Emergency presentation of abdominal hernias: outcome and reasons for delay in treatment – a prospective study

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ABSTRACT

INTRODUCTION Emergency hernia surgery is associated with a higher postoperative complication and a less favourable outcome. The aim of this study was to audit emergency presentations of abdominal hernias prospectively in order to identify delays in patient treatment.

PATIENTS AND METHODS Prospective audit was carried out between January and September 2003 of all patients presenting acutely with symptomatic hernias. In total, 55 patients presented, 39 of whom needed surgical intervention. The emergency repairs were compared with a cohort of elective repairs performed in the trust at the same time.

RESULTS The median age was 77 years (range, 5–92 years; 35 male, 20 female). The distribution of the hernias, requiring surgery, was inguinal (19), para-umbilical (10), incisional (5) and femoral (5). The overall complication rate was 46.2% and the in-patient stay was 4 days (range, 1–49 days). Six patients required small bowel resection. Conservative management was identified as a key contributing factor in the delay of treatment. There was a significant increase in the in-patient stay, the early complication rate and the small bowel resection rate in the emergency repairs.

DISCUSSION Patients with a symptomatic hernia should be offered elective, surgical repair. Non-operative management is inappropriate for the vast majority of cases, especially when many repairs may be performed with local anaesthetic infiltration. Clinicians should be aware of the high morbidity associated with the emergency repair of abdominal hernias in the elderly.

[Currently * SpRs in All Wales Deanery; † SpR in Wessex Deanery]

KEYWORDS

Emergency hernia surgery – Abdominal hernia – Treatment

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Considerable variation exists in the treatment of elective abdominal hernias and conservative management is used in elderly patients and those with co-morbidity. However, a significant proportion of hernias require emergency surgery, which is associated with a higher postoperative complication rate than elective surgery and a less favourable outcome.^{1,2} Since elective hernia surgery can be carried out under regional and local anaesthesia, the appropriateness of a ‘watch-and-wait’ policy is open to question.

The aim of this study was to audit emergency presentations of abdominal hernias prospectively in order to identify delays in patient treatment.

Patients and Methods

Between January and September 2003, all patients presenting acutely to The Royal Gwent Hospital with symptomatic

hernias were identified. Patient details were recorded prospectively (by the admitting doctor) onto a specifically designed database.

Details of the presenting symptoms, including site of the hernia, duration of symptoms and whether the patient had previously sought a medical opinion were recorded. Details of the clinical management and outcome, in addition to the results of any laboratory and radiological tests were retrieved from the medical notes. A cohort of 298 patients undergoing elective hernia surgery in the trust within the same period was identified and the notes analysed to compare clinical outcomes.

The primary end-points were early postoperative complications (within 30 days of surgery), small bowel resection and in-patient stay.

Data were analysed using the Statistical Package for the Social Sciences (SPSS). Comparisons were made between

Table 1 The anatomical sites of hernias presenting as an emergency

Anatomical site	Number	Small bowel resection
Inguinal	19	3
Para-umbilical	10	1
Incisional	5	0
Femoral	5	2

the emergency and elective groups using a non-parametric Mann-Whitney U-test.

Results

In total, 55 patients presented acutely with problems directly related to hernias. The anatomical sites of the acutely presenting hernias are outlined in Table 1 and the presenting symptoms listed in Table 2. The demographics of the patients undergoing emergency and elective repairs were statistically different (Chi-squared $P > 0.05$). The emergency group were older (median age elective, 55 years [range 23–78 years]; median age emergency, 77 years [range 50–92 years]) and 57% had an American Society of Anesthesiologists (ASA) grade of III or greater (Chi-squared test $P > 0.05$). Thirty-nine patients required surgical intervention, all hernias being non-recurrent. As a reflection of their higher prevalence, inguinal hernias were most commonly encountered. The rate of small bowel resection was highest in patients with femoral hernias.

Sixteen patients (29%) were assessed and discharged by the surgical team. In all cases, the hernia was assessed for reducibility, cough impulse and tenderness. Four patients were seen with a new presentation of a hernia. These patients were re-assured and given out-patient appointments. The remaining patients were assessed and discharged with symptoms (pain and increase in size) relating to pre-existing inguinal, incisional and para-umbilical hernias. All 16 patients were eventually operated on electively.

Thirty-nine patients (median age, 77 years; range, 55–92 years; 25 male; 14 female) required emergency surgical repair and in 6 (15.3%) patients a small bowel resection was performed. All operations were performed by one of seven middle-grade staff (6 specialist registrars and 1 associate specialist). There were no peri-operative deaths and the overall complication rate was 46.2% (18 patients) and was significantly higher in those patients undergoing small bowel resection ($P < 0.05$; Table 3).

The overall complication rate in the patients undergoing elective hernia surgery within the trust, in the same period,

Table 2 Presenting symptoms and signs

Symptoms/signs	Number (%)
Pain	44 (80)
Irreducibility	37 (67.3)
Vomiting	18 (32.7)
Radiological evidence of obstruction	5 (9)

Table 3 Early postoperative complications after emergency surgery

Complication	Number ($n = 18$)
Myocardial infarction	2
Wound infection	4
Chest infection	6
Urinary tract infection	3
Urinary retention	3

was 3% ($P < 0.001$). There were no cases of small bowel resection being required for any of the elective hernia repairs. The median in-patient stay in the emergency and elective groups was 4 days (range, 1–49 days) and 1 day (range, 1–12 days), respectively ($P < 0.05$).

Of the total 39 patients that required acute surgical intervention, 30 (76.9%) had consulted their general practitioner and were aware of the diagnosis. Nine patients had not sought medical advice despite noticing a lump for some time. Of the 30 patients who had consulted their general practitioner, 25 were referred to surgical out-patients and the remaining 7 patients were managed conservatively. The reasons given to patients for non-operative management were age, co-morbidity and a low likelihood of problems with the hernia.

Surgical repair was advised in 12 out of the 25 patients referred to the surgical outpatients. The remaining 11 patients were managed conservatively (Fig. 1). The decision to manage patients conservatively was made by a senior house officer in 3 patients, middle-grade in 4 patients and consultant surgeon in 4 patients. The reasons given to patients for a non-operative approach were again age, co-morbidity and a low likelihood of problems with the hernia.

Discussion

This study has demonstrated that the complication rate of emergency repair of abdominal hernias is significantly

Figure 1 Reasons for delay in operative repair of abdominal hernias.

higher than those repaired electively.⁵⁻¹⁶ In this study, the rate of small bowel resection was 15.3%, which is comparable to published series.^{8,9} The patients that required emergency repair were elderly and had significant co-morbidity. In addition, the duration of symptoms tended to be longer and often there was delayed hospitalisation. These factors contribute to a less favourable outcome and a prolonged in-patient stay.^{8,9}

Treatment of patients with abdominal hernias is delayed for a number of reasons. A proportion of patients do not seek medical advice after noticing a lump. The reasons for this are outside the scope of this study, but the proportion (around 25%) is relatively constant in the literature.^{16,17}

Most interestingly, the results have demonstrated that a significant proportion of the patients requiring emergency surgery were those being managed conservatively by either the general practitioner or the surgical team. The study has highlighted age, co-morbidity and the low likelihood of the hernia causing problems as being key reasons for non-operative management.

Age should not be a contra-indication to surgery. Gilbert¹⁷ reported on 175 patients over 66 years who underwent elective hernia repair. Over 50% of patients had an ASA grade of III. Most operations were performed under regional or local block with no peri-operative deaths and a low complication rate.¹⁷ In 1971, an analysis of Medicare discharges for uncomplicated inguinal hernia demonstrated that 94% of patients underwent repair with a mortality rate of 0.005%. However, the death rate for obstructed hernias was increased 10-fold.¹⁸ Both studies reported favourable outcomes if co-morbidity is optimised pre-operatively and reduced in-patient stay if social circumstances planned in advance.

So is there a role for the non-operative management of abdominal hernias? Femoral hernias have between a 40% and 60% rate of strangulation, 10-fold that of inguinal hernias and, therefore, should be repaired urgently.^{5,5-8} Para-umbilical hernias also have a tendency to incarcerate and strangulate.⁴ The controversy lies with inguinal hernias. The guidelines of The Royal College of Surgeons of England working party recommended that the repair of asymptomatic, reducible inguinal hernias in the elderly could be safely deferred, as irreducible, indirect hernias are responsible for strangulation in 90% of cases.

However, there is a growing opinion that all inguinal hernias should be repaired whenever possible.^{3,9-12} This is partly due to the low accuracy (by even the most experienced clinicians) in distinguishing between direct and indirect hernias¹⁹ and to the popularisation of repair under local anaesthesia, allowing surgical repair in patients with severe co-morbidity.

The review by Ohana *et al.*¹¹ in 2004 recommended that patients with asymptomatic inguinal hernia and unfavourable medical conditions should undergo elective repair, preferably under local anaesthesia, in order to avoid the high mortality associated with an emergency operation. In addition, a retrospective review of 147 patients over a 10-year period concluded that elective repair should be considered whenever possible.¹⁰

Our hospital has adopted several measures advocated in the running of modern hernia units. All elective in-patient and day-case hernia patients undergo pre-assessment to ensure the appropriateness of the procedure and the fitness of the patient for anaesthesia and high-risk patients are referred to a consultant anaesthetist. Those patients that are medically unfit for general anaesthesia can be offered

surgery under spinal or local anaesthesia. However, at present, there is no direct hernia service and patients still have the traditional long wait for a general practitioner's referral to come through. This is unsurprisingly reflected in our results with 12 patients on the waiting list for elective surgery, requiring emergency intervention.⁹

Conclusions

Elective repair of hernias should be performed whenever possible. In many cases, this can be done under local anaesthesia. Clinicians should be aware of the high morbidity associated with emergency repair of abdominal hernias in the elderly and, if necessary, refer such patients to a surgeon with an interest in hernia surgery.

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