

Short-term Results of Laparoscopic Totally Extraperitoneal Inguinal Herniorrhaphy

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Abstract

Background: The local experience of laparoscopic totally extraperitoneal (TEP) hernia repair in Chittagong were reviewed. **Methods:** Between January 2009 to December 2010, 30 consecutive patients underwent TEP hernia repairs for inguinal hernia. A retrospective case series of 30 consecutive patients undergoing TEP 1 year ago by a single surgeon was followed prospectively with a focused physical examination and interview. Data collected included recurrence, chronic groin pain, tenderness, sensory disturbance, activity or occupational limitation and personal satisfaction. **Results:** The mean age was 56 years. Median follow-up was 1 month. Follow-up was completed by interview and physical examination. There was no major morbidity or mortality. Hernia recurrence rate was 3.33%. Chronic pain occurred in 2 patients (6.66%), which was mild in nature. Ninety-seven per cent of patients were satisfied with their repair and would or had recommended TEP to others. **Conclusions:** Short-term results of TEP demonstrated be an effective and safe procedure with a low recurrence and low prevalence of chronic pain that is generally of a mild, infrequent nature.

Key words: TEP; Herniorrhaphy; Laparoscopic herniorrhaphy.

INTRODUCTION

The revolutionary success of laparoscopic cholecystectomy has resulted in an intense effort to apply this concept of minimally invasive surgery to other operative procedures like inguinal hernia. The laparoscopic hernia surgery was initially a controversial topic with various studies publishing contradictory results. Unfortunately, the initial enthusiasm in laparoscopic herniorrhaphy was met with a disappointing early recurrence rate, which was as high as 25% in some series. But now with a decade of experience in lap hernia surgery, the dust seems to be settling down more towards accepting the superiority of the laparoscopic repairs over conventional repairs. This is mainly due to the proper understanding of endoscopic inguinal anatomy, effacement of initial procedures like plug and patch technique, refinement of the techniques, introduction of the preperitoneal placement of mesh, etc.

Laparoscopic hernioplasty has several advantages over its open counterparts. First and foremost aspect from the patient's point of view is the reduced postoperative pain and short recovery period. Second, the entire myopectineal orifice can be inspected, allowing for repair of any unexpected hernias thereby reducing the chance of recurrence. Third, laparoscopic hernioplasty avoids previous operative scar site in patients with recurrent hernias.

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The disadvantages of laparoscopic repair include the need of general anaesthesia, the breach of peritoneum in transabdominal preperitoneal herniorrhaphy (TAPP) repairs and the cost of the procedure.¹

The aim of the present study is to assess the short-term results of totally extraperitoneal (TEP) performed by a surgeon experienced in the technique.

METHODS

The records of 30 consecutive patients who had undergone lap inguinal (TEP) herniorrhaphies between January 2009 and December 2010 were reviewed and the patients recalled for clinical assessment. All procedures were performed by a single surgeon (SH). The standard TEP procedure, previously described,² was performed under general anesthesia with balloon expansion (Autosuture PD82, Tyco Health Care, Norwalk, USA) and subsequent carbon dioxide insufflation of the preperitoneal space. Reduction of hernia sac was achieved using two 5 mm lower midline working ports and one 10 mm subumbilical camera port. Prefabricated polypropylene mesh (BARD 3D Max, Davol, Cranston, UK) was then inserted in the extraperitoneal space covering the hernia orifices (Figure 1). Specific issues addressed by the review were recurrence, chronic groin pain, tenderness, sensory disturbance, activity restriction or occupational limitation, and personal satisfaction. Chronic pain was defined in line with the International Association of Study of Pain as that persisting beyond 3 months from the date of surgery.³ The type of pain (somatic ligamentous, neuropathic or visceral) and its severity were classified according to Cunningham.⁴ Mild pain was defined as occasional pain or

discomfort and caused no limitation to usual activities and allowed for a full return to pre-hernia lifestyle. Moderate pain was defined as pain interfering with or preventing a full return to pre-hernia activities such as sports, but not limiting basic daily activities. Severe pain was defined as pain that incapacitated the patient at regular intervals or interfered with basic activities of daily living such as walking, or caused significant occupational difficulties. Sensory impairment was categorized into anesthesia, paraesthesia or hyperesthesia.

RESULTS

In the period January 2009 to December 2010, 30 consecutive hernias were repaired in 30 patients. One patient (3.33%) had repair of recurrent hernia. The mean length of follow-up was 12 months (range 1–18 months). There was one recurrence (3.33%). Two patients (6.66%) described persistent chronic pain. This was mild in both patients. No patients had ongoing moderate or severe pain. In one of these, pain type was somatic ligamentous, localized to the pubic tubercle. One patient had neuropathic pain presumably from irritation of local nerves. Three patients (10%) had groin tenderness on examination. Tenderness was located over the pubic tubercle in 1 patient, over the deep ring in 1 patient and in the spermatic cord at the top of the scrotum in 1 patient. One patient had sensory impairment (3.33%). This patient had a small area of anesthesia in the groin medially. No patients had paraesthesia or hyperesthesia. No patients had testicular atrophy, although one patient had a tethered cord resulting in an elevated testicle. No serious complications following TEP were experienced. Twenty-nine patients (96.66%) were either satisfied or extremely satisfied with their repair and would or had recommended TEP to a friend. One patient had experienced severe pain and later had eventually settled. Three patients had previously experienced an open repair either on the same or contralateral side and all felt that their TEP repair was associated with less pain and shorter time to return to usual activities.

DISCUSSION

Short-term recurrence rates of 3.33% at 18 months following TEP occurred in our series whereas in other study the recurrence tended to be a late phenomenon, occurring at a median of 36 months which supports the need for long-term follow-up studies to accurately determine the success rate of surgery. One of the flaws of studies that compare recurrence of laparoscopic versus open repairs is that they unfairly compare the results of an operation that most

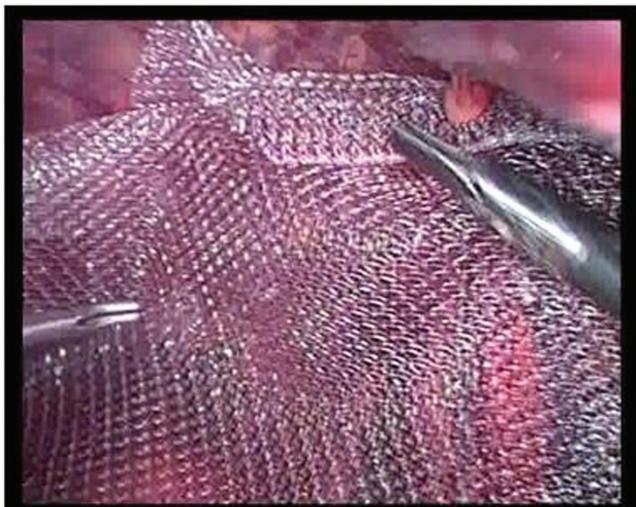


Figure 1: Unfolding the mesh above the parietal peritoneum

surgeons are highly experienced at, with those of a relatively new technique that has variable levels of surgeon experience. An appropriate comparison would be that which compares the best results achievable with both techniques. An example of this problem is well illustrated by the recently published Veterans Affairs cooperative study comparing TEP with the Lichtenstein open repair, which concluded against laparoscopic repair on the basis of higher overall recurrence.⁵

However, when the TEP experience of individual surgeons was analyzed, it was found that surgeons experienced in TEP had a recurrence rate of <5% that was equal to that achieved by the Lichtenstein arm. Others have shown in large multi-centre randomized trials that TEP has a lower recurrence risk than open repairs.⁶ The importance of follow-up by physical examination was highlighted in the present study by the only recurrence in the series occurring in a patient who, when questioned initially by telephone, did not think he had one. Most published hernia studies conduct follow-up only by telephone or written questionnaire. These methods of follow-up may not be accurate.⁷ It is noteworthy that in contrast to the recommendations of the UK National Institute for Clinical Excellence (NICE)⁸ the incidence of and recurrent hernia (3.33%) repairs in the present series is rather low, reflecting our philosophy that TEP is the preferred method of repair of all groin hernias, including first-time repairs. Although ongoing chronic pain complicated 6.66% of the present TEP repairs, it was in almost all cases of a mild and occasional nature that allowed a full return to pre-hernia activities.

We were stringent in the application of our pain definitions and included patients who experienced any groin pain, regardless of how minor or infrequent. The corollary of this is that 93.33% of the present patients were completely free of any long-term groin pain whatsoever. Many studies of various open repairs, including tension-free repairs, report both a higher rate and greater severity of chronic pain.⁹

This is exemplified by the Cooperative Hernia Study which, using the same pain definitions, found 53% of patients had pain, being moderate or severe in 10%, at 2 years following open repairs.⁴

One large review of >40 hernia studies including all major repair techniques demonstrated that laparoscopic TEP repairs had the lowest prevalence of chronic pain.¹⁰

Indeed, a recent British prospective randomized trial showed that patients who had undergone Lichtenstein repairs had a fivefold higher risk of chronic pain when compared to those who have had laparoscopic repairs.¹¹

Patients who underwent open herniorrhaphies are also twice as likely to seek the help of a pain specialist.¹² The pain following TEP is most commonly somatic ligamentous, which is thought to arise from inflammation of the ligamentous insertions around the pubic tubercle, perhaps associated with fixation. This differs from the type of pain usually seen following open repairs, which is usually neuropathic, resulting from nerve irritation. This difference is explained readily because dissection in TEP occurs in a different plane to the ilioinguinal and iliohypogastric nerves, which, in contrast, are vulnerable to injury in an open repair. This concept is further supported by the low prevalence of sensory impairment in the present series of laparoscopic repairs. If the somatic pain observed following TEP relates to fixation, then alternatives to staple fixation such as tissue glue or non-fixation may further reduce chronic pain.¹³ Such alternatives, however, would require further investigation to ensure that reduced fixation does not come at the expense of increased recurrence.

CONCLUSION

TEP mesh herniorrhaphy is a safe and efficacious method of herniorrhaphy with a low rate of recurrence and chronic pain. Surgeons experienced in TEP should be encouraged to report their long-term experience so that the true potential of this technique, rather than just learning curve results, is better understood.

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