

Feasibility study of hernia surgery in a general practice setting

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SUMMARY

Background: In the early 1990s, waiting times for some surgical procedures and opinions for such routine problems as groin hernia repair were unacceptably long. General practitioners with a special interest (GPwSIs) in general surgery may improve this, but little evidence exists as to whether such service developments may improve efficiency and effectiveness of care.

Aims: To reduce the waiting time by offering a surgical service from a general practice setting without compromising on quality and safety of patient care.

Design of study: Feasibility study.

Setting: One general practice and the patient population of northwest Norfolk.

Methods: A GPwSI whose special interest was in general surgery started offering a surgical service, including open hernia repair, from a purpose-built operating theatre within general practice premises.

Results: Four thousand, nine hundred and sixty-five surgical procedures, including 286 inguinal hernia repairs, were performed. Quality and safety of patient care were not compromised and the waiting time was reduced from 18 months to 4 months.

Conclusion: It is feasible to perform open inguinal hernia repairs in a general practice setting.

Keywords: anaesthetics, local; day surgery; feasibility studies; inguinal hernia; waiting lists.

Introduction

IN the United Kingdom (UK), 264 000 inpatient bed days are occupied by patients having procedures that could be performed as day cases,¹ and hernia repair is one of these. Over 100 000 hernia repairs are performed annually in the UK in secondary care.² Paul Baskerville, who, until recently, was the President of the British Association of Day Surgery, rose to the challenge in 2001, stating that 'every patient should be considered for day surgery unless proved otherwise'.³ Day surgery in the UK is expanding rapidly and *The NHS Plan* predicts that 75% of all elective operations will be carried out as day cases.⁴

In 1955 Farquharson published a paper advocating hernia repair under local anaesthesia and early ambulation. He performed 485 hernia repairs under local anaesthetic in a hospital setting in Edinburgh.⁵ Hernia surgery is being performed as a day case procedure in many day surgical units, but not all. Among general surgeons, 88.3% prefer general anaesthesia for hernia repair and only 1.8% perform 98% or more of hernia repairs under local anaesthesia (W Ismail, personal communication, 2004). Inguinal hernia repair under local anaesthesia is the safest of all open techniques⁶ and it has distinct advantages with regards to postoperative recovery; early ambulation and its benefits are well recognised. Postoperative complications associated with general anaesthesia or spinal anaesthesia, such as nausea, vomiting, retention of urine, and the need for overnight stay, are avoided. Home rehabilitation is better for recuperation than staying in a hospital ward and it is preferred by patients.

Mesh repair is the procedure of choice for primary inguinal hernia in adults. The National Institute for Clinical Excellence (NICE) state that 'primary inguinal hernia should be repaired using the open technique'.⁷ In the early 1990s, the waiting lists for routine surgical opinions and procedures were deemed unacceptable in the northwest Norfolk region, with an average waiting time of around 18 months for an inguinal hernia repair, and the local district general hospital accepted that they could not meet the prevailing patient's charter standards. Gayton Road Health Centre, a fundholding practice, had the ability to direct its funds to this area of need. In early 1994, this general practice invited a full-time general practice principal with a surgical background to join their partnership, with a view to providing a limited surgical service from its general practice setting. The project was started later in the year, with the sole purpose of reducing the waiting time for routine surgical procedures and opinions, targeted to its registered patient population. The North West Anglia Health Authority allocated a small budget, and with some savings from the fundholding system, an operating theatre

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HOW THIS FITS IN*What do we know?*

Groin hernias are usually repaired in a hospital setting. The majority of these are repaired in day surgical units under general anaesthesia.

What does this paper add?

Hernia repair can be safely conducted in a general practice setting if appropriate skills are available. Hernia repair using local anaesthesia is desirable.



ASA grade 1 = Normal healthy individual

ASA grade 2 = Mild systemic disease that does not limit activity

ASA grade 3 = Severe systemic disease that limits activity but is not incapacitating

Box 1. American Society of Anesthesiologists (ASA) patient grading system.

and a recovery room were built by rearranging the existing health centre.

The equipment necessary for a modern operating theatre was installed. All the procedures were performed using local anaesthesia with or without minimal sedation. There were no facilities for general anaesthesia or for overnight stay. The surgical procedures offered, using the 1996 Department of Health guidelines,⁸ were modest and included surgery for inguinal, femoral, umbilical and epigastric hernias. Safety netting and risk management policies, along with protocols for staff, structure and process, were established. Discussions with colleagues from various departments, such as pathology staff, ambulance service personnel, secondary care surgical colleagues, the nursing manager, infection control staff, and hospital administration took place and cooperation was received from them. There was some scepticism from secondary care services as to the feasibility of performing hernia surgery in a general practice setting, especially regarding their involvement in postoperative complications, but in general they were supportive. A theatre nurse and a surgical administrator were appointed. The surgical service commenced in 1994 and by the following year was extended to surrounding general practices and their registered patient population.

Method

A patient care pathway was developed, with the purpose of establishing a safe, high-quality, efficient service. Patients were referred by a colleague or entered the pathway by referring themselves. Generic patient data, such as the name of the referring doctor, date of referral, date of assessment, operation details and follow-up details were entered into a specially designed surgical database. This database was indispensable for auditing and invoicing.

Referral letters were screened and, depending on the clinical information in the letter; for example, femoral hernia or gross discomfort, patients were categorised into 'soon' or 'routine' repair. Dates and times for the preoperative assessment and the operation were given to suit the patient's personal commitments. All patients were assessed by a nurse, who screened for basic investigations and ensured that adequate social conditions were present for home rehabilitation. It was mandatory that there was a responsible adult carer to stay with the patient for the first 72 hours after surgery. All patients with hernias

were seen by the general practitioner with a special interest (GPwSI) in surgery to ensure correct diagnosis.

Patient selection was based on American Society of Anesthesiologists (ASA) grading (Box 1). Patients in ASA grades 1 and 2 were selected, whereas those with severe systemic disease (ASA grade 3) were not accepted for repair. Patients with recurrent hernia, who were on anti-coagulation, and those with severe psychiatric conditions were excluded, as these patients are best managed in a hospital setting. No patients under the age of 18 years were accepted. There were very few inappropriate referrals.

Once accepted for hernia repair, patients were seen by the attending anaesthetist for a detailed discussion regarding whether sedation was required. Every effort was made to explain all aspects of care to the patients and their relatives, as a well-informed, motivated patient is important for a successful outcome.

The team discussed the operation, to be carried out under local anaesthesia with minimal sedation, with the patient and an informed consent was obtained.

Surgical intervention

Local anaesthesia was achieved by the infiltration technique,⁹ using lidocaine [1%] with adrenaline and bupivacaine [0.5%]. The majority of inguinal hernias — both direct and indirect — were repaired using low-tension flat-mesh repair as advocated by the Lichtenstein group.¹⁰ The Lichtenstein tension-free mesh repair must be considered the gold standard of groin hernia repair.¹¹ Ethicon®, Atrium® and Bard® mesh plugs were used in some cases. The advantages of local anaesthetic hernia repair over general anaesthetic hernia repair are well known, most significantly the ability to test the repair, during surgery, by asking the patient to cough while still on the operating table.^{12,13} The procedure takes approximately 40 minutes. Patients stayed in the recovery room for an hour or until the recovery nurse was satisfied that the patient was fully awake, stable, and had fulfilled all the criteria for home rehabilitation. Patients were accompanied home by a responsible adult. Detailed postoperative instructions (verbal and written), along with a sickness certificate if required, were given to the patient. A detailed letter was posted to the referring general practitioner (GP) on the same day. Postoperative care was by means of a telephone call by the theatre nurse and a further review by her at 48 hours in the practice. The second review enabled the nurse to check the wound and discuss analgesia, patient activity, and any other issues. All patients attended the follow-up clinic at 3–4 weeks. A brief questionnaire was given to each patient to evaluate waiting time from the date of referral, to judge whether the information given to them

- Vasectomy
- Carpal tunnel decompression
- Excision of 'lumps and bumps', such as lipomas and sebaceous cysts
- Excision of skin cancers
- Excision of ganglion
- Injection and banding of haemorrhoids
- Sigmoidoscopy
- Varicose vein surgery — ligation of perforators
- Excision and eversion of hydrocoele sac
- Frenuloplasty of penis
- Circumcision
- Hernia repairs — epigastric, umbilical, inguinal and femoral

Box 2. Surgical procedures offered at Gayton Road Health and Surgical Centre.

at preoperative assessment was adequate, and to find out their views about the quality of care, including immediate postoperative care. Patients were also sent a questionnaire annually to monitor their progress.

Results

Four thousand, nine hundred and sixty-five procedures (Box 2), including 286 inguinal hernia repairs, have been performed at the practice over the past 9 years. Four out of nine available weekly sessions have been devoted to the surgical service, including outpatient assessments. There have been no deaths directly related to these procedures.

The non-attendance rate was 0% for hernia repairs and negligible for the other procedures. The complication rates for hernia repairs were documented over 9 years (Box 3). These minor complications compare favourably with those results published in specialist hernia journals.¹⁴⁻¹⁶

Two procedures had to be abandoned. In the first, the patient, a middle-aged man, developed an unexplained tachycardia, which was detected by the anaesthetist, after sedation and prior to infiltration of local anaesthetic. Tachycardia subsided and the patient was subsequently referred to secondary care as a routine referral. In the second case, the patient had minimal sedation and local anaesthetic infiltration at the proposed incision site. Skin incision was uneventful, but the patient was uncomfortable on handling tissue deep in the Scarpa's fascia. Seventy millilitres of local anaesthetic was injected in and around the area, but with no relief to discomfort. The external oblique fibres were not touched or incised and the procedure was abandoned and the wound closed. The patient was referred to secondary care for hernia repair under general anaesthetic a few weeks later.

Pain is a major postoperative problem affecting day surgery patients¹⁷ and the importance of good postoperative pain management is crucial for the quality of care. Meloxicam, a non-steroidal anti-inflammatory drug, was prescribed if needed for postoperative analgesia. Good analgesia enables early ambulation and significantly reduces complications. Early ambulation uplifts patient morale⁴ and accelerates recovery in every way.

- Abnormal sensitivity in groin areas = 3.85% (11/286)
- Bruising = 3.15% (9/286)
- Painful ejaculation = 0.004% (1/286)
- Haematoma = 0%
- Seroma = 0%
- Wound infection = 0%
- Urinary retention = 0%
- Persisting pain for longer than 3 months = 0%
- Testicular atrophy = 0%
- Recurrence of hernia = 0%

Box 3. Complication rates for hernia repairs documented in the 9-year follow-up.

Discussion

Summary of the main findings

This study showed that good hernia repair results can be achieved in a general practice setting. Negligible rates of complications and of non-attendance demonstrate the success of this project. The good results are due to a structured patient selection process and efficient teamwork by highly skilled staff. The waiting time for hernia repair was reduced. Formerly, the average waiting time for hernia repair was around 18 months from the date of first referral, however, an appropriate use of skills and resources has reduced this waiting time to 4 months.

Strengths and limitation of the study

Strengths. This study has shown that most, if not all, of the quality markers defined by the British Association of Day Surgery¹⁸ were achieved. These were: a negligible non-attendance rate, a large number of patients treated, a low rate of conversion to general anaesthesia, no patients needing to stay in a hospital environment overnight, negligible complication rates, negligible infection rates and no recurrence or readmission rates. A brief questionnaire given to patients at follow-up revealed high satisfaction rates.

There was no perceived increase in demand on primary care resources for postoperative care. Kong *et al* have demonstrated a high rate (31.5%) of GP consultations for intermediate incisional surgery.¹⁹ Some studies have reported figures of 28% for postoperative consultations for pain control.²⁰

Patient satisfaction was high because waiting time was short. Patients had the flexibility of choosing a date and time for their procedure, they were seen and operated on in a patient-friendly and familiar general practice setting, and they were happy to see familiar faces during the preoperative, intraoperative and postoperative phases of their management. For the purchaser, the primary care trust, waiting times for procedures were good. Secondary care benefited, too, by reduced waiting lists and spare operating capacity being made available for more complex cases.

Limitations. It is imperative that the GPwSI in surgery is technically proficient, and at present the necessary training has to be obtained in the secondary care day surgery setting

under good supervision.²¹ To perform intermediate surgery, such as hernia surgery, in primary care the GPwSI must be technically adept and have good interpersonal skills, as the patient is awake and alert. Intermediate day surgery, whether it is in secondary care or primary care, is not always straightforward. There are disadvantages to stand-alone units in a general practice setting, in particular, working in isolation.

Implications for future research and clinical practice

There is a need for prospective studies in this area to compare surgical services, notably comparing hernia repair in a general practice setting with the present mode of delivery in secondary care. There is no available literature at present.

The recent development of the GPwSI by the Department of Health²² and the plausibility of transferring some secondary care services to primary care appears feasible. Training of future GPwSIs in surgery and funding for such a venture should commence in earnest. It is imperative for health authorities to support such a venture; in fact, the Royal College of Surgeons has encouraged surgeons and health authorities to regard provision of this service as an important element in surgical care.²¹ This is the key to sustainability of such secondary care surgical services in primary care.

It is feasible to repair groin hernias using local anaesthesia in a general practice setting, provided that all of the criteria for success are in place, namely, skilled staff, suitable premises, good organisation of care and well-informed, motivated patients.

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