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This Issue in the Journal

Pathology reporting of rectal cancer: a national audit
J Keating, S Lolohea, D Kenwright

An audit of all pathology reports of mid- and low-rectal-cancer resections sent to the New Zealand Cancer registry in the year 2000 is reported. Deficiencies in the completeness of reports were noted, especially in the reporting of the circumferential margin status (an important predictor of recurrence and survival). Five systems are in use for staging of rectal cancer. The use of a minimum data set, the adoption of a clinical data sheet and use of one staging system would improve the quality of pathology reports.

Liver injury in children: causes, patterns and outcomes
C Wakeman, S Beasley, S Pearson, F Frizelle, A Gooding, J Sharr, B Dobbs

A study at Christchurch Hospital looked at liver injury in children and adults over a five-year period. It found that bicycles were a common cause of liver injury in children, whereas in adults car accidents were the main cause. In New Zealand, unlike some areas in the world, there is no comprehensive or compulsory paediatric-trauma audit system. Such a system would assist in the early identification of key causes of injury and would encourage public health initiatives to prevent these types of injury in children.

The Auckland experience with laparoscopic donor nephrectomy
C Muthu, J McCall, J Windsor, R Harman, I Dittmer, P Smith, S Munn

Kidneys can now be donated using laparoscopic surgical techniques. This paper reviews the results of the first 35 laparoscopic donor nephrectomies performed in New Zealand and compares them with the traditional open surgical technique. The study found no difference in donor morbidity and kidney function between the two groups. Laparoscopic donors spent less time in hospital (3 vs 6.5 days) and took less time (3 vs 6 weeks) to return to their normal activities after surgery.

Do nonsteroidal anti-inflammatory drugs affect the outcome of patients admitted to hospital with lower gastrointestinal bleeding?
D Yong, P Grieve, J Keating

Nonsteroidal anti-inflammatory drugs (NSAIDs), including aspirin, are among the drugs most commonly used by the New Zealand population. This study is one of the few that examine how these drugs affect patients admitted to hospital with bleeding from the bowel. Patients admitted to hospital with bleeding from the bowel while taking NSAIDs are significantly more likely to need blood transfusion than patients

not taking NSAIDs; however, they do not have a more frequent need for surgery to arrest bleeding.

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Changes in the pathology reporting of rectal cancer: is it time to adopt synoptic reporting?

Chris Hemmings, Mark Jeffery and Frank Frizelle

The management of localised rectal cancer is increasingly multidisciplinary and patient focused, involving the patient and family, the surgeon, oncologist, radiologist, pathologist, and others. Decision making is strongly influenced by patient preference and comorbidities, as well as tumour staging and other prognostic factors. Many of the latter are determined primarily by the pathologist. The amount and complexity of information required from the pathologist has increased apace with the development of increasingly sophisticated surgical and adjuvant or neoadjuvant treatments. Accurate, detailed and comprehensive pathology reporting has become essential, and the role of the pathologist in the multidisciplinary team is being appreciated increasingly. The paper by Keating et al in this edition of the Journal details recent standards in rectal cancer reporting on a national basis, and makes some interesting observations.[1] They challenge surgeons and pathologists to 'work together at institutional and national levels to improve the quality of rectal cancer reporting', but do not comment further on how this might be achieved.

As discussed in the Keating article, there is marked inter-surgeon variability in patient outcome following surgery for rectal cancer, and these differences affect survival as well as post-operative morbidity.[2,3] One of the most significant developments in this area has been the advent of total mesorectal excision (TME), which has been shown to reduce local recurrence from 16–30% to 3–8%.[2–5] These changes in surgical technique have required a concomitant increase in the complexity of specimen handling and pathological reporting.[6,7]

More elaborate staging procedures and detailed reporting of surgical margins have become necessary, to help determine the need for adjuvant chemotherapy and/or radiotherapy, and to predict the likelihood of local recurrence and overall prognosis for a particular patient.[4,5] In addition, detailed surgical pathology reports can assist in determining prognosis and the need for post-operative adjunctive therapy; in assessing the quality of surgery and allowing equitable comparison of surgeons in surgical audit (for example, in the assessment of mesorectal excision margins and the rate of abdomino-perineal resection); and in clinical trials. A minimum data set can now be established for rectal cancer reporting, as outlined below.[6–8]

The importance of some variables, such as circumferential (mesorectal) excision margins, was not appreciated in the early 1990s.[4,5] By 2001, commenting on mesorectal margins had become standard practice amongst those with a subspecialty interest in colorectal pathology, but was perhaps less well appreciated by others. Table 1 summarises an audit performed at Canterbury Health Laboratories, reviewing 232 pathology reports from 1 January 1996 to 31 March 2001. The figures refer to the percentage of cases that included a comment on a particular variable, in each year.

Table 1. Percentage reporting of pathological findings of rectal cancer over the period 1996–2001

	1996	1997	1998	1999	2000	2001
Number of cases	31	53	38	42	62	6
Level/APR	54	39	63	79	82	100
Longitudinal margin	100	92	95	88	90	100
TME	0	20	16	36	45	50
Thickness of tumour	0	13	18	19	34	17
Extent of spread	100	100	95	98	100	100
Circumferential margin	48	58	68	88	89	83
VP/AN involvement	45	85	79	90	92	83
Lymph node number	81	100	97	98	94	100
Peritumoural lymphocytic infiltrate and nature of margin	13	26	71	79	69	67

APR = anterior peritoneal reflection; TME = total mesorectal excision; VP/AN = vascular pedicle/apical node

These Christchurch data demonstrate that whilst most parameters show a trend to increasingly detailed reporting over time, certain parameters were often omitted, most noticeably tumour thickness and mesorectal assessment. Pathologists tend to construct free-text reports based on a sort of 'mental template', and it is therefore not surprising that if one particular piece of information (such as tumour thickness) is missing from that template, the same piece of information will tend to be overlooked in a stereotypic fashion. Appleton et al and Cross et al have shown that only when template proformas are utilised do the inclusion rates for required pathologic data approach 100%, for breast cancer and colorectal cancer specimens respectively.[9,10] In an attempt to standardise the reporting of rectal cancer resections, the protocol for handling surgical specimens at Christchurch Hospital was revised, and a synoptic report format was developed. This was instituted after the period addressed by Keating et al.[1] A follow-up audit is planned once sufficient numbers of cases have accumulated to yield meaningful results.

A number of authors have produced recommended minimum data sets for rectal cancer reporting. Variables that are common to most include the following:[6–8]

- **Tumour location**, with respect to the anterior peritoneal reflection (rectal cancer has a worse prognosis than other colonic carcinomas, and carries a greater risk of local recurrence. Patients with rectal cancer may be considered for radiotherapy, whilst those with more proximal tumours will not.)
- **Tumour size** (tumour bulk has independent prognostic significance)
- **Longitudinal resection margins** (most authors consider >10 mm clearance to be sufficient)
- **Radial margins** (local recurrence is the most important cause of morbidity and mortality in Dukes B tumours)
- **Overall pathologic tumour stage** (for example, Astler-Coller, ACPS or Jass staging)

- **The quality of mesorectal excision** (assessed on a scale of 1 to 3)

All of these variables, and some others (such as the factors included in the Jass staging system, mentioned in the Keating paper), were included in the new template at Christchurch Hospital.

In summary, the rapid development of surgical and oncologic management of rectal cancer has been paralleled by an acknowledgment of the importance of pathological reporting. The handling of the specimen, as well as minium data set reporting, is paramount in providing necessary data for optimum patient management. The addition of a synoptic report format promises to ensure that the minimum data are addressed, and may be appropriately included in all cancer reporting in future.

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Pathology reporting of rectal cancer: a national audit

John Keating, Simi Lolohea and Diane Kenwright

Abstract

Aim To audit the quality and completeness of histopathology reports of rectal cancer resections submitted to the National Cancer Registry in 2000.

Methods All 388 mid- and low-rectal-cancer specimen reports submitted to the Registry were reviewed. Reports were scored according to a pre-defined 'proforma' as to the completeness of the pathological examination and the submitted report.

Results Scores from teaching hospitals, public non-teaching hospitals and private laboratories did not differ significantly. Multiple staging systems were used in 40% of reports and no stage was allocated in 31% of reports. Circumferential margin involvement was recorded in 63% of reports.

Conclusions No significant differences exist in the quality of pathology reporting of rectal cancer between different laboratory types, either public or private. There is a lack of uniform reporting of rectal cancer stage, with multiple staging systems in use. Circumferential margin involvement is frequently omitted in spite of its documented value as an indicator of quality of rectal cancer surgery, as an important predictor of local recurrence, and its more-recently established value as a marker for distant metastasis and survival.

The age-standardised rate of colorectal cancer in New Zealand men currently heads the international table of incidence of the disease, with the rate in women being not far behind.[1] In spite of slow progress in improvement in cure rates of colorectal cancer, there has been a steady evolution in the treatment of rectal cancer over the last 20 years. Most colorectal units now report five-year local recurrence rates of under 10%, whereas even a decade ago recurrence rates up to 50% were not uncommon.[2–5] Such improvements have come about through better surgery based on a better understanding of the rectal anatomy, with significant help from radiation and, to a lesser extent, medical oncologists.[6] The management of rectal cancer continues to evolve and a recent study demonstrated that even with optimum surgical treatment short-course, pre-operative radiotherapy can further reduce the rate of local pelvic relapse.[7]

Pathological reporting of rectal cancer provides important prognostic information about the risk of both systemic relapse and local pelvic recurrence.[8,9] Ideally, the report should provide the clinician with all the known pathological variables that have been shown to influence prognosis. For the surgeon, the pathology report of a rectal cancer specimen has added significance. If circumferential margins are carefully examined and reported they provide useful feedback on the quality of surgery and an indication of the risk of local recurrence in a given patient.[10,11] Rates of local recurrence vary widely between individual surgeons, but an individual surgeon's rate may take between five years and ten years to become apparent.[12] A surrogate indicator of the quality of rectal cancer surgery and an estimate of the risk of local

recurrence in the form of circumferential margin reporting have, therefore, added importance. Accurate pathology reporting allows appropriate pathological staging, and provides an assessment of the effect of neoadjuvant therapy (if this has been given) and a guide to the need for post-operative adjuvant therapy if pre-operative treatment has not been administered. Uniformity of staging allows direct comparison of patient outcomes between centres.

Methods

All rectal cancer resection reports submitted to the New Zealand Cancer Registry for the year 2000 were reviewed. Only reports in which the specimen was unequivocally rectal as opposed to recto-sigmoid or sigmoid were accepted. The decision to include a report was based on the clinical information provided and the macroscopic description of the relationship of the tumour to the peritoneal reflection. A total of 388 rectal cancer specimens reports were reviewed. This number, lower than the estimated 700 rectal cancers removed each year, indicates that the reports reviewed were the great majority of mid- and low-rectal-cancer reports submitted to the Registry.
Data were recorded on an Epi Info 6 database and statistical analysis was performed on Epi Info 2000 statistical software (CDC, Atlanta, USA).
Reports were reviewed and the completeness of each report was scored according to the inclusion in the report of the factors listed in Table 1. Inclusion of each pathological feature scored one point. The maximum score was 12. Note was made of the source of the report: public teaching hospital, public non-teaching hospital or private laboratory. Public teaching hospitals were designated as those that supervised training of pathology trainees. The presence or absence of a synoptic summary at the end of the report was noted. No data were recorded from which patient, surgeon or individual hospital could be identified.

Table 1. Incidence of reporting of pathological features in rectal cancer resections

Feature reported	% of reports
Tumour type	100
Maximum depth of penetration of rectal wall	100
Tumour diameter	99
Tumour differentiation	99
Distance to nearest margin	98
Number of nodes examined	93
Vascular invasion	75
Stage	69
Circumferential margin involvement	63
Macroscopic description of tumour site	58
Position of positive nodes	42 (66/160 node positive cases)
Perineural invasion	37

Results

Of the 388 specimen reports reviewed, 68% were resections from male patients. Public teaching hospitals contributed 47% of reports, with public non-teaching hospitals and private laboratories providing 31% and 22% respectively. The median and mean report scores were 11 and 10.6 respectively (range 3–12). The percentage of reports citing individual pathological features are listed (Table 1). There was no significant difference in the scores from private laboratories, public teaching and public non-teaching hospitals. As might be expected, those features intrinsic to all staging systems, such as depth of penetration of the rectal wall and lymph node status,

were nearly uniformly reported. The median number of lymph nodes examined, where this number was recorded (93% of reports), was 10 with a range of 0–44. The status of the circumferential margin was reported in 63% of reports. A stage was assigned in 69% of reports, with two staging systems reported in 30% and 3 in 10% (Table 2).

Table 2. Frequency of use of staging systems in 388 reports (40% of reports included multiple staging systems)

Staging system	% of reports
Dukes	56
Jass	21
TNM	20
Astler Coller	14
ACPS*	10

*Australian ClinicoPathological Staging system

Important clinical information, especially on the pre-operative use of long- or short-course radiation or chemoradiation, was largely absent from the reports and this reflected the lack of information provided by the clinician. A tumour regression grade was thus infrequently assigned to patients who had received pre-operative radiation.

Discussion

The management of rectal cancer has undergone major changes in the last twenty years.[13] An important surgical component of this change has resulted in anatomical removal of the intact mesorectum and its investing layer of fascia for all mid and low rectal cancers, a technique variously described as total mesorectal excision (TME) or extrafascial excision (EFE).[4,6] For cancers of the upper third of the rectum the intact mesorectum is removed for at least five centimetres distal to the lower edge of the tumour.

This change in surgical technique came from a realisation that it was involvement of the lateral or circumferential margin that was responsible for the high rates of local recurrence after rectal cancer surgery.[6] Rates of up to 50% of local failure in the pelvis after surgery have been replaced by a rate of below 10% by improvement in surgical technique alone.[14] In the pathological analysis of rectal cancer resection specimens before the introduction of TME, a positive surgical margin, defined as tumour at or less than 1 mm from a margin, was nearly always followed by local recurrence in the pelvis.[10] It has recently been shown that even with optimal surgery an involved surgical margin, using the above definition, is still associated with a significant rate of local recurrence albeit at a lower rate than if surgery was sub-optimal.[11]

Careful study by the Norwegian Rectal Cancer Group has further defined the importance of the circumferential margin in rectal cancer. The risk of local recurrence increases exponentially as the distance from the tumour, or the nearest tumour deposit in the mesorectum, to the surgical margin decreases.[11] The status of the surgical margin has also been shown to be a predictor of distant metastasis and survival.[11]

The presence of vascular invasion and that of perineural invasion were recorded on 75% and 37% of reports respectively. Both features have been shown to be important predictors of tumour behaviour. Extramural venous invasion is an independent predictor of subsequent local recurrence, distant metastasis, and survival.[3,15,16] The evidence for the importance of perineural invasion is less strong, but it has been shown in some series to be a predictor of both local failure and survival.[17,18]

One pathological laboratory routinely used a synoptic report for colorectal cancer. The score from this laboratory was not significantly higher than the scores for the other laboratories. This can be explained by the proforma being generic for colon and rectal cancer and although there was a check box for 'margins' there was no separate requirement for circumferential margin reporting in rectal cancer.

Five different staging systems are currently used in the pathological staging of rectal cancer in New Zealand. Multiple staging systems were used in 40% of reports and no pathological stage was assigned in 31% of reports. The rectal cancer reports that were not assigned a stage came almost exclusively from one metropolitan centre. Pathologists from this hospital provided the data for stage assignment but did not assign a stage. The lack of assignment of a stage is understandable given the variety of systems in use and the sometimes limited clinical information provided on pathology request forms. Provided a complete data set is given the clinician can stage the patient accurately according to the preferred system with the available clinical and pathological information. The exception to this is the Jass system, which requires assessment of the character of the tumour margin and the peritumoural lymphocytic response, features not required by other systems and not required by most published minimum data sets.[19] It is beyond the scope of this paper to discuss the relative merits of individual staging systems; however, the stage assignment for the Dukes, the Australian ClinicoPathological Staging (ACPS), and the TNM system (defined by the American Joint Committee on Cancer) are similar.

This study highlights areas for improvement in the pathological reporting of rectal cancer. There is a lack of clinical information provided by surgeons for pathologists as evidenced by the low rate of macroscopic information available from the reviewed reports. The provision of a simple data sheet (Appendix 1, modified from the ACPS data sheet) would provide the pathologist with the important clinical information about the pre-operative treatment the patient has received. The rates of circumferential margin, vascular invasion and perineural invasion reporting could all be usefully improved.

The accuracy of lymph node status is related to the number of nodes examined.[20,21] The median number of nodes examined in this study, where the number was recorded, was 10 per rectal cancer specimen. The false negative rate of lymph node reporting is inversely related to the number of nodes examined.[21] In a recent study of long-term survival of patients following resection of Dukes B colorectal cancer the number of nodes examined was a strong independent prognostic indicator of survival. The five-year survival rate of patients with eight or fewer nodes examined was 54.9% compared with 79.9% for those with nine or fewer nodes examined.[22] In our study, 40.9% of specimens reported on eight or fewer lymph nodes. Clearly, the extent of surgical resection will affect the number of nodes available for examination. In addition, pre-operative long-course radiation or chemoradiation will result in tumour downstaging in the majority of patients and reduce the number of lymph nodes that

can be found in the mesorectum.[23,24] More recently, short-course radiation has been shown to produce changes in rectal cancer resection histology.[25] Efforts to increase the number of nodes examined, however, are likely to reduce the incidence of incorrect stage allocation.

The lack of a tumour regression assessment in these reports was notable given that many patients will have had pre-operative radiation. Clearly, surgeons need to provide the pathologist with appropriate clinical information on the pre-operative treatment of rectal cancer.

A previous study from the United Kingdom revealed similar deficiencies in rectal cancer reporting but with lower rates of circumferential margin reporting.[26] A minimum data set for the reporting of colorectal cancer has been defined by the Royal College of Pathologists and excellent reporting proformas are available but are not widely used.[27] The use of such proformas has been shown to improve the reporting of colorectal cancer.[28]

Improved clinical decision making about the need for adjuvant therapy to reduce the risks of both local pelvic failure and metastatic disease can be achieved if surgeons and pathologists work together at institutional and national levels to improve the quality of rectal cancer reporting.

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Appendix 1. Cancer of the colon and rectum: information data sheet for the pathologist

Patient sticker with NHI	Cancer of the colon or rectum

Mark location of the tumour and the lines of resection on the diagram.

Name of the operation performed:

Was an adjacent organ or tissue excised: yes / no. If yes please specify:

Was the operation:

curative (no obvious tumour remaining)
or palliative (tumour remaining)

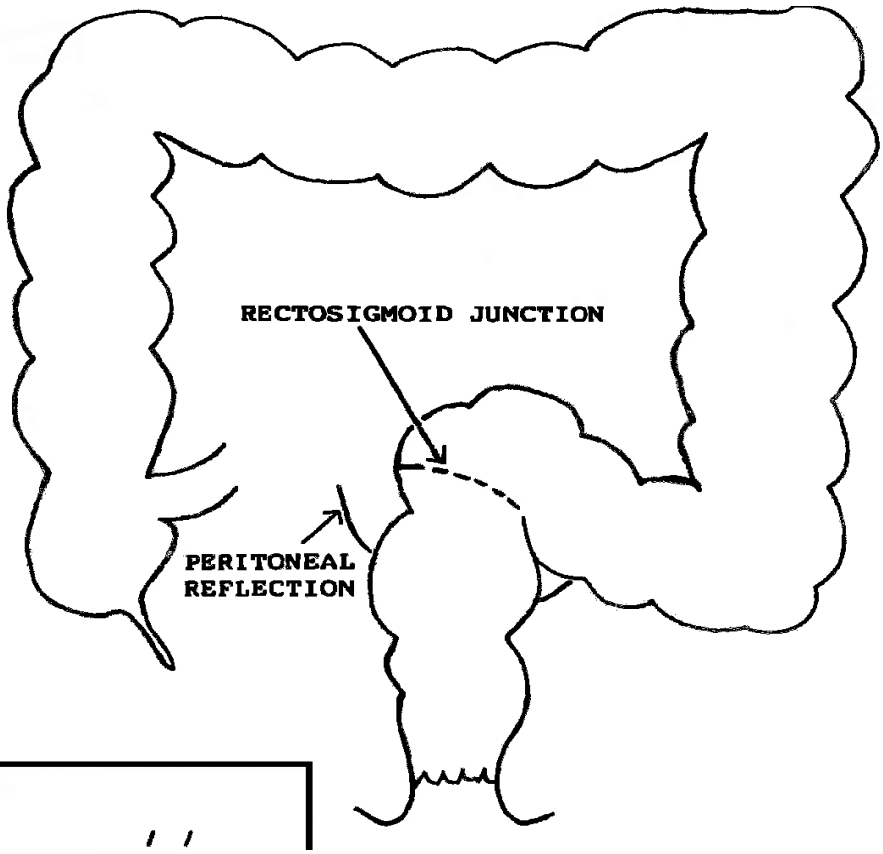
If palliative the reason was:
Tumour transected
Metastases remaining
Both

If distant metastases were present state site(s):

Was a biopsy taken: yes / no

If the tumour is in the rectum which of the following pre-operative treatments was given:

None Short-course radiation Long-course radiation Chemoradiation



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Liver injury in children: causes, patterns and outcomes

Christopher Wakeman, Spencer Beasley, Scott Pearson, Frank Frizelle, Andrew Gooding, Jeremy Sharr and Bruce Dobbs

Abstract

Aim To compare the causes, patterns and outcomes of hepatic trauma in children with those in adults.

Methods A retrospective audit was conducted of a five-year period from 1996 of adults and children admitted to Christchurch Hospital with liver injuries. Details of age, mechanism of injury, injury severity score (ISS), radiological grade of liver injury, operations and mortality were recorded and analysed.

Results There were 93 liver injuries over the five-year period: 22 in children and 71 in adults. The median age of each group was 7 and 29 years respectively. The most common causes of injury in children were bicycle (7/22) and motor vehicle accidents (MVAs) (7/22). The majority (37/71) of adult injuries were caused by MVAs. The median length of hospital stay was significantly shorter in the paediatric group: 4 days (range 1–12) in children vs 9 days (range 0–52) in adults.

Conclusions Liver trauma in children has a different spectrum of causes, and results in more severe liver injury than in adults. However, children are more likely to have an isolated liver injury that results in a shorter length of stay in hospital. A nationwide paediatric-injury surveillance system might allow better identification of preventable causes of injury.

Liver injuries occur commonly in blunt abdominal trauma.[1–4] There is little information about the cause and management of these injuries in children in New Zealand, mainly because this country has no comprehensive or nationwide paediatric-injury surveillance system. This study set out to describe the causes, management and outcome of liver injuries in children, and to compare them with those of adults admitted to the same hospital over the same time period.

Methods

A retrospective review of all patients with a discharge diagnosis of traumatic liver injuries at Christchurch Hospital, over a five-year period from 1996 to 2000 inclusive was undertaken. A ‘child’ was defined as being less than 17 years of age on the date of admission. Patients were identified using the clinical casemix/hospital coding system; both ICD-9 and -10 codes were checked. Case notes and operation notes were then analysed. Two radiologists reviewed the radiology and graded the liver injuries. Grading of the CT scans was performed according to AIS[5] and Mirvis[6] grading scores.

Results

There were 93 patients admitted with liver injuries during the five-year period reviewed; 22 were children (median age 7 years, range 1–16) and 71 adults (median age 29, range 18–85). The mechanisms of injury were significantly different in the two groups. The paediatric injuries were from bicycle accidents (7), motor vehicle accidents (MVAs) (7), pedestrian injuries (4), horse-riding accidents (2), and

miscellaneous (2). None was due to non-accidental violence. Most adult liver injuries were due to MVAs (41); other causes included non-accidental violence (9), horse-riding accidents (6) and pedestrian injuries (3). None was due to bicycle accidents.

Injury severity scores (ISS) between the two groups were virtually identical. The paediatric group had a median ISS of 17.5 (range 4–59) and the adult median score was 17 (range 5–50). This difference did not reach significance ($p = 0.7401$).

The AIS liver scores were marginally different ($p = 0.0553$): the paediatric median grade was 4 (range 2–5) and the adult median grade was 3 (range 2–5). Similarly, the Mirvis scoring system showed no significant difference ($p = 0.052$), with a median grade of 3 in the paediatric group (range 2–4) and in the adult group (range 1–4).

The operative rates between the two groups were similar – 6/22 of children admitted and 23/71 of adults – but the indications for surgery were different. In the paediatric group, three children had surgery for pneumoperitoneum on CT and suspected hollow visceral injury, and three had surgery for haemodynamic instability. In adults, only three were operated on for pneumoperitoneum; the rest had surgery for ongoing bleeding.

Mortality rates between the groups were not significantly different – 1/22 amongst children vs 9/71 in adults – but the numbers are small. One child died from uncontrolled bleeding, post-operatively in ICU. Four adults died from uncontrolled bleeding, four from cardiorespiratory failure in ICU, and one from brain death. Adults who died had a median ISS of 32 and a liver injury grade of 2, indicating that they had severe, multi-organ trauma.

Length of hospital stay was significantly different between the two groups ($p = 0.001$). The median length of stay in the paediatric group was 4 days (range 1–12) compared with 8 days in the adult group (range 1–52) days.

Discussion

The liver is an organ commonly injured in trauma.[1,4,7] In our study the vast majority of liver injuries were due to blunt trauma (67% in adults and 100% in children). This observation is similar to reported results from Europe but contrasts with those of North America and South Africa where the majority of liver trauma is due to penetrating injury.[4]

We identified a difference in the mechanisms of injury between adults and children. The majority (58%) of adult injuries were due to motor vehicle accidents. In contrast, there was a wider spectrum of causes of liver injury in children, with bicycle and pedestrian injuries being more prevalent. Bicycles have been implicated previously in Australasian studies[8] and bicycle handlebars in particular have been implicated as a cause of major intra-abdominal injuries.[3,9,10] A child being struck by a car while crossing a road is the most common cause of paediatric pedestrian injury.[9] A recent study in Auckland has indicated that there is also a high incidence of injuries to children from cars reversing in driveways.[11] In New Zealand, unlike some areas in the world, there is no compulsory or comprehensive paediatric-trauma audit system. Such an audit system would assist in the earlier identification of key causes of injury, such as bicycles and driveway-related incidents, and facilitate the introduction of public heath initiatives to reduce the incidence of these types of injuries in children.[10] There

would appear to be an urgent need in New Zealand to set up a nationwide, coordinated trauma registry for adults and children.

The severity of liver injuries is variable, ranging from a minor tear of the capsule to full disruption of the vascular supply to the liver. These injures can be graded for severity either radiologically or by clinical or intra-operative assessment. We graded liver injury according to the AIS and Mirvis systems. Grades 1 to 2 are minor and represent the majority of cases. Grades 3 to 5 are severe and usually require treatment, whereas grade 6 is fatal from disruption of the inferior vena cava or hepatic veins.[4]

Radiological grading of the severity of the liver injury appears to be of limited value in determining whether to treat the patient non-operatively or to intervene surgically.[10] The decision to intervene surgically is based primarily on whether or not the patient can achieve haemodynamic stability with resuscitation.[4,12,13] Prior to the advent of CT scanning many grade 1 and 2 liver injuries probably remained undetected, except as incidental findings at laparotomy.[3,12] Therefore, the current data relating to successful non-operative management cannot be compared with historical data for low-grade liver injury.

The move towards non-operative management for abdominal trauma was first described for renal and splenic injuries in children.[2,3,7,13–16] Soon afterwards, it was expanded to include liver trauma in children.[15] The rationale for conservative surgery was based on the observation that all bleeding had stopped by the time of laparotomy in 70% of patients operated on for liver trauma.[4,15–17] Moreover, the relatively lower anatomical position of the liver in children and their more pliable ribcage makes packing of the liver less effective; this has meant that a more radical operative approach, such as resection, has sometimes been needed.[3] Mortality and morbidity correlate more with the nature of associated injuries than the grade of liver injury.[18]

Safe, non-operative management involves careful serial examination, a CT scanning facility and close monitoring of the patient in a fully equipped high-dependency unit with trained staff to run it.[2,7] It also requires surgical and anaesthetic staff who are able to perform a laparotomy if non-operative management fails. This may necessitate transfer from a rural hospital to a trauma centre that has all the facilities required.[7,19] However, when the patient remains unstable prior to transfer despite intensive attempts at resuscitation a laparotomy to control ongoing blood loss may be required in the regional hospital.[7] Few data are available to comment on whether this approach is appropriate. Fortunately, this situation occurs rarely in children. Review of the National Paediatric Trauma Registry (USA) from 1995 to 1999 shows that only 6% of 1179 children with liver injury required surgery.[20]

In our study, we found that half the children had a laparotomy for reasons other than haemodynamic instability. Free air on X-ray suggestive of bowel perforation was the most common indication for surgery, unlike in adults where haemodynamic instability was the main reason for surgery.

Children were discharged from hospital significantly earlier than adults. Considering that the two groups had virtually identical ISS, this suggests that children recover more quickly, or that paediatric surgeons were prepared to mobilise and discharge their patients more quickly.

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The Auckland experience with laparoscopic donor nephrectomy

Carl Muthu, John McCall, John Windsor, Richard Harman, Ian Dittmer, Pat Smith and Stephen Munn

Abstract

Aims To examine the initial experience of laparoscopic donor nephrectomy (LDN) in New Zealand and compare it with open donor nephrectomy (ODN).

Methods All LDNs performed between June 2000 and June 2002 were reviewed. An equal number of ODNs were reviewed. Data were also collected on the recipients of the grafts. Key clinical data were prospectively collected; remaining data were collected by retrospectively reviewing patient charts. Auckland Hospital databases were accessed for costing analysis.

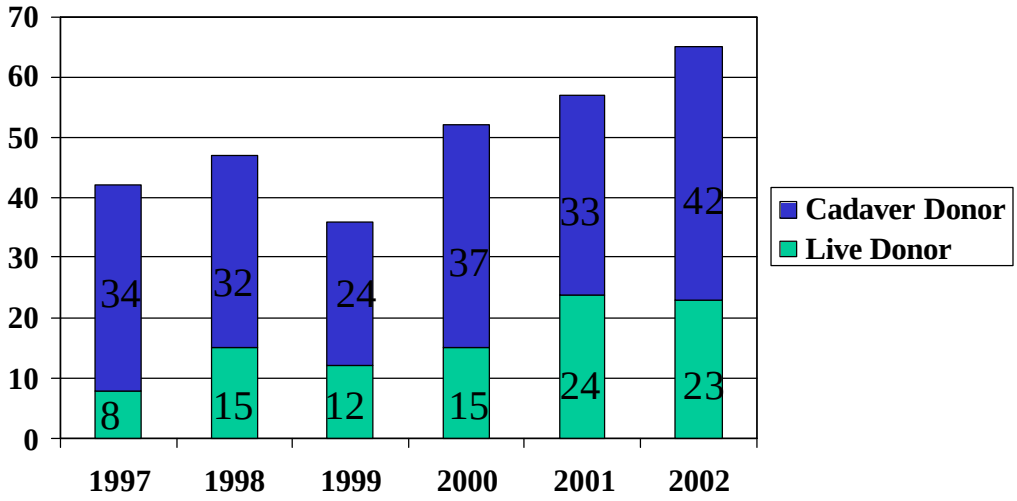
Results Thirty five cases of each procedure had been performed. There has been 100% LDN graft survival. There was no significant difference in graft function (serum creatinine) at one and 12 months ($p = 0.25$ and 0.35) between the two groups. There was no significant difference in donor morbidity (26% vs 31%, $p = 0.59$). LDN resulted in a shorter hospital stay (3 vs 6.5 days, $p < 0.0001$) and convalescence period (3 vs 6 weeks, $p < 0.0001$). LDN was significantly more expensive ($13 357 vs $6713, $p < 0.0001$).

Conclusions LDN in the New Zealand setting provides effective grafts for renal transplant recipients and is safe for the donor. Advantages for the donor are a shorter hospital stay and convalescence period. The major disadvantage of LDN is its higher cost compared with ODN.

Kidney transplantation is widely accepted as the best form of renal replacement therapy but has always been restricted by a shortage of donor organs. The waiting list for kidney transplantation in New Zealand is increasing every year and currently stands at over 300 patients.[1] The number of cadaveric donors has remained static in New Zealand for many years (Figure 1).[2]

Live kidney donation represents one strategy to increase the number of kidney grafts available. Living donor organs produce superior graft-survival rates compared with cadaveric organs. United Network for Organ Sharing (UNOS) data project the half-life of kidneys transplanted in 1995 to be 21.6 years for live donor grafts compared with 13.8 years for cadaveric grafts.[3] Open donor nephrectomy (ODN) has been performed for many years in New Zealand. In the later half of the last decade laparoscopic donor nephrectomy (LDN) emerged as an alternative technique for harvesting the kidney from living donors. LDN was first performed in Baltimore in 1995.[4] The first LDN in New Zealand was performed in Auckland in June 2000. Since its introduction the number of live donor kidney transplants performed in Auckland has increased (Figure 1).

Figure 1. Renal transplants at Auckland Hospital (1997–2002)



The possible benefits of the laparoscopic procedure over the established open procedure have been widely discussed in the surgical literature.[5–8] A literature review revealed that most published studies about LDN are audits or historical case-control studies. There has been only one randomised controlled trial published regarding LDN.[9] This was a well-designed study but had only 23 (LDN) and 27(ODN) patients in each study group. A systematic review of all available literature was published in December 2000.[5] Perceived advantages to the donor are less pain, a shorter convalescence and an improved cosmetic result. These benefits need to be achieved without any increase in morbidity to the donor and without any compromise in graft function in the recipient. The possible disadvantage of the procedure is the higher operating room cost, which is primarily related to expensive laparoscopic equipment and longer operating times.

The introduction of this new, technically demanding procedure to New Zealand was carefully planned. It involved collaboration between experienced transplant and laparoscopic surgeons, a visit to an experienced high-volume overseas unit (Mt Sinai, New York), and initial practise on a porcine model. Ablative laparoscopic nephrectomy in patients with benign renal disease was then undertaken. The first LDN was performed in June 2000. All procedures have been prospectively audited with procedural and outcome data being submitted to the Australasian Safety and Efficacy Register of New Interventional Procedures – Surgical (ASERNIP-S) database.

In this study, the outcomes of the first 35 LDN transplants performed in New Zealand are reviewed. An equal number of ODNs performed at the same institution were also reviewed for comparative purposes. The purposes of the study are to establish whether LDN in the New Zealand setting can be safely performed without any increase in risk to donor or recipient and to undertake a cost analysis comparing the open and laparoscopic procedures.

Methods

Patients Key clinical data regarding LDN were prospectively collected as part of the ASERNIP-S audit. Remaining data were collected by retrospectively reviewing patient charts. Data were collected on the first 35 consecutive donors to undergo LDN at Auckland Hospital between June 2000 and June 2002. Equivalent data were collected on 35 consecutive ODN donors from 1998 to 2002. Outcome data were also collected on the recipients of the 70 organs. Recovery time was established by a telephone interview and was defined as the time until return to work or normal activities. Inpatient stay was defined as the number of post-operative nights in hospital. The morbidity rate was calculated by dividing the number of donors with complications by the total number of donors, as some donors may have had more than one complication. The median follow up for LDN was 13 months (range 3–27) and for ODN was 35 months (range 6–49).

Donor assessment All donors met the standard selection criteria used by the Auckland Renal Transplant Group (ARTG). Initially, only those suitable for left nephrectomy were offered LDN because of concerns about right renal vein length. Since this study concluded right LDN has been successfully performed and is now routinely offered. Current indications for ODN at this unit include patient choice, multiple renal arteries (relative indication) and a very early bifurcating renal artery such that it needs to be divided flush against the aorta to get a single orifice. The vascular anatomy of the donors was established pre-operatively using either catheter angiography or CT angiography. From July 2001 only CT angiograms were used.

Operative technique LDN is performed with the patient in the lateral position under general anaesthesia. Four 5–12 mm laparoscopic ports are used. A hand port is inserted through a vertical infra-umbilical incision. Initially, a fully laparoscopic procedure was employed with the hand port being used only at the end to extract the kidney. Later cases used the hand port from the outset of the procedure. For left LDN the descending colon is mobilised medially. The attachments between the colon, diaphragm and kidney are divided exposing Gerota's fascia. The renal artery and vein are then mobilised and the gonadal and adrenal veins divided. The ureter is mobilised, taking care to avoid stripping, down to the level of the pelvic brim, where it is divided. A 5000-unit bolus of heparin is given and the renal vessels are divided. The kidney is removed and protamine is administered to reverse the heparin. The kidney is perfused with University of Wisconsin preservation solution on the back table.

ODN involved either a flank or midline incision by one of three surgeons. The choice of incision depended on surgeon or patient preference and anatomical considerations.

Post-operative care ODN post-operative analgesia involved epidural and/or narcotic patient-controlled analgesia (PCA). Analgesia for LDN consisted of a single dose of tenoxicam at the end of surgery, followed by oral paracetamol and nonsteroidal anti-inflammatory agents. Supplemental doses of opioid analgesia were used if required. Patients were discharged once they were eating and drinking, mobilising independently, and able to care for themselves.

Cost analysis Data to assess cost were collated by an Auckland District Health Board (ADHB) casemix analyst. Utilisation and cost of services information was obtained from various ADHB databases and grouped according to Ward (eg, medical, nursing, pharmacy, hotel services), Operating Room, Disposables (equipment used during surgery), and Specified services (radiology, laboratory). Cost factors were obtained from the Finance Department and the departments that provided the services. Variance, the difference between how much the inpatient event cost and the casemix funding received, was then calculated.

Statistical analysis Primary endpoints were donor morbidity, inpatient stay and time until return to normal activities. The study had 90% power to detect a 50% difference in inpatient stay or convalescence period. Data were collected on an Excel spreadsheet. Continuous data were analysed to determine whether they were normally distributed. Descriptive statistics were then used to characterise the groups. The students t test (parametric data) and the Mann-Whitney U test (non-parametric data) were used compare the two groups. Categorical data were compared using Fisher's exact test.

Results

The demographic characteristics of the two groups were similar and are summarised in Table 1. The open group included 11 right kidneys. Five kidneys procured by ODN had two renal arteries. Only one of the 35 kidneys procured by LDN had two renal arteries.

Table 1. Pre-operative characteristics of kidney donors by laparoscopic donor nephrectomy (LDN) and open donor nephrectomy (ODN)

Variable	LDN	ODN	Significance (p value)
Age (median, range)	39 (24–56)	46 (23–67)	0.15
Gender (M:F)	14:21	20:15	0.23
Ethnicity (E:P:O)	30:3:2	25:5:5	0.40
Left:right kidney	35:0	24:11	0.0004
Multiple renal arteries	1	5	0.20

E = European; P = Pacific people; O = Other

The operating times were significantly longer in the LDN group (Table 2). The mean difference in operating time was 88 minutes. The operating times in the LDN group decreased through the series (Figure 2). The mean operating time of the last five cases was 177 minutes, which is similar to the mean operating time of the open donors. Two LDN operations were converted to open procedures, one due to inadequate pneumoperitoneum and one due to bleeding. Both patients converted from LDN to ODN were included in the LDN group for the purpose of analysis.

Figure 2. Laparoscopic donor nephrectomy operating times

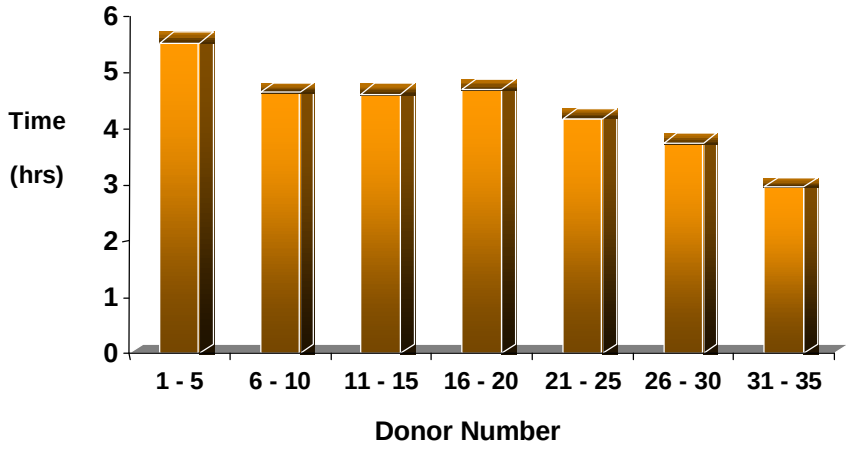


Table 2. Donor outcomes by laparoscopic donor nephrectomy (LDN) and open donor nephrectomy (ODN)

Variable	LDN	ODN	Significance (p value)
Minutes of operating time (mean, sd)	257.6 (61.8)	169.6 (38.2)	<0.0001
Days of inpatient stay (median, range)	3 (1–9)	6.5 (4–10)	<0.0001
Weeks of recovery time (median, range)	3 (1–6)	6 (2–10)	<0.0001
Morbidity rate	26%	31%	0.59

The inpatient stay and recovery time were significantly shorter in the LDN group (Table 2). On average, LDN donors spent 3.5 fewer days in hospital and returned to work three weeks sooner than ODN donors. The overall morbidity rates for the two procedures were not significantly different (26% vs 31%, p = 0.59). Also, there were no significant differences between the incidence of categories of morbidity in the two groups. There were four wound problems (infection or hernias) in the LDN group compared with five in the ODN group. There were four chest infections in the LDN group compared with six in the ODN group. One patient in the ODN group had a post-operative bowel obstruction that settled with conservative management. One patient in each group returned to theatre, for a ruptured ovarian cyst (LDN) and bleeding (ODN; this patient was the only donor in either group to require a blood transfusion).

Recipient outcomes are summarised in Table 3. All grafts from both groups functioned immediately and no patient required post-transplant dialysis. There is 100% graft survival in the recipients of LDN kidneys to date. One graft was lost from the ODN group from renal vein thrombosis. There is no significant difference in graft function at one month and one year between the two groups (Table 3). There was one ureteric complication in each of the ODN (ureteric leak) and LDN (mid-ureteric stricture) groups. Both required operative revision.

Table 3. Recipient outcomes by laparoscopic donor nephrectomy (LDN) and open donor nephrectomy (ODN)

Variable	LDN	ODN	Significance (p value)
Age (median, range)	37 (1–66)	43 (19–69)	0.08
Ethnicity (E:P:O)	30:3:2	26:5:4	0.50
Gender (M:F)	26:9	20:15	0.21
Serum creatinine at 1 month (mean, sd)	0.14 (0.05)	0.13 (0.03)	0.25
Serum creatinine at 12 months (mean, sd)	0.14 (0.04)	0.13 (0.03)	0.35

The overall cost of LDN is $13 357, almost twice that of ODN (Table 4). Most of this difference is contained in the high cost of disposable operating equipment ($6119), although a significant proportion of the extra cost of LDN is due to the extra operating time ($1851). The ward costs of LDN are $1389 less than those of ODN. However, the savings on ward costs are overbalanced by the extra theatre costs. Mean variance in funding for all procedures was $6953. The difference for the open surgery was $1062 compared with $8307 for LDN.

Table 4. Cost analysis by laparoscopic donor nephrectomy (LDN) and open donor nephrectomy (ODN)

Costs	LDN ($)	ODN ($)	Significance (p-value)
Overall (mean, sd)	13 357.02 (1436.28)	6712.83 (1083.30)	<0.0001 (t test)
Ward (mean, sd)	1745.77 (605.87)	3134.74 (713.32)	<0.0001 (t test,
OR time (mean, sd)	5297.14 (1079.08)	3445.71 (672.28)	<0.0001 (t test)
OR disposables	6119.28	0	<0.0001 (t test)
Lab/X-ray (median, range)	61.61 (0–887.66)	94.30 (0–654.07)	0.73 (Mann-Whitney U test)

OR = operating room

Discussion

This study demonstrates a positive initial experience with LDN in Auckland. The advantages to the donor are a shorter inpatient stay and convalescence period. The donor morbidity rate associated with LDN is no different than our previous experience with ODN (26% vs 31%, p = 0.59). Our morbidity rates for both LDN and ODN are higher than some reported by other authors. The most likely explanation for this is the very careful inclusion of all clinical events. These data are in keeping with data on other laparoscopic procedures where the main benefits are less pain, earlier discharge from hospital and shorter convalescence time.[10,11] Our conversion rate to the open procedure (5.7%) is similar to that reported in the world literature.[12,13]

LDN did not appear to have any disadvantages for the kidney recipient. All grafts functioned immediately and 12-month survival was 100%. There is no significant difference in recipient serum creatinine levels between the two groups at one and 12 months. Initial reports of LDN in the world literature raised the possibility of an increased rate of ureteric strictures due to stripping of the ureter during dissection.[14] This has not been our experience or that of other more recent series in the literature.[15] However, this series is small and ureteric complications are infrequent (around 5%); therefore, it is not possible to conclude with certainty that ureteric strictures are no more likely after LDN in our hands.

LDN was significantly more expensive than ODN in terms of hospital costs. The savings made on reduced inpatient stay were overbalanced by the extra theatre costs of operating time and disposable equipment. However, the operating time of LDN decreased with increasing experience and the mean operating time for the last five LDN cases was similar to ODN (177 minutes vs 170 minutes). The high cost of disposable operating equipment remains the most significant differentiating factor. Much of this stems from the cost of the hand port and stapling devices. Possible means of reducing this cost in the future need to be investigated.

One aspect of cost this study did not assess was the cost to the community of prolonged convalescence in otherwise healthy donors. The only randomised controlled trial comparing ODN to LDN found that, when loss of occupational income was considered, there was no significant difference in mean global cost between the two methods of nephrectomy.[9]

Some authors have suggested that the availability of LDN has increased donor rates thereby further decreasing the cost of renal failure to the community by decreasing the number of patients on dialysis. It is not yet known whether the availability of LDN will increase live donor numbers in New Zealand. It may be that potential donors will be more likely to come forward if they perceive that recovery from the surgery is easier and faster. However, the small risk of conversion remains and donors are therefore still required to accept the possibility of an open operation. We have not altered our selection criteria with the introduction of LDN and do not envisage doing so.

As has been the case with most laparoscopic procedures, LDN has been widely adopted before randomised controlled trials comparing it with ODN have been undertaken. It is unlikely such trials will now be mounted, as it would be extremely difficult to recruit donors for them. Future research should focus on careful audit to ensure quality control for both donors and recipients. In Australasia, ASERNIP-S coordinates a prospective database with this aim. At last report, over 180 LDNs performed in Australia and New Zealand have been entered in the ASERNIP-S audit.

In conclusion, our initial experience with LDN has been favourable. Donors spent less time in hospital and returned to normal activities sooner. Donor safety was equivalent to the open procedure but the hospital costs were approximately double. All of the grafts harvested by the LDN technique are functioning and creatinine levels at one and 12 months are no different from those harvested by ODN.

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Do nonsteroidal anti-inflammatory drugs affect the outcome of patients admitted to hospital with lower gastrointestinal bleeding?

David Yong, Philip Grieve and John Keating

Abstract

Aim To determine whether the outcome of patients admitted to hospital with lower gastrointestinal bleeding (LGB) is affected by their use of aspirin (ASA) or non-aspirin nonsteroidal anti-inflammatory drugs (NANSAIDs).

Methods A retrospective review of all patients admitted to Wellington Hospital over a four-and-a-half-year period from January 1998 with a coded discharge diagnosis that included LGB. Data were collected on requirement for blood transfusion (BT), number of units transfused, drug use, requirement for surgery, and in-hospital mortality.

Results There were 168 admissions to hospital with LGB over the study period of which, after exclusions, 146 formed the basis of this study. The mean age of patients was 69 years, with an equal gender distribution. Fifty three per cent of patients were taking medication known to interfere with platelet function (42% ASA, 18% NANSAIDs, and 7% both). Diverticular disease was the most common diagnosis. Eight patients required surgery for bleeding and there were two in-hospital deaths (1.4%). Forty three per cent of admitted patients required BT. Patients taking ASA or NANSAIDs (drug group) were more likely to receive a BT (relative risk 2.7, p <0.00001) than patients in the non-drug group. The median number of units received in transfused patients and requirement for surgery, although higher in the drug group, were not statistically different between the drug the non-drug group.

Conclusions Patients admitted to hospital with LGB while taking ASA or NANSAIDs are significantly more likely to need BT but use of these agents does not result in a more frequent requirement for surgery.

Nonsteroidal anti-inflammatory drugs (NSAIDs), including aspirin, are among the drugs most frequently used by the general population.[1,2] NSAIDs are known to be associated with both upper and, to a lesser extent, lower gastrointestinal bleeding (LGB).[2,3] They are implicated in the causation of both gastroduodenal and intestinal haemorrhage.[4–7] Although the risk of bleeding and admission to hospital associated with ASA and non-aspirin NSAID (NANSAID) use has been extensively studied, little attention has been paid to the outcome of gastrointestinal bleeding in patients on these drugs. This study was performed to test the hypothesis that patients taking ASA and NANSAIDs were more likely to need transfusion and surgery to arrest haemorrhage when admitted acutely with LGB than patients not taking these agents. Both NANSAIDs and ASA interfere with platelet function by inactivation of platelet cyclo-oxygenase, and prolongation of bleeding time appears to be an important factor

in patients admitted to hospital with gastrointestinal bleeding who are taking these agents.[8–10]

Methods

A retrospective chart review was performed on all cases of LGB admitted to a tertiary hospital from January 1998 to June 2002. A total of 168 patients were identified by reviewing notes of all patients admitted to the medical and surgical wards over the period of the study, who were over the age of 16 and had ICD-10 discharge codes relating to LGB. Twenty two patients were excluded from the study. Eight patients had iatrogenic causes of bleeding (four patients with post-polypectomy haemorrhage, three with radiation proctitis and one with bleeding after prostatic biopsy). In addition, 13 patients taking warfarin were excluded from the study and one set of case notes was unavailable leaving 146 admissions for analysis. Patients admitted with recurrent episodes of bleeding more than one month apart were analysed separately.

Data were recorded on drug use at the time of admission, need for transfusion, number of units transfused, requirement for surgery and in-hospital mortality. Requirement for surgery was defined as surgery to arrest haemorrhage during the index admission and excluded subsequent elective surgery for colorectal cancer.

Statistical analysis was performed using the chi-square test or Fisher's exact test for significance and relative risk with 95% confidence intervals.

Results

Of the 146 admissions, 124 (85%) were to surgical wards and the remainder were initially to medical wards. There was a near equal gender distribution with 77 (53%) female patients. The mean age of patients was 69 years (range 22–96). A history of NANSAID or ASA use was obtained from the notes, referral letter or subsequent enquiry in 78 (53%) of patients. Sixty one patients were taking ASA, 27 NANSAIDs and 10 were taking both. Patients taking NSAIDs were older than the non-drug group by an average of 10 years ($p < 0.004$). Two patients (1.4%) died of sepsis during the hospital admission, one 81-year-old man of pneumonia and ischaemic heart disease (IHD) after right hemicolectomy, and one 64-year-old man of staphylococcal septicaemia and IHD.

A majority of patients underwent colonoscopy. However, a final diagnosis was not available in 40% of cases because patients declined investigation, had inconclusive investigations, or were investigated in a private setting. Of those with a diagnosis, diverticular disease was the most common condition (36% of all cases) followed by colorectal cancer, colitis, colonic polyps, angiodysplasia, infective colitis and Meckel's diverticulum.

Blood transfusion was required in 62 patients (42.5%) during the hospital admission. The median transfusion requirement was 3 units (range 1–15). Eight patients (5.5%) required surgery for bleeding during the index hospital admission. The relative risk (RR) of transfusion in patients taking NSAIDs at the time of admission was 2.7 (1.7–4.4, $p < 0.00001$) compared with non-drug users (Table 1). A similar result was seen for ASA (RR 1.8, 1.2–2.6) and NANSAIDs (RR 1.8, 1.3–2.5) when analysed individually. The median number of units transfused did not differ significantly between the drug group (4 units) and the non-drug group (2 units). The relative risk of surgical intervention for bleeding was not significantly different between the drug group (RR 2.6, 0.55–12.5) and the non-drug group, either when the drug group was analysed as a whole or when it was analysed by ASA and NANSAID use individually.

Table 1. Intervention required in patients admitted to hospital with lower gastrointestinal bleeding analysed by NSAID use

	NSAID group* (n = 78)	Non-drug group (n = 68)	Relative risk	p value
Age (mean)	74	64		0.004
Gender M:F	1:1.2	1:1		
Blood transfusion (BT)	47 (60%)	15 (22%)	2.7 (1.7–4.4)	<0.00001
Units BT (median)	4	2		ns
Surgery	6 (8%)	2 (3%)	2.6 (0.55–12.7)	ns
Mortality	2 (2.6%)	0		ns

*includes ASA and NANSAID users

Discussion

The use of ASA and or NANSAIDs in this patient population admitted to hospital with LGB was high at 53%, as has been found in previous studies.[11] However, this figure is probably an underestimate, for if a careful history is supplemented by objective testing of platelet function and analysis of ASA metabolites the percentage of patients admitted to hospital with gastrointestinal bleeding taking these agents is significantly higher.[12] The discrepancy between self-reporting and objective testing for the prior use of NSAIDs is in part due to the ubiquitous nature of these agents, especially in over-the-counter preparations.[1]

The great majority of patients admitted to hospital with LGB will settle spontaneously without the need for operative intervention.[13,14] If a subgroup of patients admitted with LGB could be identified as being at higher risk of continued haemorrhage they could be managed with increased vigilance.

Recent work has demonstrated that a significant proportion of patients admitted to hospital with upper gastrointestinal bleeding (UGB) whilst taking ASA have an exaggerated prolongation of their bleeding time in response to ASA compared with controls taking ASA but not admitted to hospital.[15] ASA has been shown to prolong colonic bleeding time, when assessed by a standard technique, in a similar manner to its prolongation of skin bleeding time.[16] Clinical experience suggested that ASA and NANSAID users had more significant bleeding when admitted to hospital. We wished to determine if the use of NSAIDs, including ASA, conferred a risk for more frequent transfusion and a greater unit requirement, or an increased need for surgery.

Retrospective studies are prone to bias in terms of omission and selection. We had, however, an almost complete capture of the cases in this study and omitted only those cases confounded by warfarin use and those who had iatrogenic bleeding. It is likely that a retrospective study will underestimate the use of NSAIDs and thus increase the chance of a type II error.

The surgical intervention and mortality rates in this study were low at 5% and 1.4% respectively. This suggests that there were a larger number of less severe bleeds in this patient population than in other study populations. A low laparotomy rate makes it unlikely that a significant difference in the surgical intervention rate will be disclosed by a study of this size. There was, however, a significantly increased risk of need for transfusion in patients taking NSAIDs when admitted to hospital. There was a non-significant trend to a higher transfusion requirement and operative intervention

in the drug group. No specific protocol was in place to guide the decision to transfuse patients with lower gastrointestinal bleeding over the period of the study and the requirement for transfusion was made on clinical criteria by the attendant medical staff.

The use of NANSAIDs and ASA has been repeatedly shown to be significantly higher in patients admitted to hospital with LGB and perforation than in control hospital populations.[5] Population-based studies have reached similar conclusions.[4] These agents have been implicated as causative in some cases of LGB.[11] Only one previous study has looked at the effect of ASA and NANSAID use on outcome of patients admitted to hospital with LGB. In a similar study to this series, Wilcox found no difference in transfusion requirement, rebleeding rate, surgical intervention rate or mortality in 157 patients admitted to hospital when analysed by NSAID use.[17] There was a similar level of NANSAID and ASA use in the Wilcox study at 52%; however, the population differed in that it was almost exclusively an urban African-American population with a male predominance. As part of the same study, the use of ASA and NANSAIDs was found to be associated with less severe haemorrhage in patients admitted to hospital with UGB. It concluded that upper gastrointestinal lesions that bleed were likely to be more superficial and less likely to involve larger vessels if they were associated with NSAID use. Our study suggests that ASA and NANSAID use does affect the clinical course of patients admitted to hospital with LGB. A large prospective study is required to clarify the issue and document the size of the effect. Future studies should include objective laboratory testing to more accurately determine ASA and NANSAID use.

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How much has the introduction of laparoscopic surgery changed open surgery?

Garth Poole, Shen Ooi, Stephen Scott and Frank Frizelle

Abstract

During the last decade of the twentieth century there was a proliferation of laparoscopic surgical procedures. This has been credited with significantly improving the care and outcomes of surgical patients, despite the presence of little evidence to support such claims. Many laparoscopic procedures have developed due to the perception that they are better; however, this perception was not and is not supported by level one data (randomised controlled trial). It is hard to obtain level one data to validate the perception of advantage once a technique has become fully established. At the same time that laparoscopic surgery was developing, many other aspects of peri-operative care changed that influenced outcomes. These changes may account for many of the benefits claimed by laparoscopic surgery.

Advances in miniaturisation, camera technology, video presentation and surgical instrumentation from the late 1980s onwards allowed the abdominal surgeon to operate laparoscopically, with a good view and with instruments in both hands. Since 1990, laparoscopic cholecystectomy has been introduced throughout the Western world,[1] in a rapid and uncontrolled fashion. Evidence-based medicine played little role in this rapid dissemination of a new technique. Surgeons, industry, patients and the media drove the expansion. Fortunately, this operation has proven to be reliable, effective and reasonably safe.[1,2]

By 2000, most of the alimentary system as well as solid organs and glands had been removed laparoscopically or endoscopically, across most surgical specialties.[3] A large number of purely functional operations have also been performed. The threshold for some surgical interventions has been lowered because of the perception that laparoscopic surgery is less painful than open surgery and recovery quicker.[4]

Many surgical groups have now turned their attention from the question “Can it be done?” to wondering “Should it be done?” Doubts have arisen because of issues such as the lengthy operative time required for some procedures and the cost of specialised instrumentation. Furthermore, the use of laparoscopic surgery in cancer patients has been dogged by concern about possible port-site recurrences.[5] There is, however, mounting evidence that this is not a significant issue.[6]

The question of what should be done has led to several international trials of open versus laparoscopic surgery. In the USA the Clinical Outcomes of Surgical Therapy (COST) study is comparing outcomes of open surgery with those of laparoscopic surgery for colon cancer. Similar trials are underway in the United Kingdom, with the Conventional versus Laparoscopic Assisted Surgery in Colorectal Cancer (CLASSIC) trial, and Australia and New Zealand, with the Australasian laparoscopic colon cancer (ALCCaS) trial. These trials are not just looking at survival rates but also issues such as day stay, cost benefit and quality of life. These trials have also led us to re-evaluate

open surgery, which has often been led by expert opinion and dogma rather than evidence-based management decisions.

Minimally invasive surgery has taken much of the credit for the reduction in hospital stay, reduced morbidity and earlier return to work in elective surgical patients over the last ten years. However, many of these benefits are now seen in open surgery cases. Many aspects of peri-operative surgical care have changed and laparoscopic surgery has worked as a catalyst for these changes rather than as an autonomous influence.

The significance of the role that laparoscopic surgery has played in recent changes in surgical practice can be illuminated by posing the following three questions:

1. Is laparoscopic surgery really different from open surgery?
2. Did the laparoscopic revolution occur during a period of parallel peri-operative revolution?
3. Was laparoscopic surgery a catalyst to change in open surgery?

1. Is laparoscopic surgery really different from open surgery?

The perceived advantages of laparoscopic cholecystectomy over conventional laparotomy are shorter hospital stay, earlier return of bowel motility, less post-operative pain, better cosmesis, earlier return to normal activity, earlier return to work and hence less total cost to society, and fewer long-term complications associated with adhesions. These perceptions have been confirmed by some, but not all, randomised controlled trials.[7,–9] Similar claims that were made for laparoscopic appendicectomy[10,11] and laparoscopic hernia repair[12] have been even harder to prove. However, in many countries and with many operations, the opportunity to undertake prospective, comparative studies is now very limited due to consumer demand and expectations.

2. Did the laparoscopic revolution occur during a period of parallel peri-operative revolution?

Anaesthesia and analgesia There have been significant changes in anaesthetic practice with the introduction of short-acting, fast-emerging agents such as propofol, fentanyl and sevoflurane. Patients are recovering from their general anaesthetic faster and with less nausea and vomiting. The laryngeal mask airway, developed in 1983, has decreased irritation and trauma to the airway,[13] and has reduced induction times and recovery times by removing the need for paralysis.[13,14] Anaesthetic monitoring and safety have also improved considerably. Regional anaesthesia has become widespread and has reduced the morbidity associated with many operations.[15] Epidural anaesthesia can reduce post-operative ileus and decrease post-operative pain.[16,17] The patient-controlled analgesia (PCA) device has also increased the ability of the patient to self-regulate pain.[18]

The use of nonsteroidal anti-inflammatory drugs has decreased opioid requirements, and in turn has reduced post-operative nausea and vomiting.[19] Early return to full awareness and effective post-operative pain control allow more rapid mobilisation and this has led to a reduction in both respiratory and thromboembolic complications.[20] Newer antiemetics such as ondansetron[21] and the use of steroids as antiemetics have been added to standard regimes with increased effectiveness.

Case management Day-of-admission surgery has become the standard of practice in many institutions.[22] It effectively removes a day from the length of stay data. This needs to considered when comparing laparoscopy with historical open series. True day surgery (rather than 23-hour stay) is routine for many conditions and is increasingly used for major surgery such as laparoscopic cholecystectomy,[22–24] and laparoscopic fundoplication.

Nurses and other healthcare professionals have increased their scope of practice. Nurses are tertiary graduates and have become increasingly specialised.[25] Breast care nurses, enterostomal therapists, diabetic nurses, and palliative care nurses are found in most major hospitals.

The drive for efficiency The increasing appetite for healthcare expenditure and the limited budget for such expenditure has made rationing of healthcare inevitable.[26] Evidence-based medicine is being used by health providers to look dispassionately for the best combination of quality and cost containment. Clinical pathways, practice guidelines and protocols have become commonplace with the aim to increase efficiency and quality of care.[27–30] When there is clear evidence for a superior technique, it can be introduced rapidly. Patients also have access to an abundance of information from the Internet. They are, therefore, usually better able to actively contribute to the diagnostic and interventional decisions taken during their illness.

Conservative post-operative attitudes have changed. Many patients are mobilised, fed and discharged sooner as the dogma evaporates. The normal expectation in most hospitals, for example, is that patients go home the day following appendicectomy. The physiotherapist is involved with all 'at risk' surgical patients.[31] Earlier discharge to the community involves pre-operative discharge planning, and the involvement of social workers, occupational therapists and community nurses. The presence of post-operative rehabilitation wards may also contribute to shorter stays on the surgical ward.

3. Was laparoscopic surgery a catalyst to change in open surgery?

Without doubt, laparoscopic surgery has been a catalyst for change in many technical aspects of open surgery. The confidence to perform operations through small incisions, to mobilise, feed and discharge open surgery patients earlier, and the way we undertake operations have all changed because of the experience of laparoscopic surgery.

Hernia repair provides a good example of this. Until the early 1990s a sutured Shouldice or Bassini groin hernia repair was normal practice. Level one evidence has since demonstrated that the tension-free Lichtenstein mesh repair is the new gold standard for open surgery.[32,33] Differences in outcomes between the open mesh repair and laparoscopic mesh repair are subtle, but both are superior to sutured open repair.[32,34,35] It is feasible that the rapid introduction of laparoscopic mesh repair accelerated the acceptance of mesh repair in general, and encouraged the non-laparoscopic surgeon to rapidly adopt the best open repair possible.

Patients having laparoscopic colon resections are fed sooner and discharged earlier, often without waiting for a formed bowel motion. The confidence that it is safe to do this has been acquired from laparoscopic resections and is now applied to open resections. There are reports of patients who have had open colectomies being

discharged from hospital after two days where the operation has been undertaken through small incisions, and the patient has had peri-operative, multimodal, intensive rehabilitation.[36]

Summary

There have been significant advances in the operative and peri-operative care of surgical patients during the 'laparoscopic decade'. The technical aspects of laparoscopy have taken a lot of the credit for this. It may be, however, that properly constructed randomised trials would now show only a small difference in outcome between open surgery and laparoscopic surgery for some conditions. This could be due to parallel advances in anaesthesia and peri-operative management, and technical developments in open surgery. Laparoscopic surgery may well have been the catalyst for many of these improvements.

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Duodenal somatostatinoma: a rare cause of gastrointestinal bleeding

Christopher Wakeman, Philip Bagshaw, Justine Gearry, John Jarvis, Jane Evans and Steven Ding

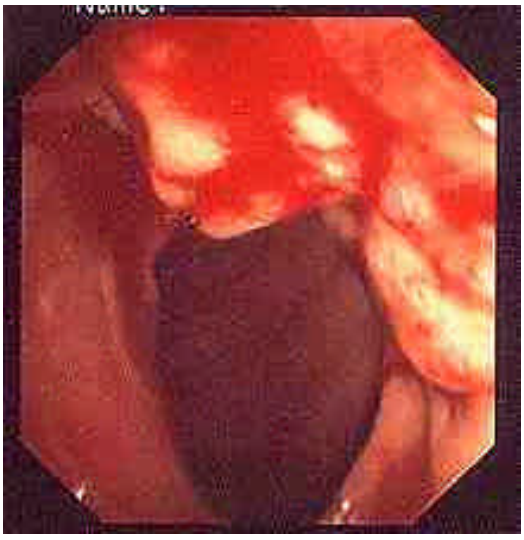
Gastrointestinal bleeding is a common cause of admission to hospital. This case illustrates a rare cause of upper gastrointestinal bleeding.

Case report

An 82-year-old man was admitted to hospital in Australia last year with upper gastrointestinal (GI) bleeding. He required a 2-unit blood transfusion but declined investigations and returned home to New Zealand. A month later he was admitted to Christchurch Hospital with a second episode of haematemesis and melaena. He had a past medical history of an aortic valve replacement but was otherwise fit. He was taking once daily enalapril 5 mg, omeprazole 40 mg and aspirin 150 mg. Review of systems revealed a history of night sweats, but no history of diarrhoea, cholelithiasis or diabetes mellitus. He was hypovolaemic and required a 3-unit blood transfusion.

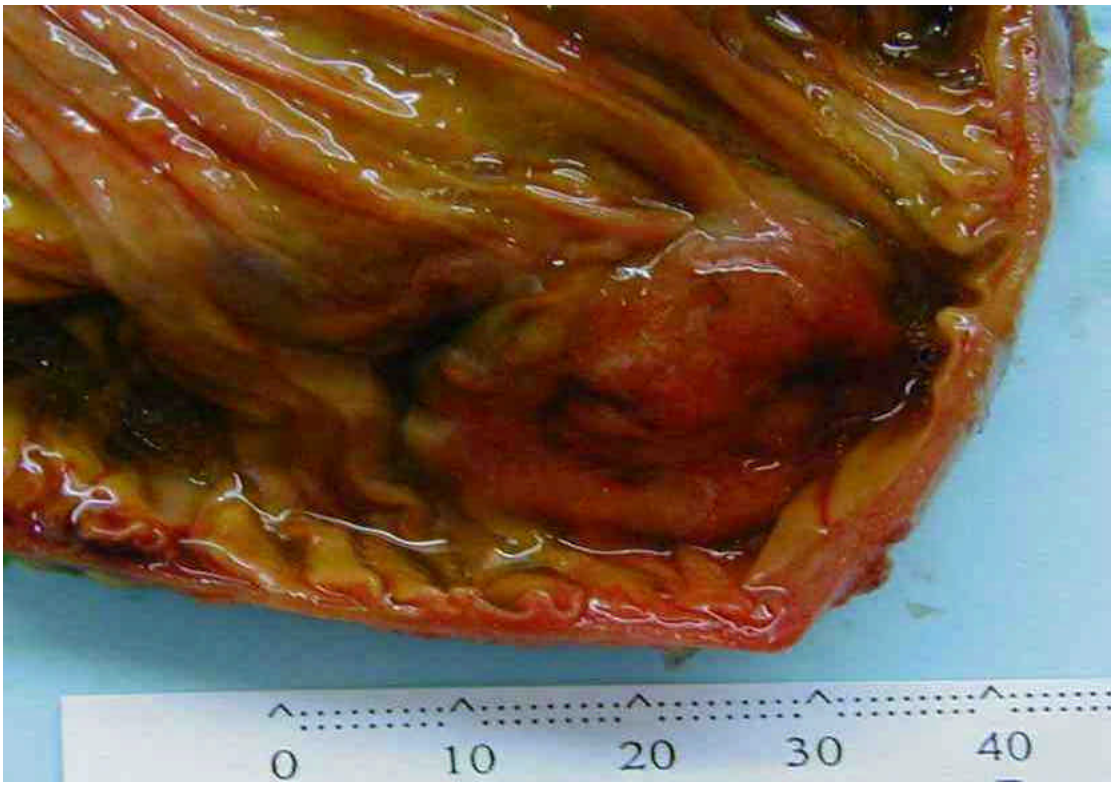
Gastroscopy on admission showed a periampullary polypoid lesion in the second part of the duodenum. It was actively bleeding and required injecting on two occasions with 8 ml of 1:10 000 adrenalin. For the second procedure a duodenoscope was used and gave a better view. As the tumour did not have a distinct bleeding site, sclerotherapy was used rather than clips or the heater probe (Figure 1).

Figure 1. Endoscopic view of tumour



Biopsies from this lesion showed a duodenal somatostatinoma. Because of the risk of continued slow bleeding the patient was prepared for surgery. A pre-operative CT scan showed a 2.5 x 1.4 cm duodenal lesion, with no evidence of pulmonary or hepatic metastases. He underwent an uncomplicated Whipple's procedure one month after presentation. A pylorus preserving technique was used with peri-operative subcutaneous octreotide (100 mcg every eight hours) (Figure 2). He was managed in the ICU for one post-operative day. He made a good recovery and was discharged home 10 days later. Histology confirmed a periampullary duodenal somatostatinoma with metastatic tumour in four out of six lymph nodes.

Figure 2. Macroscopic appearance of second part of opened duodenum



Discussion

Somatostatinomas are neuroendocrine tumours, found in the pancreas or intestine.[1,2] They arise from pluripotent D cells of the GI tract capable of secreting somatostatin. They were first described in 1977 in two case reports.[3,4] Rarely they can cause the somatostatinoma syndrome, which is more frequently associated with pancreatic than intestinal lesions. Here the excessive secretion of somatostatin is associated with a triad comprising diarrhoea, cholelithiasis and diabetes mellitus.[1,2,5] Diabetes is caused by inhibition of insulin, and is usually only mild as glucagon is also inhibited. Cholelithiasis is due to the inhibition of cholecytokinin (CCK). Diarrhoea is due to steatorrhoea, caused by the inhibition of pancreatic enzyme release, and is also due to

the inhibition of CCK. Hypochlorhydria is associated with the syndrome and is thought to be due to gastrin inhibition.[2,7]

Somatostatinomas account for less than 1% of all GI endocrine tumours.[1,2,5] Between 45% and 75% of somatostatinomas are found in the pancreas. Of the extra-pancreatic tumours, 45% are found in the periampullary region, 45% in the duodenum, and 5% in the jejunum. Duodenal somatostatinomas are unique in that they are frequently associated with Von Recklinghausen's disease (type 1 neurofibromatosis).[2,5]

This is only the seventh reported case presenting with a GI haemorrhage.[5] The majority are asymptomatic and detected as incidental finding at surgery, endoscopy or radiological investigation. Other symptoms, apart from those of the somatostatinoma syndrome, are abdominal pain, weight loss, jaundice, and nausea and vomiting.[2,3,6]

Tumour size and location determine the choice of treatment. Local resection can be performed for small tumours, but larger lesions in the periampullary region may require a Whipple's procedure. Octreotide has been used as a medical therapy for the symptoms of somatostatinoma syndrome. Chemotherapy is of debatable benefit.[1,2,5,6]

Prognosis is not determined by cytological appearance. Poor prognostic features include: size greater than 2 cm, invasion beyond the submucosa, and lymph node metastases. The five-year survival rate is 100% without lymph node spread, and 40% to 60% with lymph node involvement.[5,6]

In summary, duodenal somatostatinoma is a rare GI tumour and an even rarer cause of GI haemorrhage.

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Non-surgical approach to delayed expansion of traumatic intramural duodenal haematoma

Tanju Acar, Fahrettin Yildiz, Serdar Esgil, Basak Hosgore and Raci Aydin

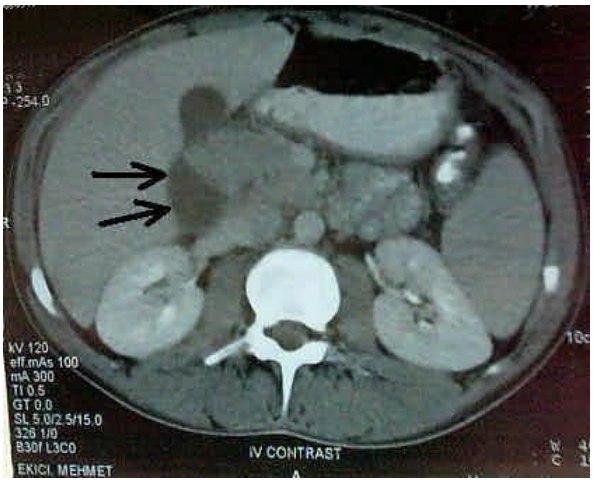
Duodenal haematoma occurs mainly in young men and children, with 82% of the patients being younger than 30 years.[1] The first known case was reported in 1838 by McLauchlan[2] and to date no more than 200 cases of such injury have been reported.[1] This paper reports an intramural duodenal haematoma following bicycle injury, which caused total obstruction of the duodenum, obstructive jaundice and pancreatitis resolving without operative management.

Case report

A 12-year-old boy fell over the handlebars of his bicycle on the day before admission. He had mild abdominal pain, and vomited undigested food once during the initial evaluation but had stable vital signs and a body temperature of 36.9^{o}C.

Abdominal examination showed a tender mass in the right upper quadrant, extending to the midline, without peritoneal signs or ecchymosis. Bowel sounds were hypoactive. Haemoglobin level was 135 g/l. White blood cell count was 8.7x10^{9}/l, total bilirubin level was 12.2 µmol/l (normal range 5.1 to 17 µmol/l), and serum amylase level was 189 IU/L (normal range 50 to 160 IU/L). Abdominal X-rays showed no air fluid levels and no free intraperitoneal air. An ultrasonography showed no fluid collection or other organ injury. The CT scan demonstrated the presence of an intramural haematoma in the second portion of the duodenum and there was no pancreatic fracture (Figure 1).

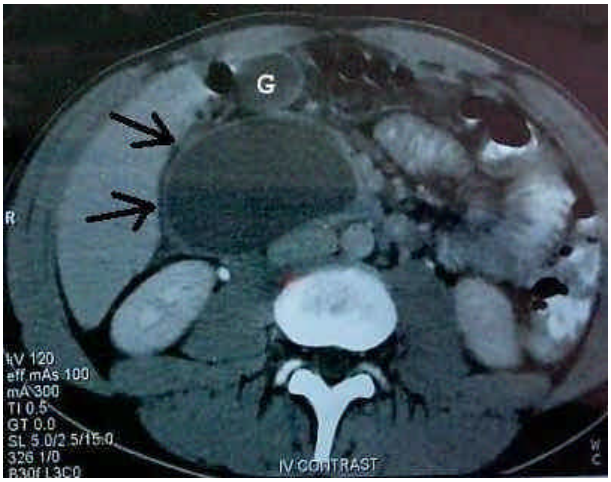
Figure 1. CT scan showing haematoma in region of duodenum



The patient was observed expectantly. There were at first no symptoms of duodenal obstruction. However, attempts at feeding were associated with abdominal pain and vomiting. Non-surgical treatment, including bowel rest and parenteral nutrition, was instituted because there were no associated organ injuries requiring immediate laparotomy. The treatment was followed by gradual improvement of symptoms.

The patient complained unexpectedly of severe pain in the epigastrium and his serum amylase level rose to 733 IU/L by the seventh hospital day. Haemoglobin declined to 93 g/l and 2 units of packed red-blood-cell transfusions were given. Total bilirubin level also increased from 12.2 µmol/l to 28.7 µmol/l within 24 hours. An enhanced CT scan revealed expansion of the duodenal haematoma (Figure 2).

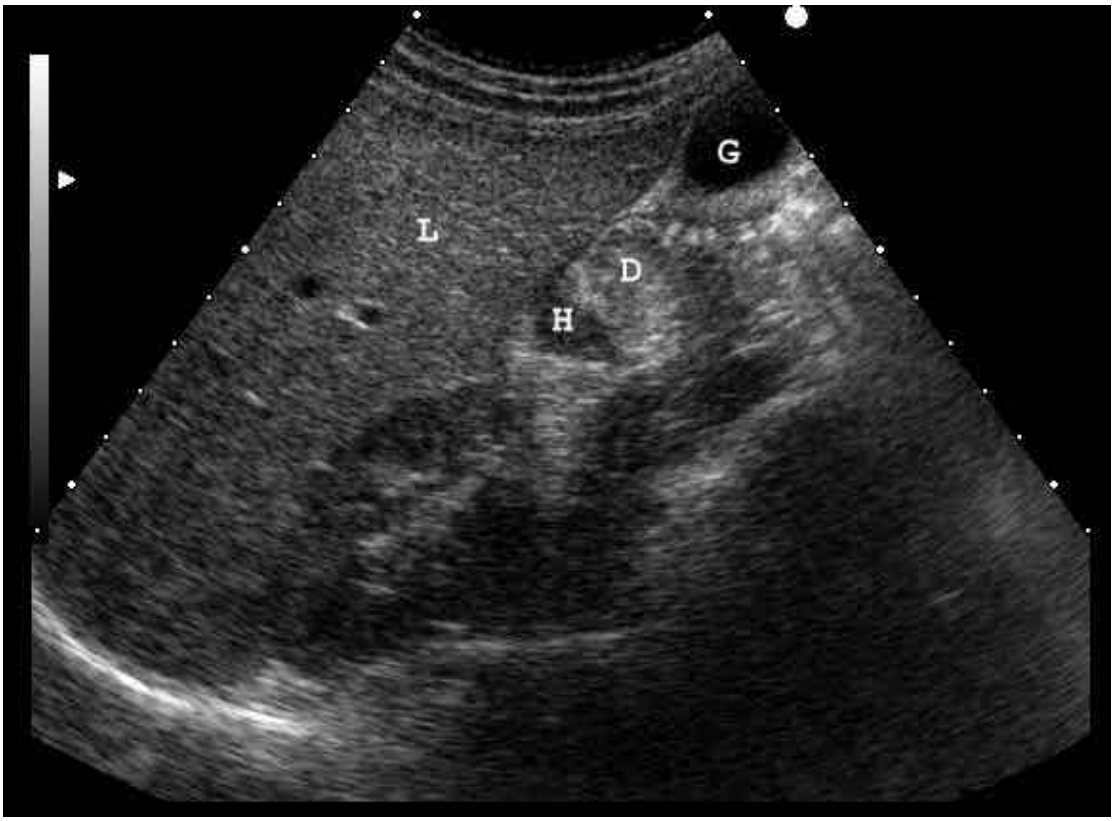
Figure 2. Enhanced CT scan on the seventh hospital day (note the enlargement of the haematoma (arrows) occupying the duodenal lumen)



We decided to proceed with surgery. The patient agreed to nasogastric drainage and intravenous antibiotics with maintained parenteral nutrition but refused laparotomy; conservative management continued. The nasogastric drainage was initially acholic.

Both the hyperamylasaemia and jaundice improved gradually over the next ten days. The tenderness in the abdomen subsided. The gastric drainage decreased from an average of 850 ml to 200 ml a day and the nasogastric drainage became bilious. Oral alimentation was begun on the 20th hospital day and the patient was discharged five days later. A final ultrasonography after normal diet had been resumed (five weeks after injury) showed a marked reduction in size of the haematoma (Figure 3) and the patient was clinically normal when discharged from follow up three months after his injury.

Figure 3. Sonography demonstrates a 1 x 2 cm mass (D) corresponding to an intramural haematoma of duodenum located inferior to the gall bladder (G). The mass is consistent with a five-week-old haematoma. H indicates the lumen of the duodenum and L indicates the liver.



Discussion

Intramural haematoma of the alimentary tract is mainly caused by blunt abdominal injuries in childhood.[3] The duodenum is among the bowel segments most commonly injured by blunt trauma. Duodenal haematoma occurs frequently in the second and third segments owing to the relatively fixed position close to the vertebral column and the rich submucosal vascular supply of these segments.[4] Shearing forces tear the intramural vasculature and cause blood to accumulate, producing a submucosal mass effect. The haematoma may increase in size over time because of either continuous bleeding or the breakdown of haemoglobin, causing an increase in the oncotic pressure in the haematoma with subsequent increase in volume.[5] This process explains the delayed expansion of haematoma in our patient.

The typical clinical picture consists of upper abdominal pain and bilious vomiting. Symptoms of duodenal obstruction are nearly always present, but ampullary obstruction is uncommon. Serum amylase is elevated in 6%, and bilirubin in 13%, of the 116 cases reviewed by Jones et al.[6]

Sonography and CT have facilitated the diagnosis of duodenal haematoma and associated lesions. The echogenicity of a haematoma on sonography varies

substantially and rapidly over time, so re-examination of the patient within a few days may be helpful.

Both surgical and non-surgical approaches have been used to treat duodenal haematomas. The recent consensus is that there is little reason for emergency laparotomy during the acute phase of trauma because of the likelihood of spontaneous resolution of the haematoma and because of the high post-operative morbidity rate, unless associated injuries of intra-abdominal organs requiring immediate laparotomy are evident.[4]

Haematoma should be suspected in the differential diagnosis if a mass is seen in the duodenum, especially in the setting of recent trauma with non-specific abdominal complaints and vomiting as illustrated by this case. There are no clear recommendations in the literature as to optimal management and no controlled trials that address treatment of duodenal haematomas. Conservative management seems reasonable, with operative intervention for those with refractory obstruction.

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Dr. BUTEMENT said he had recently brought before the Council a matter which concerned him personally. He held a hospital appointment worth £250 a year. Representations were made to the Hospital Board that the work could be done very much cheaper, and at the instigation of a certain medical man tenders were called for the billet, and one man stated he would do the work for £100 a year. He felt very strongly about the matter, as he considered it an attempt to undermine his position in order that he might be asked to resign, and he brought the matter before the Council. The Council simply passed a resolution to the effect that such conduct towards a professional brother was not quite right. If the Council had no greater power than that, he thought the Association was of very little value.

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Epidemiology of breast cancer – incidence and outcomes. D C G Skegg. Department of Preventive and Social Medicine, University of Otago, Dunedin.

Breast cancer is the most common malignancy affecting women in the world. The incidence is much higher in developed countries than in the developing world, and much of this difference can be explained by the tendency to delay child-bearing, to have fewer babies, and to avoid prolonged breast-feeding. In New Zealand the mortality rate from breast cancer ranks ninth out of 173 countries. As in many Western nations, the mortality rate had been increasing but levelled off and began to decline in the 1990s. Nevertheless, the death rate from breast cancer is 28% higher than in Australia, even though incidence rates are very similar in the two countries. New Zealand has lagged far behind Australia in conducting population-based audits of cancer management. One of the reasons for this appears to be a level of concern about privacy that was recently described as ‘extraordinary’ by Professor Jocelyn Chamberlain.

Breast cancer survival in New Zealand women 1994–2001. C Feek[1], V Stevanovic[2], C Lewis[2]. [1]Clinical Services Directorate, Ministry of Health, Wellington; [2]NZHIS, Corporate and Information Directorate, Ministry of Health, Wellington.

Objective The aim of this study was to estimate survival for women with breast cancer in New Zealand using population-based data.

Design A survey of 16 425 cases diagnosed from 1994 to 2001 inclusive from the New Zealand Cancer Registry was conducted. Information on vital status was obtained from the New Zealand Mortality Collection, with survival follow up to 31 December 2002.

Methods Main outcome measures were five-year, cumulative observed rate and relative survival. Relative survival was calculated as the ratio of observed to expected survival of a comparable group from the general population by using the Hakulinen method.

Results The analysis showed that 72.0% women diagnosed with breast cancer survived five years after diagnosis, while the five-year relative survival ratio (RSR) was 0.806. RSR was worse in patients who were socioeconomically deprived, aged 75–99 or diagnosed with distant metastases. There was a statistically significant difference in five-year RSR between Maori/Pacific Island women (0.687/0.653) and other ethnic groups (0.820, $p < 0.05$).

Conclusions Survival time is an important outcome measure used in assessing the impacts of screening and treatment. The survival rates indicate the effectiveness of

breast cancer management in New Zealand from 1994 to 2001, as well as significant differences between patient groups.

Early diagnosis of breast cancer: review of available methods. J N Cawson. Department of Radiology, St Vincents Hospital, Melbourne, Australia.

High-quality mammography remains the keystone to early breast cancer diagnosis and mammographic population screening is the only diagnostic method proven to reduce breast cancer mortality. Breast self-examination has not proved to reduce breast cancer mortality, and clinical examination adds marginally to the detection rate of mammographic screening.

The sensitivity of mammography is limited, particularly in younger women and those with high breast density or on hormone replacement therapy. Improvements in sensitivity of mammography have been demonstrated with double reading. The advent of computer-aided diagnosis (CAD) offers the possibility of increased mammographic sensitivity, although the specificity of CAD is currently low and its use adds to the time of reading.

The future of mammography lies in digital technology, which can be used in conjunction with CAD and offers the possibility of increased sensitivity and specificity at a lower radiation dose. Currently, the resolution of digital imaging is limited by the capacity of the viewing systems. The widespread introduction of digital mammography will be very expensive, but increased efficiency offers some long-term cost savings.

Recent results from high-resolution sonography used as an adjunct to mammography in women with dense breasts demonstrate significant increases in detection rates but at the cost of marked loss of specificity.

Magnetic resonance imaging (MRI), although costly, offers very high sensitivity. However, MRI has low specificity together with practical difficulties in biopsy of lesions identified. Nuclear medicine and PET scanning are not practical methods of early diagnosis but can enhance management of staging and recurrent breast cancer.

Fear of breast cancer – the role of the GP. E Sables. Pakuranga, Auckland.

The barriers to presentation in primary care with a breast lesion are discussed around a case presentation of a 40-year-old New Zealand European lady who presented to a local accident and medical clinic with a large, craggy, visible breast mass. She was very distressed and initially adamant that she had discovered the lesion that same day despite its ‘barn-door’ appearance.

Barriers to presentation include an attitude of fatalism and futility with regard to a diagnosis of cancer and the likely outcome, misinformation as regards prognosis of a breast cancer, and also a misunderstanding of significance of family history – the patient discussed had allowed her denial of the lesion to be fuelled by her negative family history. Anxiety or shyness about the physical examination or over the implications of breast surgery on the woman’s sexuality may also contribute. Attachment of a low priority to personal health when considering the needs of the rest

of the immediate or extended family, or quite simply not having the funds to either attend a consultation or mammogram may also play a part in delayed presentation.

The necessary elements to face a possible diagnosis are discussed – to be able to express the negative emotions that go with the diagnosis, to be able to limit the size of these emotions so they are manageable, and to be able to acknowledge that the reality of the threat to a woman's life of a diagnosis of breast cancer is likely to be much smaller than her perception of the threat.

The Auckland Breast Cancer Register: a special project of the Auckland Breast Cancer Study Group. V Harvey, C Benjamin, P Thompson, O Pellett, J Craik, J Whitlock, W Jones, G Poole, L Neave. Oncology Department, Auckland Hospital, Auckland.

The Auckland Breast Cancer Register has been established in response to the need for a comprehensive database of breast cancer. The database is expected to provide a powerful resource for both researchers and clinicians. The aim of this group is to accumulate essential information on the incidence and nature of breast cancer, its diagnosis, treatment and outcome. It is hoped that this will lead to more effective delivery of the clinical resources available in the Auckland region.

Data from 1425 cases, recorded between 1 June 2000 and 1 December 2002 are reported. Ethnicity was reported as: NZ European 62%, NZ Maori 5.5%, Pacific Island 5.3%, Asian 4.2% and other or unknown ethnicity 23%. Seventy two per cent of patients are over 50 years old and 44% are in the age group eligible for funded screening. A first-degree relative with breast cancer was reported by 12% of patients.

The presenting feature was a palpable lesion in 59%, while tumours were 'screen detected' in 41%, although 7% had a palpable lesion on examination at that time. In the screening age group (50–64 years), 63% of tumours are screen detected compared with only 32% in all other age groups.

Definitive diagnosis was made by core biopsy alone for 54% of patients, by fine-needle aspiration (FNA) alone for 24% of patients. Fifteen per cent of patients had both core biopsy and FNA. A diagnostic lumpectomy was required for diagnosis in 7%.

Invasive cancer was present in 84.6% (infiltrating ductal 83%, lobular 14% and other 3%) and ductal carcinoma in situ (DCIS) alone in 12.5%. Because of FNA undertaken without subsequent surgery, 2.9% could not be definitively categorised. Most tumours (48%) were small (≤2cm). High-grade tumours (grade 3) occurred in 30.6% of patients (53% <40 years and 28.5% >40 years). Mean Nottingham Prognostic Index (NPI) was 4.12 (NZ European 4.05, NZ Maori 4.66, Pacific Island 4.71 and Asian 4.48).

Surgical treatment for patients with invasive cancer was mastectomy in 54.6%, and wide local excision (WLE) in 43%; 2% had no primary surgery. Axillary dissection was performed in 94% and 39.6% were node positive. Of the patients with DCIS alone a mastectomy was performed in 34%, WLE in 65% and no primary surgery in 2%. Axillary dissection was undertaken in 18% and none was node positive.

Adjuvant therapy was given to 1017 patients (71.4%), radiation therapy was given to 76% (82% following WLE and 35% following mastectomy), hormone therapy to 58% and chemotherapy to 34%. No oncology treatment was required for 23% of patients.

At this early stage of follow up, disease has recurred in 8.4% of patients and 4.6% have died. Further follow up will give a definitive picture of breast cancer incidence, diagnosis, management and outcome.

The Auckland Breast Cancer Study Group gratefully acknowledges the support of: The New Zealand Breast Cancer Foundation, The Maurice and Phyllis Paykel Trust, Avon Cosmetics, Scottwood Group, Mary Kay Cosmetics, Webber Trust and AstraZeneca.

Treatment of screen-detected breast cancer in New Zealand. **C Muthu[1], J Collins[1], A Palmer[2], S Baker[2]. [1]Breast Service South Auckland Health; [2]BreastScreen Aotearoa, National Screening Unit, Ministry of Health.**

Introduction A national breast cancer screening programme of women aged 50–64 years began in New Zealand in December 1998 under the title of BreastScreen Aotearoa (BSA).

Aim To analyse the treatment of women diagnosed by BSA and compare this with the results published by similar overseas programmes, particularly the National Health Service Breast Screening Programme (NHSBSP) in the United Kingdom.

Methods BSA collects a wide range of data as part of its quality assurance programme. Treatment data from 1 January 1999 to 31 December 2001 were retrieved and analysed.

Results In the study period, BSA detected 1309 invasive breast cancers. Of these cancers, 43% underwent mastectomy and 56% wide local excision (WLE). Thirteen per cent of patients undergoing WLE required further surgery. The use of WLE decreased with increasing tumour size. For example, 67% of tumours <15 mm underwent WLE compared with 40% of tumours sized 20–49 mm. In comparison, in the NHSBSP, 80% of tumours <15 mm and 52% of tumours sized 20–49 mm underwent WLE. Level II axillary dissection was the most frequently performed axillary surgery (78% of patients, mean level-II harvest 14 lymph nodes). The mean waiting times were 18 days for surgery and 91 days for radiotherapy. Fifteen per cent of patients chose breast reconstruction after mastectomy (12% immediate, 3% delayed). Fifty per cent of screen-detected invasive cancers were small (<15 mm) and 73% were node negative (compared with 54% and 75% in the NHSBSP). There were 354 cases of ductal carcinoma in situ (DCIS). Of these, 36% underwent mastectomy, 59% WLE and 26% needed further surgery. DCIS made up 21% of all breast cancers (compared with 21% in the NHSBSP). The axillary surgery rate in DCIS was 22%.

Conclusions Women are being diagnosed by BSA at an early stage of their disease. Breast conserving surgery (WLE) is used less frequently in New Zealand than the United Kingdom. Areas for improvement include reducing the use of axillary surgery in DCIS and decreasing the waiting time for radiotherapy.

The Royal Australasian College of Surgeons Audit of Surgical Practice. O Ung. New South Wales Breast Cancer Institute and Westmead Hospital, Sydney.

A Standing Committee on Community Affairs of Australia's House of Representatives in 1995 advocated the establishment of a National Breast Cancer Audit following a report on the management of breast cancer.

A subcommittee of the executive of the Breast Section of the RACS, chaired by Mr Peter Malycha, was formed to design and implement a national surgical audit. Initially a paper-based pilot was conducted in Tasmania. Seed funding was obtained from the National Breast Cancer Centre (NBCC) and further Commonwealth funding allowed the development of an Access-based database, IT support and now a web-based format. Following this successful trial, software was distributed to participating surgeons in early 1999. All active members of the Breast Section in Australia and New Zealand were invited to participate.

The Breast Section managed the National Breast Cancer Audit for five years. Gradually, more surgeons have been submitting complete audit information on all treated breast cancer patients and it has in fact now become a requirement of full membership of the Breast Section to do so. Also the RACS CPD and Re-certification Programme requires surgeons to self-audit their practices annually for re-certification.

Whilst still owned by the Breast Section and its members, management of the Audit has been transferred to the Australian Safety and Efficacy Register of New Interventional Procedures – Surgical (ASERNIP-S).

Collection of such data is unique in Australia and New Zealand and is important in establishing a resource of information pertinent to an Australasian environment, rather than relying, as we have in the past, on overseas data that may be irrelevant in some circumstances.

The purpose of the National Surgical Breast Cancer Audit therefore is to:

- evaluate clinical management of breast cancer in Australia and New Zealand;
- establish a quality assurance programme for surgeons dealing with breast cancer;
- provide an outcome measure for Australian and New Zealand women with breast cancer;
- establish a resource for clinical research;
- create a suitable model for the establishment of other national clinical audits.

Breast cancer chemoprevention. P Francis. Peter MacCallum Cancer Center, Melbourne, Australia.

Data on four large, randomised trials testing tamoxifen 20 mg daily versus placebo for prevention of breast cancer have been reported and an overview of the combined results of these trials has been published. The tamoxifen prevention trials were conducted by Royal Marsden, NSABP P1, Italian and IBIS I investigators in high-risk women with the exception of the Italian trial. Overall, tamoxifen prevention trials showed a 38% reduction in breast cancer incidence. While oestrogen receptor positive tumours were reduced by almost half, oestrogen receptor negative tumours were not

reduced. To date, the combined analysis of the tamoxifen prevention trials shows no effect on all-cause mortality. Twofold increased rates of thromboembolism and two- to threefold increased rates of endometrial cancer were observed and remain a concern in terms of the risk-benefit ratio for tamoxifen chemoprevention.

Also pertinent are data from the Multiple Outcomes Raloxifene Evaluation (MORE) trial, which compared a different selective oestrogen receptor modulator – raloxifene –with placebo in postmenopausal women with osteoporosis. In the raloxifene trial an even larger reduction in the risk of breast cancer was found, leading to the study design for the NSABP STAR trial comparing tamoxifen versus raloxifene for breast cancer prevention.

While tamoxifen is well known to reduce the risk of contralateral breast cancer, the apparent greater efficacy of anastrazole for contralateral protection in a randomized adjuvant trial compared with tamoxifen has led to hopes that aromatase inhibitors may prove a suitable choice for breast cancer chemoprevention. Anastrazole will be tested in the IBIS II prevention trial.

High-risk groups – surgery. O Ung. New South Wales Breast Cancer Institute and Westmead Hospital, Sydney.

The surgeon is not merely a technician in the management of high-risk women. Often the first specialist consulted, it is essential for the surgeon to identify individuals at potentially high risk. Three situations are frequently encountered. First, a woman may be referred for evaluation and treatment of a breast condition and in the course of taking a history a potentially high-risk individual is identified. Second, the individual may have already been identified by their local doctor as at risk or perceived to be at high risk. It is the surgeon's responsibility to evaluate that risk and advise or refer appropriately. Third, a woman may be established as having a diagnosis of breast cancer and need appropriate advice about the management of the primary breast cancer, the contralateral breast and the ovaries. Commonly, the woman in this situation enquires about the risk to her first-degree relatives, particularly daughters and usually, in my experience, soon after or at the first post-operative visit if the subject has not already been broached.

Adequate counselling and provision of information must always precede surgical intervention. Prophylactic surgery is risk-reduction surgery and involves the extirpation of as much at-risk tissue as possible. Total mastectomy may be performed with or without reconstruction. Preservation of the nipple in these circumstances is controversial but cosmesis may be optimised by using a 'skin sparing' technique. For the woman unaffected by breast cancer the procedure is bilateral. For the woman presenting with a diagnosed breast cancer the discussion is considerably more complex. Individual women deal with changes in body image quite differently. With respect to this, oophorectomy is often much easier to come to terms with. For the woman with breast cancer, oophorectomy may have a dual role, if performed in place of adjuvant therapy. The menopausal side effects in the premenopausal woman may, however, be significant and age of the woman as well as risk profile requires careful consideration. Removal of the Fallopian tubes along with the ovaries is recommended.

Optimal detection and staging of breast cancer. A J Doyle. Middlemore Hospital, Auckland.

Once breast cancer has been diagnosed, imaging studies primarily address two questions: 1) is breast conserving surgery possible and 2) is the contralateral breast normal.

Until recently, mammography was the principal tool available for detecting and staging breast cancer. Its accuracy is maximised with the use of spot compression and/or magnification views. However, mammography has limitations in the dense breast, for ductal carcinoma in situ (DCIS), for invasive lobular cancer, and for posterior lesions.

Ultrasound does demonstrate cancers not visible at mammography. It is better for invasive cancer than for DCIS, although both types can be seen.

Magnetic resonance imaging (MRI) has an increasing role in selected patients. It is especially useful for showing the extent of invasive lobular cancer in the dense breast. Its role in DCIS and in screening the contralateral breast is emerging.

Computer-aided diagnosis is being studied as an adjunct to these modalities and shows promise.

PET and other scintigraphic methods have an emerging role to play in staging.

A model for staging should probably include mammography, magnification views of calcifications, ultrasound of the lesion, bilateral ultrasound in dense breasts, and MRI for invasive lobular cancer in dense breasts.

Optimum management of non-invasive and invasive cancer – breast conserving surgery vs mastectomy. O Ung. New South Wales Breast Cancer Institute and Westmead Hospital, Sydney.

Invasive cancer Most women detected through breast screening programmes have early breast cancer and are suitable for breast conserving surgery. Randomised trials, now with extensive years of follow up have reassured us that breast conserving surgery is equivalent to mastectomy in terms of long-term survival. Naturally, there are considerable differences in the cosmetic appearance of these two procedures. Radiotherapy to the breast would generally be considered a routine component of a breast conservation strategy for invasive breast cancer, though it is usually not required for the woman with early breast cancer undergoing mastectomy.

Non-invasive cancer Similarly, most screen-detected non-invasive cancers are small and suitable for breast conserving surgery. The disease, however, may at times be too extensive for breast conservation and ultimately it is the size of the breast in relation to the extent of the abnormality within the breast that determines the suitability for breast conservation. The need for mastectomy, therefore, does not necessarily equate with the severity of the primary disease. For ductal carcinoma in situ (DCIS), in fact, there is the curious paradox that mastectomy remains the gold standard of treatment. For small areas of DCIS, however, one must keep in perspective that the prognosis is

extremely good following conservation surgery and few would argue that this is the preferred treatment.

Optimal cosmesis can be best achieved with conservation surgery, thoughtful placement of incisions, and minimal removal of normal breast tissue. Clear margins are, however, an essential component of good conservation surgery and if these cannot be achieved satisfactorily mastectomy must be considered. Some women may in these circumstances wish to undergo reconstructive surgery, which may be performed at the time of mastectomy or delayed with equivalent results.

It behoves the surgeon to thoroughly discuss the options with the patient and put the relative advantages and disadvantages of surgical options into an appropriate and understandable perspective. Frequently, the better the prognosis at presentation, the more complex the discussion required.

Patient selection in breast reconstruction. J S Januszkiewicz. Middlemore Hospital, Auckland.

Who is suitable for breast reconstruction, when should it take place, and what is the best technique for the patient?

These questions are at the heart of decision making in reconstructive breast surgery. Astute clinical judgement based on solid principles is the cornerstone of any successful surgical outcome. The following principles are proposed as a foundation for the clinician's approach to breast reconstruction:

- Breast cancer care requires multidisciplinary input ('recognise your limits').
- Reconstruction must not interfere with oncologic management.
- Consider the patient's 'opposite' breast and consider the 'future'.
- Autogenous tissue is superior to alloplastic reconstruction.
- Never allow routine or mediocrity to be your master.

Recent advances in flap methodology, surgical technology and implant design have improved the standard and reliability of surgical results. However, a number of factors are proven to negatively influence outcomes. These include obesity, smoking, and radiotherapy.

Halstead maintained that no woman should have breast reconstruction. To offer it to all women with breast cancer would be misguided. The role of the plastic surgeon is to educate other members of the multidisciplinary team as to what is available, counsel the patient as to her recommended options, and thus provide the patient (and her family) with information from which she can make an informed choice.

Local recurrence after wide local excision for breast cancer at the South Auckland Breast Clinic. M Wilson, G Poole, J Collins, W Farmilo. South Auckland Breast Clinic, Middlemore Hospital, Auckland.

Aim To assess the rates of local recurrence following wide local excision (WLE) for breast cancer at South Auckland Health.

Methods A review of the breast clinic database from 1998 to 2001 was performed. The clinicopathological characteristics and treatment of the tumours were assessed. Local recurrence was defined as a second presentation with histologically proven cancer in the ipsilateral breast.

Results A total of 202 tumours in 199 patients were reviewed. Twenty four patients were converted to mastectomy after initial histology. The remaining 178 cancers were followed with a median follow up of 46.2 months. Nine women were lost to follow up.

The crude local recurrence rate was 7/178 (3.9%) and the predicted five-year recurrence rate is 6.3%. Four of these seven patients had not received radiotherapy for a variety of reasons.

Conclusions Very low rates of local recurrence after WLE in breast cancer can be achieved with attention to surgical margins and an aggressive multidisciplinary approach. If patients with invasive cancer or high-grade ductal carcinoma in situ can not, or will not, have radiotherapy then mastectomy should usually be advised.

The authors acknowledge the contribution of the SABC multidisciplinary team.

Estimating the baseline risk of recurrence/selection for referral to a medical oncologist. D J Porter. Medical Oncology Department, Auckland Hospital, Auckland.

When deciding who should be offered systemic treatment after surgery for breast cancer, two factors must be considered: the absolute benefit of the treatment under consideration for that individual and the toxicity of that treatment.

The benefit of treatment is predominantly determined by the baseline risk of relapse, which can be predicted using tumour size, grade and the number of axillary nodes involved by tumour. Prognostic models have been developed to accurately predict the risk of relapse on an individual basis and should be used.

In patients with receptor positive tumours, five years of tamoxifen substantially reduces the risk of death and, because of its low toxicity profile, should be offered to the majority of patients with receptor positive tumours, regardless of age or menopausal status. Hormonal manipulation is not beneficial for patients whose tumours are receptor (oestrogen and progesterone) negative.

Chemotherapy shows similar degrees of benefit for patients with receptor negative or positive tumours. The degree of benefit from chemotherapy appears to wane after the age of 50, but it should still be considered for patients under 65 years old with node positive or moderate- to high-risk node negative tumours, irrespective of receptor status.

The benefits of chemotherapy and hormonal manipulation are additive. The relative merits of both treatments should be considered for each person with breast cancer and conveyed to that individual so that they can make a fully informed treatment decision.

Does adjuvant chemotherapy add to hormone therapy in oestrogen receptor positive tumours in postmenopausal women? D J Perez. Dunedin School of Medicine, Dunedin.

Accumulated evidence over the past two decades has shown a consistent but small benefit from the addition of adjuvant chemotherapy to adjuvant tamoxifen in postmenopausal women with receptor positive breast cancer. The additional benefit in 10-year disease-free survival is as small as 1% in women with tumours smaller than 1 cm and negative axillary nodes, and 5% for women with primary tumours larger than 5 cm and more than 10 positive axillary nodes. Despite this, most consensus statements recommend that all women with medium- to high-risk, hormone receptor positive breast cancer should be offered chemotherapy. In support of this approach are studies reporting that women who have received adjuvant chemotherapy would subject themselves to the same treatment again for as little benefit as 1%. A contrary view has been stated on the basis of utility analysis that demonstrates the benefits of enhanced tumour control to be counterbalanced by chemotherapy toxicities.

Against this background are new developments that may enhance the outcomes of additional chemotherapy. These include evidence that anthracycline drugs deliver more benefit than CMF chemotherapy in this context and that taxanes may be even better; evidence that progesterone receptor positivity is an important predictor of benefit from tamoxifen; and evidence that giving tamoxifen concurrent to chemotherapy is likely to halve any potential benefit. These trends, if confirmed, should add weight to the case for recommending chemotherapy in addition to tamoxifen or other hormonal therapies.

Optimal therapy for large primary breast cancer. A Macann. Radiation Oncology, Auckland Hospital, Auckland.

The focus of this presentation will be the management of stage III b breast cancer at presentation (inoperable or borderline operable disease on the basis of either primary or nodal features). There is considerable heterogeneity in the biology and natural history of locally advanced breast cancer (LABC). The treatment approach to an elderly patient with a slow-growing hormone receptor positive tumour will be quite different from the approach to a young woman with an inflammatory presentation. For most patients, however, the general approach to management is to use induction systemic therapy (usually chemotherapy) followed by some form of local therapy. The reasons behind the use of induction systemic therapy are the high systemic failure rate in LABC, the well-documented utility of systemic therapy in the adjuvant setting, the potential to improve tumour resectability, and potential to institute early therapy for micrometastatic disease. The most compelling evidence for the effectiveness of systemic therapy in LABC comes from the EORTC trial, which addressed the additional benefit of adding hormone therapy (H), chemotherapy (CT), or both (H+CT) to radiation. There are now mature data showing a survival advantage individually for H, although the best outcome was seen with the combination (H+CT). With respect to local therapy, the most common approach has been the combination of mastectomy and radiation after systemic therapy, but there is increasing interest in the role of breast conserving therapies in LABC (radiation alone or in combination with wide local excision after induction systemic therapy).

Sexual health and functioning. D Akkerman. Anti-Cancer Council of Victoria, Melbourne, Australia.

Sexuality has been such a taboo subject it is only recently that a larger base of clinical investigation has been published. Sexual functioning differs from person to person and therefore standards of sexual health also vary. The literature has shown that chemotherapy, loss of a body part and fatigue associated with cancer treatment affects sexual functioning. Chemotherapy effects, such as loss of libido, may severely impact sexual function for as long as two or more years after completion of treatment. What can be done to improve quality of life for women after breast cancer, especially in the intimate area of their life? Psychological support in the form of counselling, communication skills training, self-affirmations, one-to-one peer support, and attendance at a breast cancer support group have been shown to improve women's self-esteem and, through an increase in personal skills, help their relationship with their partner.

Is HRT no longer appropriate? A J Fenton. Christchurch Women's Hospital, Christchurch.

For many women, breast cancer is being diagnosed at an earlier stage. As women survive longer and reach menopause, questions about the safety of using HRT after breast cancer frequently arise. Although there is a confirmed risk of breast cancer with postmenopausal use of HRT, there is a paucity of clinical trial data to guide us in the use of HRT in women with breast cancer. Observational studies have consistently demonstrated better outcomes for women taking HRT in this context. Both recurrence rates and mortality appear to be reduced. Limited data from the Copenhagen randomised controlled trial suggest that use of oestradiol is associated with better outcome than adjuvant therapy with tamoxifen. The minimal systematic absorption of vaginal oestrogen makes this an option for many women with genitourinary dysfunction.

Large-scale clinical trials are underway to examine the safety of HRT use. If alternative therapies are ineffective or inappropriate, HRT use may be considered. This decision should be made on an individual patient basis ensuring that the woman is fully informed of potential risks as well as benefits.

Sentinel node biopsy in breast cancer: standard of care in New Zealand? R Harman. North Shore Hospital, Auckland.

Sentinel node biopsy has without doubt been validated as an accurate staging technique of the axilla in breast cancer.

The Breast Section is currently conducting a randomised controlled study on this technique compared with the current standard of care, axillary node dissection. This study, Sentinel Node vs Axillary Clearance (SNAC) will answer some of the questions regarding this technique, importantly those regarding lymphoedema rates, morbidity, survival differences and the efficacy of the technique in the Australasian

setting. Over 650 patients have so far been randomised in this trial in 28 different centres.

Early analysis of these data has shown that the technique is reproducible in many different centres and gives us an insight into the introduction of a new surgical technique that, if shown to be safe and effective, will be an important evolution in the treatment of early breast cancer.

Many questions still remain, in particular regarding the technical aspects of lymphoscintigraphy, the significance of micrometastases, and the relevance of internal mammary node metastases.

Review of lymphoedema management. C J Wilson. Palmerston North Hospital, Palmerston North.

Lymphoedema of the upper limb is a serious complication of breast cancer treatment and may affect up to 30% of patients.

Its incidence is related to a number of factors and in particular to the extent of axillary surgery. The new staging technique of sentinel node biopsy will lessen the risk of this complication.

The key to successful management is patient education, early recognition and prompt referral to a lymphoedema therapist. Early treatment is easier and much more likely to have a good outcome.

There is considerable morbidity for the untreated patient, the increasing risk of cellulitis and resultant advancement in the degree of lymphoedema.

The fear of developing lymphoedema in an arm is second only to the fear of having a breast cancer recurrence. This fear can be allayed in centres where an effective service exists.

There may be 300–500 new cases annually in New Zealand and there are still major hospitals where funds are not allocated to providing this service.

Effective management will result in a reduced incidence and severity of lymphoedema.

Local experience in managing lymphoedema. H M Clarke. Five Cross Roads Physiotherapy Clinic, Hamilton.

Lymphoedema is an unpleasant, often lifelong arm swelling that can develop at any time – immediately, months or even decades – after axillary treatment for breast cancer. It can lead to reduced arm function, reduced earning power, poor body image and low self-esteem. Many people find living with lymphoedema more difficult than living with a cancer diagnosis. Prevention is much better than cure.

Women want knowledgable healthcare providers who can give them detailed and consistent information on lymphoedema prevention and treatment. Everyone with ‘at-risk’ arms should be advised and frequently reminded to try to avoid forever any arm trauma that may lead to infection, inflammation or bruising and anything that restricts the arm’s lymphatic drainage. Women should wear garden/kitchen gloves,

compression garments when flying overseas, and use their good arm for carrying heavy objects and for all needles and blood-pressure readings. Arm infections should be treated immediately and any swelling dealt with promptly. Established lymphoedema is likely to be permanent.

Complex physical therapy is the most effective conservative treatment of lymphoedema. It reduces swelling and discomfort, and improves lymphatic drainage and arm function. It consists of:

- exercise;
- massage;
- skin care;
- compression bandaging and/or garments.

New Zealand is short of trained lymphoedema therapists but the situation is improving. In 2003, 32 health professionals will attend two Level 1 lymphoedema treatment courses and 16 trained therapists will upskill at the Level 2 course.

A rational approach to breast pain. S A Freese. Breast Associates, Auckland.

Breast pain is a common problem for patients presenting at primary care services and breast clinics.

A simple classification is based on history and clinical examination: cyclical breast pain, non-cyclical breast pain, and extra-mammary pain. Although pain is an uncommon presenting feature of breast cancer, fear of cancer is a prominent concern amongst symptomatic women. A thorough history, careful examination, appropriate radiological imaging, and cytopathology may be required to address this concern.

Non-cyclical breast pain may be caused by pregnancy, duct ectasia, trauma, cancer, inflammatory conditions and Mondor's disease.

Extra-mammary pain is commonly referred from the costochondral junction (Tietze's syndrome), cervical or thoracic spine dysfunction, and other musculoskeletal problems. Pain from nearby organs should be considered.

If a specific pathological entity is found, management will be dictated accordingly. Investigations are, however, usually normal. The essence of management, then, includes communicating the results clearly, providing information, offering reassurance that the pain is likely to improve, and addressing underlying fears such as breast cancer or psycho/social/sexual issues.

As the aetiology of breast pain remains poorly understood, treatment is non-specific and may require trial and error. Available interventions for mild to moderate pain range from wearing a more supportive bra to lifestyle alterations, such as dietary fat reduction, smoking cessation and increasing aerobic fitness, to various natural formulations, including evening primrose oil. For women with severe prolonged pain, medication such as tamoxifen, danazol or bromocriptine may be useful. Non-responders may consider acupuncture, yoga, and counselling.

Breast infection remains a major problem in Auckland women. I T Hohaia, J P Collins, G H Poole, R W Farmilo. Middlemore Hospital, Auckland.

Aims The incidence of breast infection has been reported as declining. However, clinical experience at one hospital suggests it remains a common and difficult problem. This study was undertaken to review the frequency of admission at one hospital, and the important characteristics surrounding infections.

Methods Patients admitted with breast infection during a five-year period (1996–2001) were identified from hospital records and their case notes analysed.

Results Six hundred and thirty three admissions involving 600 women were identified over the five-year period. Forty five per cent were classified as puerperal, and 55% as non-puerperal. As expected, puerperal infection occurred in women younger (26.4 ± 0.7) than those with non-puerperal infection (33.5 ± 1.4, $p < 0.001$). Infection rates (per 100 000 per year) were highest amongst Maori women (99.83), followed by Pacific Islanders (52.22), Europeans (23.49) and Asian women (5.90). Past history of breast infection occurred more commonly in non-puerperal women (35%) than in puerperal women (16%, $p < 0.001$). Smoking rates were 51% amongst those with non-puerperal infection and 29% in those with puerperal infection ($p < 0.001$). *Staphylococcus aureus* was isolated in 70% of puerperal cases (8% of which was MRSA), and in 29% of non-puerperal infections ($p < 0.001$) where a higher incidence of anaerobic organisms was found. There was no significant difference between the antimicrobial management of both groups.

Conclusions Breast infection remains a major problem in clinical practice. Aetiological factors that might explain the high incidence of infection found in this study, particularly in non-puerperal women, will be discussed.

Breast infection: review of current management. R W Farmilo, J P Collins, G H Poole, I T Hohaia. Middlemore Hospital, Auckland.

Breast infections result in a small but significant number of breast surgery cases and can be the cause of much morbidity for those affected.

Abscess formation can be everted in lactational infections by early use of antibiotics targeting *Staphylococcus aureus*. Abscesses can be diagnosed by needle aspiration or ultrasound scan and may resolve with repeated aspiration and antibiotic cover, or require incision and drainage.

Smoking is a recognised risk factor in non-lactational breast abscesses. These abscesses are usually peri-areola in position, and frequently have an associated mammary duct fistula or blocked lactiferous duct. Anaerobic organisms can be cultured in up to 50% of cases and many will be associated with underlying duct ectasia and nipple retraction. Simple incision and drainage of these abscesses leads to frequent recurrence and definitive treatment requires excision of the underlying blocked lactiferous duct. Multiple abscesses or fistulae may require excision of all the major ducts (Hadfield's procedure).

Core biopsy of radial scars. J N Cawson. Department of Radiology, St Vincents Hospital, Melbourne, Australia.

Background and Methods Radial scar is a benign spiculated lesion which mimics breast cancer on mammography and sonography and is usually managed by excision biopsy. There is a reported association with breast cancer, atypical ductal hyperplasia and other risk lesions. A number of studies have sampled radial scars (RS) with stereotactic needle biopsy (SCNB). In this paper, a series of mammographically detected RS from a screening programme were sampled by core biopsy, followed by surgical biopsy.

Results 63 RS were sampled by core biopsy, 55 (87%) using SNCB and 8 (13%) with ultrasound. RS was diagnosed pre-operatively by core biopsy in 51 of the 62 excised cases, 82% (95% CI 70–91%). The sensitivity for SNCB was 85% (95% CI 73–94%). Of the 54 excised SNCB cases, four had co-existent ductal carcinoma in situ (DCIS) at surgical excision, of which SNCB identified DCIS in one case and atypical ductal hyperplasia (ADH) in three.

The likelihood of diagnosing RS and ADH/DCIS was much greater if five or more core samples were taken (odds ratio 4.0) In the entire group of 75 radial scars there were five cases with associated DCIS (7%), and no invasive carcinomas.

ADH was present in association with 42 of the 74 radial scars surgically excised (57%). Twenty nine of these were pre-operatively sampled by SNCB. ADH was found in 21 cases, 72% (95% CI 53–87%).

Conclusions The sensitivity of SNCB in identification of radial scars was 85%. In four cases with DCIS, SNCB revealed either ADH or DCIS, which both require excision. These results confirm previous findings suggesting that radial scars may be safely managed by SCNB and mammographic follow up. Spiculated abnormalities with discordant SNCB results require surgical biopsy.

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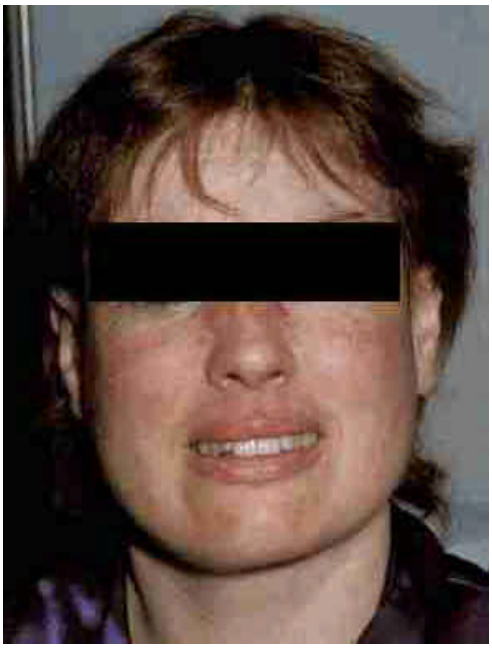
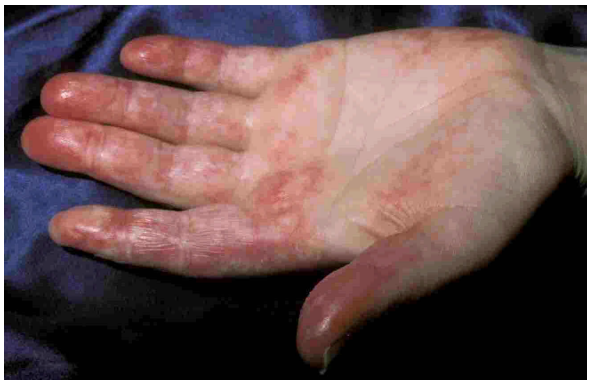
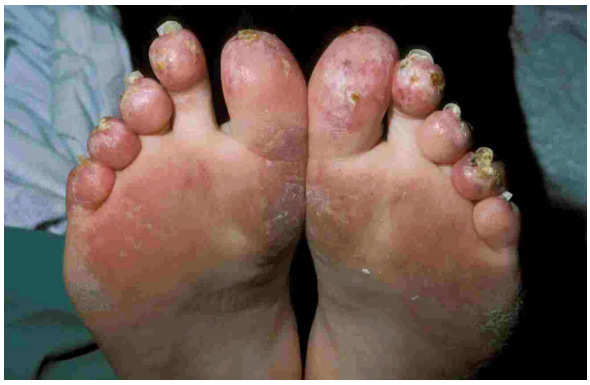
Disabling acrocyanosis







The diagnosis can be found on the following page.

Diagnosis

This 36-year-old woman has digital ischaemia, malar rash, interstitial lung disease and a diagnosis of systemic lupus erythematosus (SLE). She recently underwent thoracoscopic sympathectomy for her digital ischaemia.

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New South Wales cracks down on commercial scanning

Medical entrepreneurs who run Australia's fast growing whole body scanning industry have vowed to fight a government crackdown on the practice after claims that the procedure poses a danger from radiation.

The New South Wales government has imposed a range of new conditions on operators of the computed tomography (CT) scanners, which can identify a range of health conditions.

Owners and operators of CT machines could now face fines of up to $A165 000 or two years in jail, or both, for breaches of the controls. It is now illegal to perform whole body CT on a member of the public without a written request from an independent doctor and unless the person undergoing the scan has the health risks involved fully explained.

Companies offering whole body screening advertise widely in daily newspapers, with slogans such as: 'In just 30 seconds we might find something your doctor may not find for ten years.'

Defenders of the scanning services claimed last week that the new regulations were not based on science and were an unfair attempt to damage an industry by a Labour state government that did not like the commercialisation of medicine.

BMJ 2003;326:1350

SSRIs: suicide risk

The UK Medicines and Healthcare Products Regulatory Agency (MHRA) has announced that the antidepressant paroxetine should no longer be prescribed to patients under 18 years old. The Agency made this announcement after reviewing previously unreleased efficacy and safety data from the manufacturer, GlaxoSmithKline (one randomised trial was published in July last year in a US child-psychiatry journal).

The new advice follows promptly from a late-May review of paroxetine by the MHRA. The data come from nine studies in particpants under 18 – just over 1100 patients received the drug. The frequency of emotional lability (crying, mood changes, attempts at self-harm, suicidal thoughts and attempts) was 3.2% in those taking paroxetine compared with 1.5% in those on placebo. There were no deaths. There was no difference in efficacy against major depressive disorder between paroxetine and placebo, according to the MHRA.

The Agency is 'urgently investigating whether there are any grounds for thinking the new data could have been provided sooner'. A spokesperson for GlaxoSmithKline told *The Lancet* that 'the company strongly refutes any allegation of withholding data or in being slow in bringing forward data'.

Paroxetine is a selective serotonin-reuptake inhibitor (SSRI), which is not licensed for this age group but can be prescribed with the individual doctor taking reponsibility.

There were about 4 million prescriptions for paroxetine last year, and about 8000 of these were for patients aged under 18.

Lancet 2003:361;1999

Lessons from stroke prevention in atrial fibrillation trials

Atrial fibrillation predisposes to left atrial thrombus formation and carries a sixfold increased risk for stroke. Antithrombotic therapies are the mainstay for stroke prevention. The National Institute of Neurological Disorders and Stroke-sponsored Stroke Prevention in Atrial Fibrillation (SPAF) studies assessed the value of warfarin, aspirin, and their combination for preventing stroke in six multi-centre trials involving 3950 participants.

Warfarin and aspirin reduce stroke. Anticoagulation substantially benefits high-risk patients with atrial fibrillation, while many younger patients with atrial fibrillation have a low stroke rate when given aspirin. Pathogenetic and transesophageal echocardiographic correlations shed light on mechanisms by which anti-thrombotic agents prevent stroke. Warfarin inhibits formation of atrial appendage thrombi and markedly reduces cardioembolic strokes, while aspirin primarily prevents smaller, noncardioembolic strokes. The SPAF III stroke risk stratification scheme has been validated for identifying patients with high versus moderate versus low risk for stroke. Women with atrial fibrillation benefit from anticoagulation significantly more than men do. Many elderly patients with recurrent paroxysmal atrial fibrillation have high rates of stroke.

Antithrombotic prophylaxis should be individualised on the basis of the estimated risk for stroke during aspirin therapy and the risk for bleeding during anticoagulation. Overall, nearly one third of patients with atrial fibrillation are low risk and should be treated with aspirin, and about one third are high risk and should receive warfarin if it can be given safely. For patients at moderate risk for stroke, patient preferences and access to reliable anticoagulation monitoring are particularly relevant.

Ann Intern Med 2003;138:831–8

Leisure activities and the risk of dementia in the elderly

Participation in leisure activities has been associated with a lower risk of dementia. It is unclear whether increased participation in leisure activities lowers the risk of dementia or participation in leisure activities declines during the preclinical phase of dementia.

A recent study has examined the relation between leisure activities and the risk of dementia in a prospective cohort of 469 subjects older than 75 years of age who resided in the community and did not have dementia at baseline. It examined the frequency of participation in leisure activities at enrolment and derived cognitive-activity and physical-activity scales in which the units of measure were activity-days per week.

Over a median follow-up period of 5.1 years, dementia developed in 124 subjects. Among leisure activities, reading, playing board games, playing musical instruments, and dancing were associated with a reduced risk of dementia.

Results were similar for Alzheimer's disease and vascular dementia. In linear mixed models, increased participation in cognitive activities at baseline was associated with reduced rates of decline in memory.

Participation in leisure activities is associated with a reduced risk of dementia, even after adjustment for baseline cognitive status and after the exclusion of subjects with possible preclinical dementia. Controlled trials are needed to assess the protective effect of cognitive leisure activities on the risk of dementia.

N Engl J Med 2003;348:2508–16

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Lignocaine neurotoxicity

I was surprised to read, in the case report by Rodins and his colleagues (http://www.nzma.org.nz/journal/116-1177/500/), that 4% lignocaine is still used for bronchoscopy, or indeed that such a preparation is still available.[1] We learnt more than 40 years ago that 2% plain lignocaine provides successful topical analgesia for bronchoscopy. The 2% solution allows an adequate volume without danger of toxic overdose. Plain lignocaine can be absorbed from mucous membranes rapidly enough to produce systemic effects similar to those following intravenous injection.

Basil R Hutchinson
Honorary Consultant Anaesthetist
Green Lane Hospital, Auckland

Reference:

1. Rodins K, Hlavac M, Beckert L. Lignocaine neurotoxicity following fibre-optic bronchoscopy. NZ Med J 2003;116 (1177). URL: http://www.nzma.org.nz/journal/116-1177/500/

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Detection of Down's syndrome

The medical image in the 6 June 2003 edition (http://www.nzma.org.nz/journal/116-1175/466/) notes the possibility of evaluating presence or absence of the fetal nasal bone at the time of the 11–14 week nuchal translucency (NT) scan. Readers should be aware that the recently published UK SURUSS study identified the best combination of serum tests to use with NT scanning for detecting Down's at the lowest possible false-positive rate.[1] The study concluded inter alia that NT measurement should not be used on its own as it does not give acceptable detection or false-positive rates.

Subsequent advice from the UK National Screening Committee states that other ultrasound markers, including absence of the nasal bone, should only be assessed in the context of a peer-reviewed research study and with the explicit consent of the woman to participate in such research.[2] A similar approach should be taken in New Zealand.

Ashley Bloomfield
Public Health Leader, National Screening Unit

Pat Tuohy
Chief Advisor, Child and Youth Health
Ministry of Health
Wellington

Reference:

1. Wald NJ, Rodeck C, Hackshaw AK, et al. First and second trimester antenatal screening for Down's syndrome: the results of the Serum, Urine and Ultrasound Screening Study (SURUSS). Health Technol Assess 2003;7:1–88. Available online. URL: http://www.hta.nhsweb.nhs.uk/fullmono/mon711.pdf Accessed July 2003.
2. National Screening Committee. Antenatal screening for Down's syndrome. National guidance on policy and quality management. 25 April 2003. Available online. URL: http://www.nelh.nhs.uk/screening/dssp/Guidancepolqual.pdf Accessed July 2003.

Response

I would concur with the comments made by Bloomfield and Tuohy raising a caution about evaluating the presence or absence of the fetal nasal bone at the time of an 11–14 week nuchal translucency (NT) scan to screen for Down's syndrome. However, any non-invasive fetal assessment that may increase the sensitivity of screening for karyotypic abnormality in the fetus, with the added bonus of decreasing the false-positive rate, is to be cautiously welcomed.

The low false-positive rate for this screening is so critical because the diagnostic test offered as a result of being screen positive, either chorionic villus sampling or amniocentesis, has an inherent pregnancy loss rate of 0.5–1%. A recent publication by Cicero et al lends further credence to the concept that nasal bone identification or

absence may increase the utility of a single scan at 11–14 weeks to screen for Down's syndrome.[1] However, it does not take this additional ultrasound assessment out of the arena of research interest into that of everyday clinical application. New Zealand currently lacks a national screening policy in relation to antenatal detection of Down's syndrome. This screening is therefore offered very much on an individual centre, and even individual pregnant woman/lead maternity carer, basis. Some services offer amniocentesis to women over 37 years with the promise of a 30% detection rate for a 5% false-positive rate. Others offer a combination of NT scan, plus serum screening at 16 weeks (if the individual elects to pay for it) and a scan at 18 weeks, with potential detection rates ranging from 60–75% if a similar 5% false-positive rate is chosen.[3,4]

The performance of the NT scan is very much enhanced by combination with maternal serum screening – the combined test with free beta-hCG and PAPP-A giving 85% detection for a false-positive rate of 6%.[5] This screening is not currently offered within New Zealand. It may be, in view of the resource implications, that nasal bone identification can help us improve the sensitivity and lower the false-positive rate of the NT scan with the only additional cost being the necessary operator training. So, yes, the correlation of absence of the fetal nasal bone with trisomy 21 is of great interest and ultrasound pictures such as those featured in this journal are very elegant. But please, let us hold our 'scan head horses' until this test has been prospectively validated and, if appropriate, introduced in a systematic way accompanied by the necessary counselling, operator training and quality assurance.

Given the ad hoc nature in which NT scanning is now occurring in New Zealand and the variability of the counselling that is offered in relation to this test, our energies should currently be directed towards formulating and implementing a national policy for screening for Down's syndrome.

Rosemary Reid
Consultant Physician, Department of Obstetrics and Gynaecology
Christchurch School of Medicine

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Problems with cold and damp housing among Pacific families are not due to ignorance

The study published in the last issue showing poor Pacific families who live in damp, cold houses get sick (http://www.nzma.org.nz/journal/116-1177/494/)[1] gives the impression that living in a cold, damp house is a lifestyle choice and people simply need education to show them how to live healthier lives.

The problem is not that families are too ignorant to heat and ventilate their homes. The real problem is the cost of adequate housing and heating against the income of families. As noted in the study, families in poor-quality housing had financial problems with housing costs. This is consistent with earlier work that found one quarter of low-income families were spending more than half their income on housing, with most families spending more than 30 per cent of their income on rent or mortgage repayments.

Absurdly high housing costs restrict the ability of families to spend on other necessary items such as heating or food. Food often or sometimes runs out because of a lack of money for one half of all Pacific people. Children in poor families in this country share beds, have no winter coats and go to school without exercise books to work in.

Why do we have so many poor families paying so much of their income on housing and still living in cold, damp places? Between 1992 and 1999 Housing New Zealand sold over 10 000 state rental units and moved to market-based rents. By 2002 there were 11 000 families on the waiting list for state housing. The housing needs of those 10 000 households did not go away. Market rental rates meant higher rents.

It is unlikely to be coincidental that the relative decline in life expectancy for Maori and Pacific people began with the public policy restructuring of the 1980s and 1990s.

Ignorance is *not* likely to be the cause of Pacific families becoming ill from living in cold houses. Education regarding the importance of home heating and ventilation is unlikely to be beneficial.

Public policy changes – such as fully reinstating state housing, ensuring that all landlords (including Housing NZ) provide insulation in their rental houses, inflation-adjusted child benefits and making child benefits available to all children irrespective of the source of income of their parents – are much more likely to be effective in preventing illness.

Gay M Keating
Public Health Association of New Zealand
Wellington

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1. Butler S, Williams M, Tukuitonga C, Paterson J. Problems with damp and cold housing among Pacific families in New Zealand. NZ Med J 2003;116(1177). URL: http://www.nzma.org.nz/journal/116-1177/494/

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Response

We would like to thank Dr Keating for responding to our recent publication regarding problems with damp and cold housing in the Pacific community.

We acknowledge that quality housing and affordable heating is an issue for many New Zealand families. It is agreed that healthy public policies, including access to affordable, warm housing, are an important consideration, as already suggested in our paper.

Ignorance was not a factor raised in our discussion. Feedback from Pacific staff carrying out interviews indicated that provision of information regarding heating, ventilation and mould control would be useful. Such information is only one suggestion to improve housing conditions in the immediate term as more intensive, longer-term programmes are required to rectify ongoing housing problems. We understand that a 10- to12-year project is already underway to upgrade much of the older state housing stock (http://www.hnz.co.nz/aboutus/initiatives/energy.htm) and much progress has been made with the Healthy Housing Project designed to improve living environments (http://www.hnz.co.nz/aboutus/initiatives/healthyhousing.htm).

Sarnia Butler

Maynard Williams

Colin Tukuitonga

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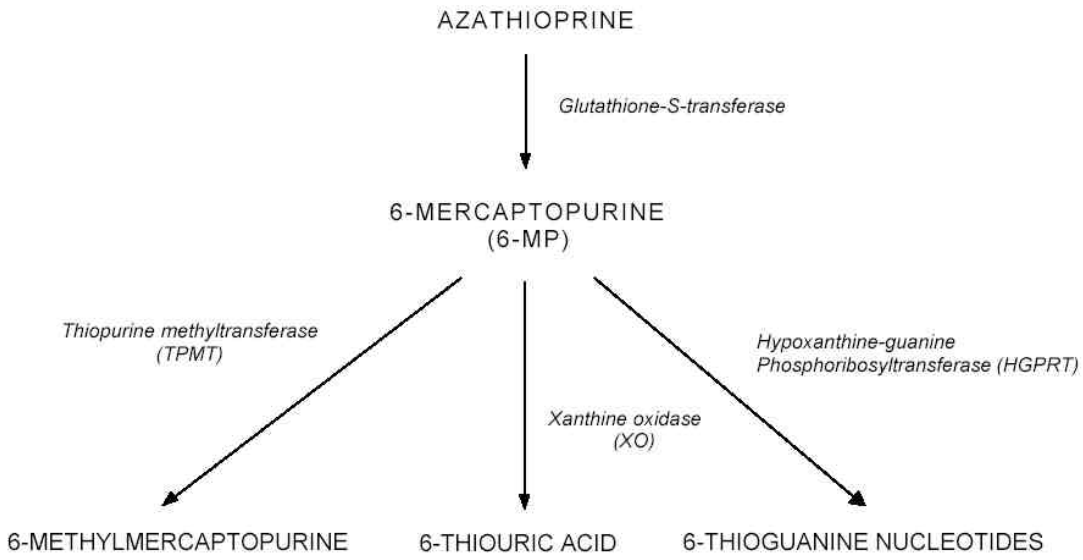
6-thioguanine nucleotides and thiopurine methyltransferase activity: important factors determining response to treatment and incidence of adverse effects from azathioprine and 6-MP

The thiopurine drugs, azathioprine and its metabolite 6-mercaptopurine (6-MP), are among the most effective agents for maintaining remission of the inflammatory bowel diseases, Crohn's disease and ulcerative colitis.[1,2] They are also used to treat a number of other conditions including acute lymphoblastic leukaemia, psoriasis and rheumatoid arthritis. They require metabolism to 6-thioguanine nucleotides (6-TGNs) for clinical effect (efficacy and toxicity). Unfortunately, the metabolism of these drugs is complex (Figure 1) and patients have highly variable 6-TGN concentrations for a given dose.[3] For example, a standard dose of azathioprine might result in extremely high 6-TGN concentrations and profound myelosuppression in some patients, whereas other individuals might fail to respond to the same dose because of subtherapeutic 6-TGN concentrations.

Figure 1. Metabolism of thiopurine medications



In a recent study, 6-TGN concentrations greater than 235 pmol/8x10^8 were shown to correlate with disease remission for patients with inflammatory bowel disease (measured by clinical end points).[4] Elevated concentrations (>5700 pmol/8x10^8) of another metabolite, 6-methylmercaptopurine (6-MMP) have been associated with hepatotoxicity.[5]

The clinical application of measuring 6-TGN and 6-MMP concentrations is in its early stages. However, there are a number of situations in which monitoring may be indicated. If a patient is not responding to an adequate trial of a thiopurine drug, a 'therapeutic' 6-TGN concentration (ie, >235 pmol/8x10^8) suggests that further dose escalation is unlikely to result in improved efficacy. This allows the drug to be stopped and alternate therapies to be trialled. On the other hand, if the 6-TGN concentration is low in such a patient, this may suggest non-compliance (especially if combined with a low 6-MMP concentration), under-dosing (if combined with an appropriate 6-MMP concentration) or drug resistance (if combined with a high 6-MMP concentration). This allows the clinician to educate the patient to improve compliance, increase the dose or cease the drug respectively.[5,6]

Traditionally, the dose of the thiopurine drug is titrated against mean cell volume, total white cell count or neutrophil count. Often the dose would be increased until leucopenia was encountered. Data concerning this approach are conflicting and suggest that it is less precise than metabolite monitoring.[7,8]

While a therapeutic range for 6-TGN concentration has been proposed for patients with inflammatory bowel disease, this is not the case for other conditions for which thiopurine drugs are used, except in childhood leukaemia where dosing of 6-MP may be adjusted according to 6-TGN concentration.[9]

The Departments of Clinical Pharmacology and Toxicology at Christchurch Hospital have developed assays for measuring the concentrations of 6-TGN and 6-MMP. These complement the thiopurine methyltransferase (TPMT) phenotyping and genotyping testing that are also available.

We advocate use of therapeutic drug monitoring for patients with inflammatory bowel disease taking azathioprine or 6-MP who are not responding appropriately despite an adequate duration of treatment. These tests may help to guide clinicians regarding the choice of dose escalation, drug cessation, or in discussing issues of compliance with the patient.

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Azathioprine, 6-mercaptopurine (6-MP) and thioguanine are cytotoxic agents, collectively known as thiopurines. These drugs are used in fields such as oncology, gastroenterology, organ transplantation, rheumatology and dermatology.[1,2] Although very effective medications, they are also highly toxic, with significant side effects occurring in many patients.

Thiopurine methyltransferase (TPMT) is an enzyme that is partly responsible for the metabolism of thiopurine drugs (Figure 1). TPMT shows trimodal variation in the Caucasian population, with approximately 90% of people having enzyme activity in the normal range, 10% having reduced activity and 1/300 no activity. This variation is due to the co-dominant inheritance of inactive mutant TPMT alleles.[2]

Low TPMT activity leads to excessive production of 6-thioguanine nucleotides, as more 6-MP is processed by hypoxanthine-guanine phosphoribosyltransferase (HGPRT) (Figure 1). Consequently, the frequency of thiopurine myelosuppressive side effects is increased in individuals heterozygous for inactive TPMT alleles, and is very high in homozygotes.[2] This risk has led many investigators to suggest mandatory testing for TPMT activity, prior to commencing thiopurine treatment.[3–5] If a patient has no enzyme activity, thiopurines should be avoided or given at a much lower dose (10% of standard dose has been suggested). If a patient has intermediate activity (ie, is heterozygous for an inactivating mutation), the thiopurine starting dose should be lowered (50–60% of standard dose has been suggested) and white cell count carefully monitored. White cell count monitoring must continue as usual in individuals with TPMT levels in the normal range, as TPMT deficiency is not the sole cause of myelosuppression associated with these drugs.[5]

Canterbury Health Laboratories has developed a combined activity/genotype assay for TPMT. Activity level is tested on all samples and those with low TPMT activities are genotyped for the two most common mutant alleles. Genotyping provides

confirmation of phenotype (85–95% of TPMT deficiency results from the two alleles assayed) and allows testing of other family members.

The importance of TPMT in clinical practice is illustrated by a recent case from Christchurch Hospital (personal communication, R Gearry, 2003). A standard dose of azathioprine was used to treat a patient with inflammatory bowel disease; the patient then went on to develop severe myelosuppression and spent three days recovering in the Bone Marrow Transplant Unit. Subsequent TPMT testing revealed that the patient in question was one of the 1/300 people who have no TPMT activity due to homozygosity for a mutant allele. In addition to the medicolegal risk and the cost to the patient, the economic burden of treating neutropenic patients is considerable.[3] Early economic analyses have indicated that prevention of severe myelosuppression in TPMT-deficient patients by screening each patient prior to initiating treatment would have a favourable cost-benefit ratio.[1,3] As evidence continues to accumulate in support of the determination of TPMT activity prior to thiopurine treatment, clinicians in a variety of fields will need to consider including routine TPMT testing in their practice.[4,5]

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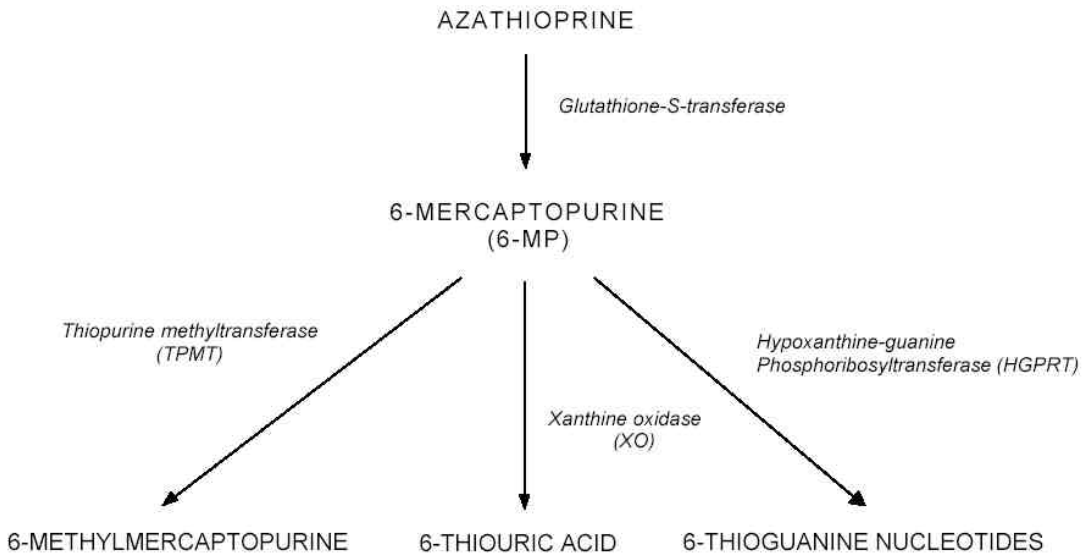

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Dorothy Marian Stewart

The death of Dr Marian Stewart on 6 May 2003 on her farm at Waitati, near Dunedin, came as a great shock to her many friends and colleagues. She was walking around her farm when the end came. She had led a life devoted to Obstetrics and Gynaecology and also to animals, especially horses. An accomplished horsewoman, she rode for many years with the Otago Hunt Club. She was also a successful breeder and owner of several winners, the best known being Waiputi Joe, winner of 11 races, including the Ashburton and Oamaru Cups.

Marian was born in the United Kingdom in 1909. After the early death of her father her mother remarried and the family moved to Wellington. She was educated at Kelburn Normal School and Wellington Girls' College, where she was Head Prefect and Dux. She attended medical school in Dunedin and graduated MBChB in 1934. House surgeon jobs in Wellington and Australia came next, but she went to the UK about 1936 to pursue a career in Obstetrics and Gynaecology.

She passed the Diploma in Obstetrics in 1937 and after experience in Edinburgh and London became MRCOG in 1938. She was probably one of the first New Zealand women graduates to pass this examination, although others may have received honorary degrees.

Marian's next move was to pass the MRCP Edinburgh in 1939. Now the war intervened and she spent those years in Kendal in the Lake District.

She eventually returned to New Zealand in the late 1940s and was appointed Assistant Medical Superintendent at Ashburton. Here she resumed friendships with medical friends and was able to continue her passion for horses and riding activities. Her next move was to return to Dunedin, back to her former Professor, Sir Bernard Dawson. She was made Visiting Gynaecologist part-time to Dunedin Hospital, and Lecturer in Obstetrics and Gynaecology at the Medical School. She also began private practice from rooms in London Street, thus becoming the first woman in New Zealand to specialise after passing her MRCOG by the examination route. She had a wide spectrum of female patients and operated largely in Batchelor Ward, Dunedin Public Hospital, as the presence of a female specialist in Obstetrics and Gynaecology proved very acceptable to local women.

Shortly, she bought property and then a farm to accommodate her growing herd of horses as she could never bear to part with any of them. She rode with the Otago Hunt Club and in point-to-point meetings. She was described as a fearless rider, but this did not prevent her attending work with bruising in various areas.

She was elevated to fellowship of the Royal College in 1957. She retired in 1974 and established herself at a larger farm near Waitati at Blueskin Bay. Here she continued

her equestrian activities and bought two ponies for use by the Riding for the Disabled Association. She kept Clydesdales and regularly won awards for them.

Marian's funeral, attended by a large circle of friends and many medical associates, was a simple, outdoor ceremony on the farm. The bellbirds sang in the trees, the sun shone, and the horses, large and small, munched contentedly on a bale of hay on the other side of the fence.

We are grateful to Emeritus Professor J Lawrence Wright for this obituary

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ABC of psychological medicine

Richard Mayou, Michael Sharpe and Alan Carson (eds). Published by BMJ Publishing Group, 2003. ISBN 0-7279-1556-8. Contains 72 pages. Price GBP16.95

The aim of this book is summarised by the editors' preface. They note that until the development of pharmacological and other specific treatments psychological medicine was the mainstay of a physician's practice. They consider that the successes of biomedical theory during the twentieth century have led to a loss of interest in the psychological aspects of medicine and core clinical skills have sometimes been neglected. The book is a practical and evidence-based overview of the psychological aspects of medical practice. The idea is to guide practitioners and to provide them with relevant information and an intellectual structure for assessing and managing their patients. The emphasis is practical rather than based on psychological theory.

There are 14 chapters. The opening three describe general principles within which individual assessment and treatment can be formulated. The following three describe the core skills of psychological medicine, ie, the assessment and management of anxiety, depression and functional somatic symptoms. The remaining chapters describe how these skills are transferred and adapted in specific situations including the care of patients with cancer, trauma, musculoskeletal pain, fatigue, chest pain, abdominal pain and delirium.

The chapters are short, mostly three or four pages. The left-hand side of the page consists of a general overview while the right-hand side has tables outlining the specific facts and techniques to assist clinical practice. Each chapter also provides a brief, evidence-based summary as well as four or five books or papers for further reading.

The chapters are well written and up to date. For example, in the chapter on trauma the evidence-based summary includes the recent Cochrane review's conclusion that critical incidence debriefing after trauma is potentially harmful. The treatment recommendations are generally conservative but sound.

In summary, this is a brief and careful overview of the relationship of psychiatry to medicine. It would be very useful for virtually any doctor. It would be particularly helpful for trainees who wish to learn more about psychological aspects of their medical practice but would also not be out of place for general practitioners and consultants in various medical and surgical specialties. It is a sensible, humane book that draws our attention to the many psychological factors that are important in all medical practice.

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Hospital in the home: principles and practice

Michael Montalto. Published by ArtWords Publishing, 2002. ISBN: 0-9581673-0-3. Contains 172 pages. Price AU$66 (inc GST)

When I recently asked a couple of friends, one a GP and the other a hospital physician, whether they were familiar with the term ‘hospital in the home’ (HitH), both quickly and unequivocally replied in the affirmative. But when probed more closely about the meaning of the term, it was clear that different people use the expression to mean very different things. The concept of HitH seems to have been absorbed into medical culture almost by stealth. Yet there is a high probability that HitH will feature more and more in the New Zealand health system as the ever-burgeoning problems of acute demand on secondary care are addressed.

A book about HitH is therefore overdue. Despite its Australian bias, this is a sentinel work whose publication is timely. The author is Director of HitH at Epworth Hospital in Melbourne and has managed over 3000 HitH patients. He walks the reader through the broader aspects of HitH – its definition, history, philosophy and ethics, and measurement of quality and cost – and also explores the specific types of patients and their conditions that lend themselves to HitH. It includes the tools used in HitH, with an emphasis on IV therapy that covers choice of drug, of IV access and of giving device.

Any service that provides home-based therapy that would ordinarily be given in hospital (be this a hospital outreach service or a GP-led HitH) should consider owning a copy of this book. Anyone who refers patients (whether from primary or secondary care) to HitH programmes would also find it an interesting read. Rural GPs, whose distance from secondary care facilities may lead to their greater use of HitH-styled care compared with urban colleagues, may also find it helpful.

Whilst this book is easy to read, one is left with the impression that it is probably a PhD thesis that has been adapted into a reference book. However, this should not detract from its importance in a growing field.

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