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Ventral hernia repair: a study of current practice

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Abstract Ventral wall hernias are common; despite this, there are no guidelines on the best surgical management. The aim of this study was to examine the types of repair in use for abdominal wall hernias in the West of Scotland over a 3-month period. Data were gathered on 120 patients. There were 60 incisional, 32 umbilical, and 28 epigastric hernias. The main indication for repair was pain (78%), while 12 patients (10%), presented acutely with incarceration or strangulation. The most common method of repair was sutured (55%), followed by mesh (29%) and Mayo repair (16%). There was no correlation between use of mesh and hernia size or whether repair was for a recurrent hernia. Surgical practice varies widely in the repair of ventral wall hernias. Clinical trials are required to establish the best method of repair for this common condition.

Keywords Hernia · Ventral · Repair

Introduction

Ventral hernias are common, with almost 25,000 repaired annually in the U.K. [1]. These are usually incisional, epigastric, or umbilical hernias. Although many are asymptomatic, patients are generally offered surgical repair because of risk of complications, such as pain, incarceration, and strangulation. Several different surgical procedures are employed in the repair of ventral wall hernias, ranging from a sutured repair to the use of mesh. However, unlike inguinal hernia surgery in which tension-free mesh repair has been rapidly accepted as the 'gold standard', data on the repair of ventral hernias are

lacking, and, consequently, clinical practice is thought to vary. The aim of this study was to review all the cases of ventral hernia repair in a mixture of Teaching and District General Hospitals in the West of Scotland to provide a 'snapshot' of the diversity of clinical practice in managing these hernias.

Patients and methods

Data were obtained on all patients undergoing ventral hernia repair in seven hospitals in the West of Scotland over the first 3 months of 2000. These hospitals serve approximately half (1.3 million) of the population in the region and were a mixture of teaching and district general hospitals. Patients were identified from diagnosis and procedure codes in each hospital. The case notes were retrieved, and as well as patient details, details of hernia type, whether primary or recurrent, method of presentation, type of repair and length of hospital stay, and complications were recorded. The hernias were also classified as small (2 cm), medium (2–10 cm) or large (> 10 cm) based on the surgeon's estimate of hernia size at operation.

Statistical analysis was performed using SPSS for Windows. A *T*-test was used to compare differences in age between groups while other comparisons were made using a chi-square test.

Results

Over the 3-month period, 120 patients underwent repair of a ventral hernia. The mean age of patients was 54.6 years, (range 23–87), 55% were male, while 45% were female. Table 1 details the patient characteristics and method of presentation. Patients with an incisional hernia were significantly ($P < 0.01$) older than those with an umbilical or epigastric hernia and were also more likely to be female. While most of the incisional hernias were as a result of previous midline or paramedian incisions, six (10%) were port-site hernias. Twenty-two percent of patients with an umbilical hernia presented with incarceration or strangulation compared with 8% for incisional hernia and 0% for epigastric hernia.

The most common method of ventral hernia repair was sutured (55%), followed by mesh (29%) and Mayo

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Table 1 Patient characteristics and method of presentation

	Incisional	Umbilical	Epigastric
Number	60 (50)	32 (27)	28 (23)
Male	24 (40)	23 (72)	19 (68)
Female	36 (60)	9 (28)	9 (32)
Age (yrs)	59	49	49
Primary hernia	49 (82)	28 (87)	26 (93)
Recurrent hernia	11 (18)	3 (9)	2 (7)
Other ^a		1 (3)	
Presentation			
Pain	50 (83)	22 (69)	23 (82)
Strangulation	0	2 (6)	0
Incarceration	5 (8)	5 (16)	0
Enlargement	3 (5)	2 (6)	4 (14)
Skinchanges	0	1 (3)	0
Cosmesis	0	0	1 (3)
Other ^a	2 (3)	0	0
Size			
Small	18 (30)	12 (37)	12 (43)
Medium	12 (20)	15 (47)	10 (36)
Large	30 (50)	5 (16)	6 (21)

Values in parentheses indicate percentage; ^aNot specified

repair (16%) (Table 2). Mesh was used significantly ($P < 0.05$) more often for incisional hernia repair. However, there was no correlation between hernia size and use of mesh; 33% of small incisional hernias had a mesh repair, compared with 75% for medium-sized and 55% for large incisional hernias. Only 36% of recurrent incisional hernias had a mesh repair, while none of the recurrent or large epigastric or umbilical hernias had a mesh repair.

There were relatively few reported postoperative complications with four wound haematomas, one wound infection, one small bowel fistula (non-mesh repair), two dehiscences, and one haematemesis. One patient was required to have the mesh removed, although the reasons for this are not clear. The average hospital stay was 4.9 (range 1–18) days.

Discussion

This study shows that use of mesh for ventral hernia repair is uncommon in the West of Scotland. This is in contrast to inguinal hernia repair with which over 90% of hernias are repaired using mesh in the same region [2]. Interestingly, use of mesh for ventral hernia repair seems to be based on surgical preference rather than whether the hernia was large or recurrent.

Table 2 Method of repair

Type	Mesh (60)	Mayo (32)	Sutured (28)
Incisional	31 (52)	5 (8)	24 (40)
Epigastric	2 (7)	7 (25)	19 (67)
Umbilical	2 (6)	7 (22)	23 (72)

Values in parentheses indicate percentage

It is well established that recurrence rates are high after sutured or Mayo repair of incisional hernias [3, 4]. Reports on umbilical hernias, however, vary with recurrence rates ranging between 5.1% and 45% [5, 6]. In a recent randomised trial comparing sutured and mesh repair of umbilical hernias in adults at a mean follow-up of 64 (range 21–80) months, 11% had recurred in the sutured group, compared with 1% in the mesh group ($P = 0.0015$) [7]. Similarly, in a randomised trial of small incisional hernias, < 6 cm, use of mesh halved recurrence rates [3]. There is little information available on use of mesh for epigastric hernia repair. While many epigastric hernias are small, and it may seem logical to consider using mesh for larger hernias, data from the previous clinical trials [7, 8], indicate that hernia size may not be an important predictor of recurrence for ventral hernias.

There are no clear guidelines on when or, indeed, whether to repair a ventral hernia or not. Incisional hernias are common after laparotomy, yet many remain asymptomatic. In a 10-year follow-up study by Mudge and Hughes [9], only one-third of all incisional hernias became symptomatic and required repair. The prevalence of umbilical hernias in the adult population is thought to be about 2% [10]. Umbilical hernias, however, have a high incidence of incarceration, second only to femoral hernias [10, 11], and for this reason, repair is recommended by some for all umbilical hernias in medically fit patients. Twenty-two percent of umbilical hernias in this study presented with incarceration or strangulation. While epigastric hernias are found in 5%–10% of patients at post-mortem studies, they account for less than 5% of all surgically treated hernias and are usually only noticed when they become symptomatic [12]. In one study, incarceration occurred in 7 (8%) of 66 epigastric hernias presenting to a community hospital with no patient having strangulation [11].

Of interest in this study was that 10% of incisional hernias were port-site hernias. Often not enough attention is paid to closing these small wounds, and patients may present acutely with small bowel obstruction as a result. Despite warnings about this and the potential for such hernias to be as dangerous as incisional hernias after open surgery [13], with the increasing use of laparoscopy, it would seem that port-site hernias will continue to be a significant problem.

Laparoscopic repair of ventral hernias is becoming increasingly popular, although its role is still under evaluation [5]. It is interesting to note that while a small percentage of patients undergo groin hernia repair laparoscopically in this region [2], ventral hernia repair has not been performed using this technique. The reasons for this are not clear, but it is likely that the potential for complications arising as a result of mesh being in direct contact with bowel has made surgeons reluctant to pursue this approach. Other factors, such as the length of the learning curve and the need for a large volume of cases to overcome this in a relatively short time period, may also be important.

Our results indicate that there is no universally accepted or consistent approach to the repair of ventral hernias in the West of Scotland. There is a clear need for further large prospective clinical trials in this area to provide us with a better evidenced-based approach to this common surgical problem. In particular, we need to determine whether a simple sutured repair is adequate for small ventral hernias or whether a mesh repair should be the procedure of choice across the board.

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