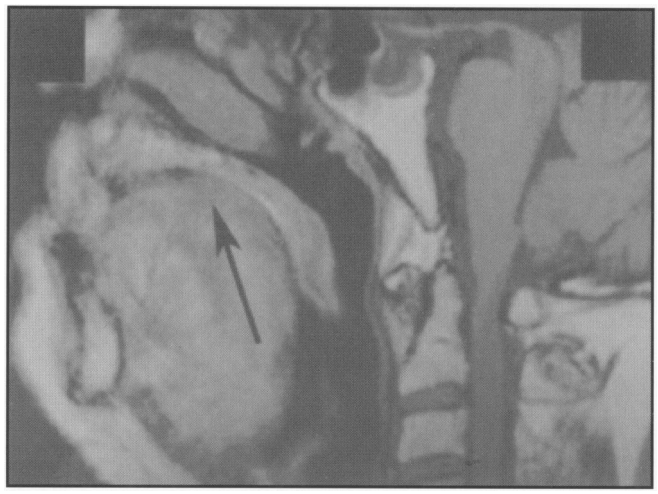

Fig 2a. Sagittal T1-weighted MR image demonstrates a hypointense mass in the tongue *(arrow)*.

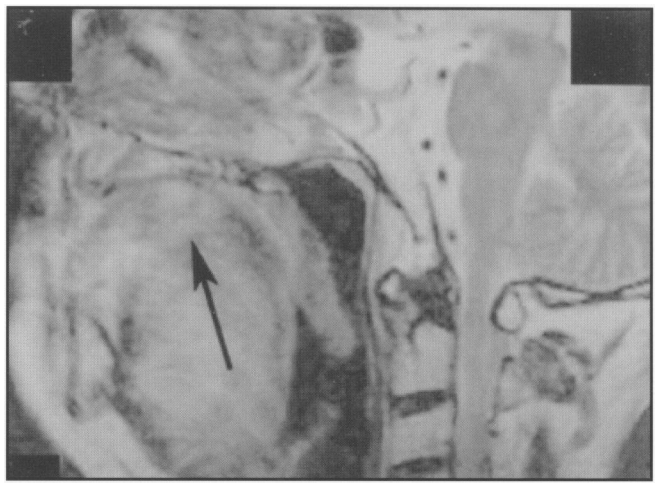

Fig 2b. Sagittal T2-weighted MR image demonstrates a hyperintense mass (*arrow*).

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MR image of the head and neck demonstrated a 3 x 3cm mass in the tongue. The mass is hypointense on the T1-weighted image and slightly hyperintense on the T2-weighted image with a hypointense rim (*Figs 2a* and *2b*). Local and regional lymphadenopathies were not remarkable.

Histological examination revealed diffuse infiltration of immature plasma cells with mildly atypical nuclei. The nuclei were hyperchromatic and oval with no visible nucleoli. The neoplastic nature of the plasma cell infiltrate was confirmed by immunohistochemical studies.

Immunohistochemistry demonstrated light chain restriction. The tumor cells were positive for lambda light chains and negative for kappa light chains. The most tumor cells showed negative staining for the L-26 antigen. This indicated a clonal population leading to a diagnosis of plasma cell neoplasm.

The following examinations were undertaken to rule out multiple myeloma: skeletal survey, bone marrow biopsy, gallium scanning, sedimentation rate, electrolytes, complete blood count, beta-2-microglobulin, quantitative immunoglobulins, serum and urine protein electrophoresis, and Bence-Jones proteins in the urine. All of them were within normal limits. Thus, multiple myeloma was excluded and the final diagnosis of solitary extramedullary plasmacytoma of the tongue was made.

He was initially treated with radical radiotherapy and given a mid-plane dose of 34Gy in 17 fractions over a period of 22 days. But pulmonary fibrosis and chronic renal failure were exacerbated possibly by analgesics and hypnotics, and he died in the course of radiotherapy. The tumor disappeared macroscopically after the radiotherapy of 34Gy. Autopsy was not performed.

DISCUSSION

Extramedullary plasmacytoma is an immunoproliferative, monoclonal disease of the B-cell arising outside the bone marrow without clinical evidence of multiple myeloma.[3,8] It originates as a clone of malignant transformed plasma cells. They usually migrate and return to establish themselves in the bone marrow. In rare instances, they also settle in soft tissue or in an extracellular connective tissue area.[3,8] This is the origin for monoclonal plasma cell foci located outside the bone marrow, called extramedullary plasmacytoma.[3]

The diagnosis of solitary extramedullary plasmacytoma should normally provoke investigation for disseminated disease and this should include a skeletal survey, serum and urinary protein electrophoresis, serum immunoglobulins and bone marrow biopsy.[9] Immunohistochemical staining for light and heavy immunoglobulin chains is also necessary in documenting the nature of the plasma cell proliferation and in confirming the diagnosis.[1,3,9]

Extramedullary plasmacytomas are highly radiosensitive, and they often respond to radiotherapy with complete clearance and, if there is no dissemination, these patients can be considered cured of disease.[10,11]Thus it is important to assess the size and depth of tumor invasion, extension, and presence of enlarged lymph nodes to make high quality radiotherapy possible. Due to the limitation of clinical assessment by physical examination, MR imaging may play an important role in the assessment of plasmacytoma of the tongue. Owing to the rarity of cases, evaluation by MR imaging still warrants further investigations.

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Case Report

"The lucky penny" – an incidental finding of hip dysplasia in a child with foreign body ingestion

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Accepted 17 September 2004

Undetected hip dysplasia can lead to significant morbidity. We report a case of development hip dysplasia, which was diagnosed incidentally following radiographic investigation for an ingested coin.

CASE REPORT A two-year-old girl was brought to the emergency department following the ingestion of a one pence coin. A thoraco-abdominal radiograph demonstrated the presence of a coin within the first part of the duodenum (*Fig 1*).

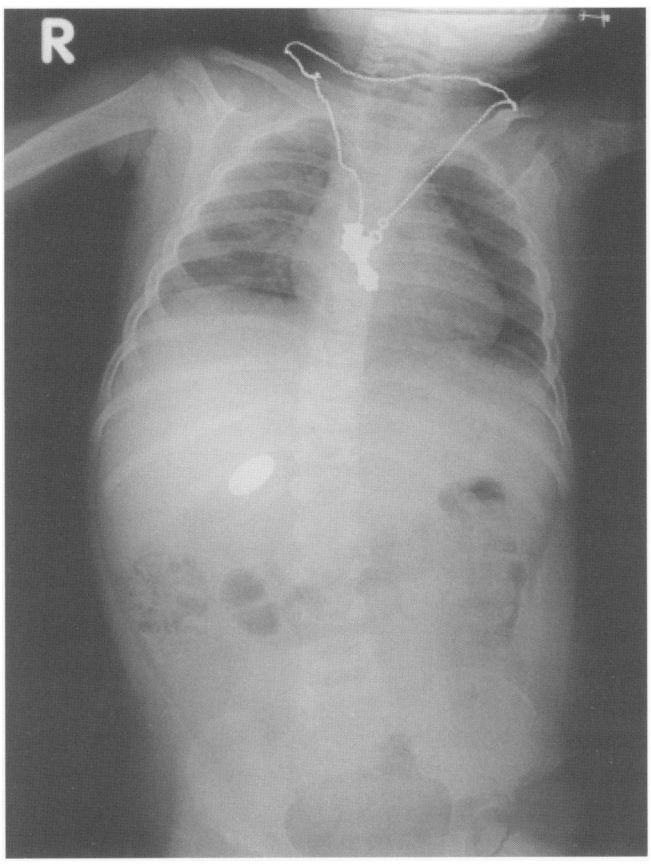

Fig 1. Thoraco-abdominal radiograph demonstrating a coin within the first part of the duodenum.

On closer inspection of the radiograph by the reporting radiologist, it was also noted that the right acetabulum was dysplastic, with uncovering of the femoral head. The child was subsequently referred to the orthopaedic department.

From the history, there were no associated risk factors for hip dysplasia and the child was asymptomatic with normal developmental

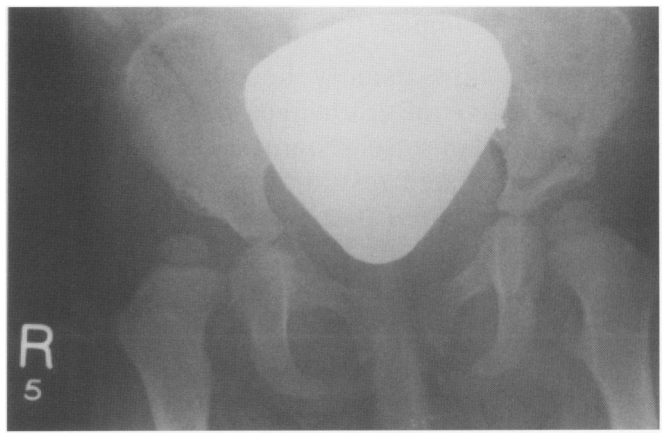

Fig 2. Pelvic radiograph demonstrating dysplasia of the right acetabulum (note the shallow socket with uncovering of the femoral head).

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milestones. Clinical examination was unremarkable.

A pelvic radiograph (*Fig. 2*) confirmed the presence of right-sided acetabular dysplasia with approximately 50% of the femoral head being uncovered. The left hip was unaffected. A reconstructive pelvic osteotomy is planned.

DISCUSSION

Coins are the most commonly ingested foreign body, occurring in approximately 4% of children at some time.[1] A chest x-ray including the abdomen is recommended to ensure that the coin is below the diaphragm and not lodged within the upper airway or oesophagus.[2]

Developmental dysplasia of the hip is a spectrum of disorders of development of the hip that ranges from poor development, or dysplasia, of the acetabulum to frank dislocation. It is a disorder that evolves over time and has been described by Klisic as a "dynamic disorder potentially capable of getting better or worse as the child develops".[3] Risk factors include being, female, first-born, breech presentation and pregnancies complicated by oligohydramnios.[4-7]

Dysplastic hips usually become painful and develop degenerative changes with time. As the degenerative disease progresses, the hip often becomes subluxed resulting in significant pain and disability. This often occurs in late childhood or adolescence.[8, 9]

In this case, a thoraco-abdominal radiograph which was taken to investigate an ingested coin, revealed a previously undiagnosed and asymptomatic dysplastic hip joint highlighting the fact that significant hip dysplasia can exist undetected until complications develop. A reconstructive pelvic osteotomy is planned in an attempt to minimise the associated risk of premature arthritis. The swallowed coin may prove to be this child's 'lucky penny'.

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Case Report

Merkel cell carcinoma of the breast:
Report of a case and review of the literature

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Accepted 6 October 2004

CASE REPORT A 52-year-old lady presented to A&E in November 2001 with a history of an injury to the upper outer quadrant of the left breast several weeks previously. On examination she had a markedly abnormal left breast. A fungating tumour occupied the upper outer quadrant of the breast with the rest of the breast swollen, oedematous and very firm. Ultrasound scan showed no focal mass but the entire breast was abnormal with areas of low density and interstitial oedema. An Ultrasound guided fine needle aspirate revealed malignant cells. The main differential diagnosis lay between a poorly differentiated carcinoma and a high grade lymphoma therefore a core biopsy was obtained. The core biopsy suggested a small cell carcinoma arising primarily within the breast. A staging CT scan of chest and bone scan revealed liver and bony metastases and chemotherapy was commenced.

Following chemotherapy the breast lesion was clinically smaller and the breast softer, but the lesion was ulcerated and causing a lot of distress. A repeat CT scan confirmed the breast mass had reduced significantly from 10cm to 5cm however liver metastatic deposits had increased in size from a maximum diameter of 3cm to a maximum of 4.5cm. MRI scan of spine revealed extensive bone metastases throughout cervical, dorsal, lumbar spine and sacrum. To improve her quality of life she elected to undergo a left mastectomy and axillary node clearance. At operation the tumour was very vascular and she required a blood transfusion post-operatively. Pathology of the tumour was very unusual for a primary breast carcinoma and further immunohistochemical stains revealed a *Merkel* cell carcinoma. This lady's clinical pattern of a 10cm breast lump with a small skin lesion was extremely unusual.

During her post-operative period she developed low back pain which appeared to settle with analgesia and she was re-admitted soon after discharge with lower limb paralysis. MRI scan revealed an extra-spinal cord deposit. She had radiotherapy and chemotherapy with no return of power in her legs. She subsequently deteriorated very rapidly and sadly passed away.

DISCUSSION

Merkel cell carcinoma (MCC) is a rare cutaneous neoplasm first described by Toker in 1972 as 'trabecular carcinoma'. Merkel cells are believed to be primary neuroendocrine cells found within the basal layer of the dermis. It has been shown to be a highly aggressive and lethal tumour, comparable with small-cell lung cancer and melanoma in its behaviour with regards to recurrence, metastatic spread, and mortality. It is a disease of the elderly, with an average age at the time of diagnosis of 69 years. It affects primarily the sun exposed areas of the skin especially head and neck. Little is known about specific aetiologic factors in the pathogenesis of MCC, however, like melanoma, ultraviolet radiation appears to be a significant factor with respect to both its anatomic and geographical distribution.

Patients typically present with a reddish blue, firm, non tender, nodular mass that has grown

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rapidly over a few weeks to months and which may ulcerate. Due to its non-specific appearance diagnosis is generally not made before biopsy and is then based on immunohistochemical staining for cytokeratin 20. Diagnostic evaluation includes CT imaging, octreotide and PET scans.

Treatment is by wide surgical excision of the primary tumour and chemotherapy, followed by radiotherapy for patients with advanced local and regional spread. Typical spread is to lymph nodes, liver, lung and bones. MCC has a local recurrence rate of 40-44% after primary treatment, a 55% rate of lymph node metastases, and a 34-49% rate of distant metastases with the majority of recurrences appearing within the first six to 12 months after initial diagnosis. Due to the rare occurrence of MCC, no prospective clinical studies assessing initial surgical therapy, radiotherapy, or chemotherapy have been performed.

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Case Report

Secondary haemorrhage after rubber band ligation of haemorrhoids in patients taking clopidogrel – a cautionary note

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Accepted 10 November 2004

Rubber band ligation (RBL) of symptomatic internal haemorrhoids, a technique refined by Barron[1] in the early 1960's, is a well-tolerated and effective procedure which can be performed in an outpatient setting. It is recommended as the initial mode of therapy for grades 1 to 3 haemorrhoids.[2] However, the procedure is not without complications. Pain, secondary haemorrhage and life threatening pelvic sepsis are rare but have been described.[3] Secondary haemorrhage occurs up to two weeks post-procedure when the bands slough off the haemorrhoidal mucosa, possibly in the presence of concurrent infection,[3] leaving an ulcer with a blood vessel at its base. Patients are at greater risk of secondary haemorrhage if taking anti-platelet and/or anti-coagulant medication.[3,4]

New thienopyridine derivatives such as clopidogrel are potent anti-platelet drugs which are increasingly used in the management of patients with peripheral vascular, cardiovascular and cerebrovascular disease. We report two cases of life threatening secondary haemorrhage in patients taking regular clopidogrel who underwent rubber band ligation of haemorrhoids 10 and 15 days previously. In both patients significant haemorrhage was controlled by using irrigation catheter tamponade of the anal canal along with transfusion of fresh frozen plasma and platelets.

CASE REPORT 1 A 72-year-old female with a history of ischaemic heart disease and previous myocardial infarction gave a history of recent bright red rectal bleeding with alteration in bowel habit. Her medication included daily clopidogrel 75mg. Pancolonoscopy demonstrated internal haemorrhoids which were treated by proctoscopy and RBL.

Ten days later she presented to the Accident and Emergency department with significant painless fresh rectal bleeding associated with systemic symptoms of dizziness and nausea. Blood pressure was 90/50 mmHg and pulse 105 beats/min. Resuscitation with oxygen and intravenous fluids was initiated. A full blood count taken on admission revealed haemoglobin of 7.7g/dl. Significant fresh rectal bleeding persisted. Rigid sigmoidoscopy confirmed the source of bleeding as the site of previous haemorrhoidal banding. A silastic irrigation catheter was inserted into the anal canal and 50mls of water used to inflate the balloon. The patient was transfused 2 units of platelets, 2 units of fresh frozen plasma and 5 units of packed red cells. Bleeding stopped without operative intervention. Two days later a flexible sigmoidoscopy confirmed the source of bleeding, with no other pathology evident to a distance of 55cm from the anoderm. The patient made an uneventful recovery and was discharged home with advice to recommence clopidogrel in 7 days.

CASE REPORT 2 A 56-year old woman was referred by her family doctor with a 3 month history of loose stools associated with intermittent bright red rectal bleeding. She had a history of

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ischaemic heart disease, hypercholesterolaemia and cerebrovascular disease with a stroke 18 months previously. Medication consisted of nicorandil, bisoprolol and clopidogrel. Flexible sigmoidoscopy and barium enema demonstrated no colonic mucosal pathology. Proctoscopy confirmed internal haemorrhoids treated by RBL. The patient was given dietary advice and discharged.

Fifteen days later she presented to the A & E department with a significant painless fresh rectal bleed associated with nausea, dizziness and light-headedness. On arrival she was peripherally shut down with a blood pressure of 80/48 mmHg and a pulse of 100 beats/min. Haemoglobin was 13.4 g/dl. After resuscitation with oxygen and intravenous fluid, rigid sigmoidoscopy confirmed the source of blood loss was from an ulcer at the site of previous haemorrhoidal banding. Further bleeding with episodes of hypotension necessitated irrigation catheter tamponade of the anal canal. Repeat haemoglobin was 7.3g/dl. Six units of packed red cells were transfused with 4 units of platelets and 2 of fresh frozen plasma. The bleeding stopped without requiring operative intervention. Three days later a gentle rigid sigmoidosopy confirmed the presence of a thrombosed vessel at the base of an ulcer where a rubber band had sloughed off, with no abnormality seen more proximally.

DISCUSSION

Rubber band ligation of haemorrhoids causes tissue necrosis and submucosal fixation of the haemorrhoid. Bands should be placed 2cm above the dentate line to prevent immediate perianal pain and discomfort.[5] Complications of RBL are well recognized. In review of over 8000 patients undergoing RBL, complications occurred in 14% of patients.[6] The commonest complication was post-procedure pain in 5.8% and haemorrhage in 1.7%.[6] Septic complications can also occur after rubber ligation of haemorrhoids.[7] Bat [3] reported three patients who required a blood transfusion after a secondary haemorrhage post-RBL. Two of the three patients were taking regular aspirin. Massive life-threatening lower gastrointestinal haemorrhage on the 17th day post-RBL in a patient taking aspirin has also been reported.[4]

Aspirin and other non-steroidal anti-inflammatory drugs act by irreversibly inhibiting cyclo-oxygenase preventing platelet thromboxane A2 formation, an important mediator of platelet aggregation. The thienopyridine derivatives (clopidogrel and ticlodipine) also inhibit platelet aggregation but by a different mechanism. They are prodrugs, metabolised in the liver to active metabolites which are non-competitive antagonists of the platelet adenosine diphosphate receptor. Bleeding is prolonged approximately twofold. Antiplatelet effect occurs 24-48 hours after administration, with maximal inhibition obtained at 3-5 days.[8] Recovery of platelet function after discontinuing these drugs is slow, 7 to 14 days or the lifespan of a circulating platelet. The combination of aspirin and clopidogrel has synergistic antiplatelet effects [8] and bleeding time is significantly increased in patients taking combined therapy.[9] Surgeons and anaesthetists should exercise great caution with patients taking both antiplatelet agents.

There has been widespread adoption of the new antiplatelet agents in the management of patients with cardiovascular, cerebrovascular and peripheral vascular disease. Compared to aspirin, the CAPRIE trial demonstrated that clopidogrel had a better side effect profile and is better tolerated by patients.[10] Sibon and Orgogozo recently highlighted the risk of further ischaemic strokes when anti-platelet drugs are discontinue.[11] In their study 4.49% of all strokes were related to discontinued anti-platelet agents, with ischaemic events occurring between 6 and 10 days after discontinuation. The risk /benefit ratio for patients taking clopridogrel and undergoing surgical procedures or investigations likely to require biopsy (such as colonoscopy) need to be addressed by clinicians. In a recently published long-term follow up of patients undergoing RBL, Gordon[12] addresses the issue of increased bleeding rates post-RBL in patients taking anti-platelet agents, non-steroidal anti-inflammatory drugs or anticoagulants. Whereas adverse events may not occur in the hands of others, it is his practice to request that patients discontinue this medication for at least 1 week prior to, and 2 weeks post-RBL.[13] These cases illustrate the rare but potential risk of significant secondary haemorrhage in patients undergoing minor surgical procedures such as RBL of haemorrhoids when taking regular clopidogrel. It is difficult to institute treatment guidelines regarding the use of anti-platelet agents with RBL of haemorrhoids on the basis of anecodote, without any supporting evidence from well-conducted randomised trials. Such hard data would be very difficult to obtain. However, in

light of our experience we recommend a change in practice.

We recommend patients discontinue clopidogrel 7 days prior to haemorrhoidal banding. For this to be practical, all colorectal referral letters should ideally be screened for patient symptoms and medication. If there is a high index of suspicion of haemorrhoidal bleeding, patients should be contacted and asked to discontinue clopridogrel 1 week prior to outpatient attendance. Patients should recommence clopidogrel 14 days post-RBL. Should, in the opinion of the clinician, the risk of discontinuing the anti-platelet agent potentially outweigh the benefit then the patient must be made fully aware of the risk of secondary haemorrhage before RBL is undertaken.

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Book Reviews

A Spoonful of Medicine: Tales of an Irish Doctor. Owen Gallagher. Barfly Books 2004. ISBN 1 903172 43 8. £5.99. pp 144.

Political correctness is all pervasive in today's world, be it commerce, politics, the arts or medicine. It has made modern life a wee bit boring. Alas, the medical profession, and the NHS in particular, is riddled with political correctness.

Owen Gallagher's debut "A Spoonful of Medicine" is a welcome riposte to this tedium. Dr. Gallagher, who hails from Ulster, qualified from Trinity College, Dublin about 30 years ago. Dublin has always had a rich and varied collection of characters who provide fertile ground for any aspiring author. In the 1970s a young and newly qualified Owen Gallagher seized this ground with some gusto.

The dozen stories in this book are really character descriptions of some eccentric and amusing colleagues and patients he encountered in a Dublin teaching hospital.

His writing style is concise, quick witted, easy to read and very amusing in places. His language is definitely Ulster English, and the better for it.

His first chapter, entitled "The Bet" is a good yarn with a wonderful twist-in-the-tail ending, worthy of Jeffrey Archer. If you are looking for a good description of an old-fashioned autocratic Consultant in pin-stripe suit do read his "Bratty" tale. The consultant was always right, even when he was wrong.

Because he is describing an era in Medicine (and in Dublin itself) that has now vanished – this book deserves a wider readership than mere medical folk. The old hierarchical structure of hospital medicine comes across vividly, reminding us that this was an age before targets, ring-fenced budgets and evidence-based medicine.

And then there is the chapter on "George", the immaculately groomed hospital porter who knew all about everything and everyone. George virtually ran the hospital, and did so very well. In this same story we come across a surgeon with the historically evocative name of Henry Joy McCracken, who reminds his medical students and junior staff that common things are common but common sense is not as common as you might think." Indeed.

If psychiatry interests you, there is plenty on that subject too. The account of interviewing a hypomanic patient is narrated with the consummate skill of a seasoned writer.

The narrative style here is anecdotal, humorous and revealing but always humane and thoughtful. The one property that comes across throughout the book is the ever present sense of fun it all was. Thanks to the author's sense of humour, wisdom and levity are never far away from one another. As Henry James once said, in a different context of course, "all human life is there".

CECIL S NORTHRIDGE