Current trends in hernia surgery in NHS England

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ABSTRACT

BACKGROUND Mesh is recommended for the repair of most hernias when prevention of recurrence is the primary endpoint. However, mesh may be associated with increased complications for the patient. The aim of this study was to quantify the use of mesh for abdominal wall hernia surgery in NHS England in recent years.

MATERIALS AND METHODS The NHS Digital Secondary Uses Service database for 2016/17 and 2017/18 was interrogated for numbers of patient undergoing elective primary hernia surgery. Using the specific hernia code inguinal (T201-9), umbilical (T241-9), incisional (T251-9) and other abdominal wall hernia (T271-9), the use of mesh or suture repair was determined. Recurrent and emergency hernia surgery were excluded. All data were provided by NHS RightCare.

RESULTS There are almost 100,000 hernia repairs performed annually in NHS England. For every four hernias, three are repaired with mesh. The percentage repaired by mesh varies by hernia type. Mesh repairs in inguinal, umbilical and incisional hernias accounted for 95%, 50% and 82%, respectively.

CONCLUSIONS Mesh repair for all hernia types is more common than suture repair. However, for umbilical and other abdominal wall hernias, a significant proportion are repaired without the use of mesh.

KEYWORDS

Hernia – Incisional hernia – Umbilical hernia – Inguinal hernia

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Introduction

Mesh tissue augmentation in the repair of all abdominal wall hernias is now standard in many countries and is widely accepted as being superior to primary suture repair, particularly with reference to recurrence of the hernia. Nevertheless, mesh is an implant, carrying with it the risks of any implant, including invoking a foreign-body reaction, a risk of implant infection, potentially a source of chronic pain and, in some, possibly inducing a local or systemic immune reaction. Recently, this has led to significant media coverage,¹ with subsequent statements from authoritative bodies,^{2–4} in addition to the publication of updated guidelines and systematic reviews. Such concerns have been well articulated in a recent *BJS* editorial entitled ‘In support of mesh for hernia repair’.⁵

Worldwide, there is a trend to introduce national registries into all surgical disciplines, to compare outcomes and to help inform what treatment works best in which patients. Following the success of the Danish, Swedish and German national hernia registries, the HerniaSurge Group recommended that other countries or regions develop and implement registries with high coverage and long-term follow-up for quality control in patients with groin hernia.⁶ To date there is no dedicated registry covering hernia surgery in the UK, although surgeons are encouraged to collect data via a European-wide database (the European Registry of Abdominal Wall Hernias, EuraHS) run by the

European Hernia Society (www.eurahs.eu).⁷ Unfortunately, very few surgeons contribute for many reasons, including lack of time, limited follow-up and the voluntary nature of the registry.

Nevertheless, NHS England does collect statistics on hospital episodes and these include data on the technique of hernia repair. The aim of this study was to investigate the use of mesh compared with suture in the repair of a variety of hernia types in NHS England.

Materials and methods

Routinely collected health data from the NHS Digital Secondary Uses Service derived from Hospital Episode Statistics (HES) data for NHS England were interrogated for patient numbers of elective primary hernia surgery over a two-year time period, 2016/17 and 2017/18. Using the specific OPCS Classification of Interventions and Procedures level 4 codes for hernia, data for procedures performed for inguinal (T201-9), umbilical (T241-9), incisional (T251-9) and other abdominal wall hernia (T271-9) were retrieved. The use of mesh or suture repair was determined. Recurrent and emergency hernia operations were excluded from this study. The data were provided for this study by NHS RightCare.

Reporting of studies Conducted using Observational Routinely collected health Data (RECORD) statement was used to ensure reporting quality of this study.

Results

The number of elective primary mesh and suture hernia operations for various hernia types for the period of 2016/17 and 2017/18 are given in Table 1. The proportion of method of repair for the various hernia types when combined over the two-year study period are shown in Figure 1.

Discussion

In this national repository-based article, we have looked at the percentages for the use of mesh in hernia repair in NHS England in recent years. The majority of all primary hernias in NHS England were repaired with the use of mesh. Nevertheless, there were differences between the

various hernias types. Inguinal hernia surgery constituted the largest group by number and 19 of 20 repairs used a mesh repair. Mesh was used in four of five incisional hernia repairs and for umbilical and other abdominal wall hernias, this proportion was nearer to one in two hernia repairs. To our knowledge, this is the largest UK population-based study on this important topic and therefore sets a baseline for future studies.

There is a large body of evidence in favour of mesh repair in terms of recurrence rate.^{4,8,9} Well-established and easily reproducible methods, such as the Lichtenstein for inguinal hernia, have become popular, with good outcomes presented both in randomised controlled trials and in national registries.^{4,6} The use of mesh as the main technique in inguinal hernia repair is reflected in our study results.

Table 1 Elective primary hernia operations for various hernia types by year of surgery.

Hernia type	Inguinal <i>n</i> (%)		Umbilical <i>n</i> (%)		Incisional <i>n</i> (%)		Other abdominal wall <i>n</i> (%)	
	2016/17	2017/18	2016/17	2017/18	2016/17	2017/18	2016/17	2017/18
Mesh	57831 (95.5)	57078 (95.0)	9530 (51.3)	8983 (49.2)	6280 (82.3)	6139 (81.1)	3838 (56.4)	3835 (55.9)
Suture	1896 (3.1)	2345 (3.9)	8452 (45.4)	8731 (47.8)	1174 (15.4)	1284 (17.0)	2763 (40.6)	2800 (40.8)
Other/Unspecified	829 (1.4)	628 (1.0)	613 (3.3)	547 (3.0)	177 (2.3)	148 (2.0)	200 (3.0)	224 (3.3)

Similarly, mesh has been advocated for all umbilical hernias, even those smaller than 2 cm width.^{9,10} However, around 50 % of umbilical hernias in NHS England during the study period had a non-mesh repair. Incisional hernia repairs were less frequent but their management raises more problems with globally poorer outcomes compared with the repair of other primary hernias.^{11,12} There is a relative lack of clinical guidance that would offer a structured approach towards the multivariable sites and dimensions of post-surgical incision hernias.¹³ The non-use of mesh in around 20% of incisional hernia repairs and 50% in other abdominal wall repairs is of note, and long-term follow up data are necessary to confirm the appropriateness of such treatments in patients observed in our study.

A limitation of the study is the potential for coding inaccuracy of the HES data. It was not possible to validate the accuracy of the obtained data. As the Secondary User Service forms the basis of payment by results, through which providers are reimbursed for the services they provide, it is in their interest to provide a fully complete dataset. There will inevitably be some local variation and inaccuracy in how admissions are coded. Another limitation is the lack of outcome data for hernia repairs in the UK and it is not therefore possible to provide comparisons in outcome between mesh and suture repair. However, this remains an important area for future research.

The HerniaSurge group noticed that registry studies of large populations have the unique strength of reflecting clinical reality and thus provide the surgical community a high level of external validity. Similarly, the British Hernia Society, together with Royal College of Surgeons of England, published a commissioning guide for inguinal hernia in 2016,¹⁴ which stated that a national surgical registry would be an ideal source of data but would have to be carefully implemented to accurately and completely collect the relevant information. In light of the large public campaign against mesh use in hernia repair, the registry follow-up data relating to both the benefits and morbidity of mesh use is becoming all the more necessary. In addition, the lack of hernia specific quality of life outcome data, while not able to be addressed in this study, is an important area for future research. This will help inform the continuing mesh or no mesh debate.

As recurrent hernia surgery remains a large burden to NHS England and with the presented variation in approach towards primary hernia repair, it will be important to focus

in future studies on the number of recurrences in relation to the technique used. Furthermore, achieving best possible results not only in terms of recurrences and complication rates but also in terms of patients' satisfaction with all aspects of the repair, we should reflect on our patients and their stories, how they experience their illness and health after treatment. The need for a nationwide registry combined with introducing hernia-specific patient reported outcomes measures is more pressing than ever.

In conclusion, mesh repair for all hernia types is more common than suture repair. A significant proportion of primary midline hernias are repaired without the use of mesh, and one in five incisional hernias is repaired with sutures.

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