

Lichtenstein tension-free repair of inguinal hernia*

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Rezumat

Procedeu Lichtenstein "tension-free" în tratamentul herniei inghinale

Recurențele după operație pentru hernie au fost întotdeauna o problemă importantă. Scopul acestui studiu a fost să prezentăm experiența noastră în utilizarea procedurii Lichtenstein "tension-free" în tratamentul herniei inghinale. În acest studiu au fost incluși 223 pacienți operați cu hernie inghinală din septembrie 2000 până în august 2003. La 203 pacienți am folosit proteză de polypropilenă. Am colectat rezultatele privind complicațiile precoce și tardive și în special cele referitoare la rata de recurență. Au fost 189 bărbați (93,1%) și 14 femei (6,9%). La 70% din cazuri, hernia inghinală a fost indirectă (n = 156), directă la 25% (n = 56) și mixtă (pantaloon) la 5% (n = 11). Hernia bilaterală au avut 40 din bolnavi (19.7%). La 210 (94.2%) pacienți a fost primară și la 13 (5.8%) recidive. Media de vârstă a fost de 54.3 (între 32 și 71 ani). Urmărirea a fost realizată prin examen clinic la 160 pacienți (78.8%).

Perioada medie de urmărire a fost 3 ani (între 1 și 5 ani). Serom a avut un pacient și 5 au avut neuralgie postoperatorie. Numai unul a avut recidivă (0.4%) după patru ani. Operația pentru hernie inghinală prin procedeu Lichtenstein "tension-free" cu folosirea de proteză de polypropilenă, este o metodă simplă și sigură fără morbiditate precoce sau tardivă și este o metodă fără recidivă, în perioada de urmărire.

Cuvinte cheie: hernie inghinală, Lichtenstein "tension-free", recidivă, proteză, propilenă

Abstract

Recurrences have been a significant problem following hernia repair. The purpose of this study was to present our experience of Lichtenstein tension-free repair of inguinal hernia. In this retrospective study, 223 inguinal hernia repairs were performed between September 2000 and August 2003 in 203 patients, using a polypropylene mesh. The main outcome measure was early and late complications and especially recurrences. There were 189 males (93.1%) and 14 females (6.9%). Inguinal hernia was indirect in 70% of cases (n = 156), direct in 25% (n = 56), and of the pantaloon (mixed) type in 5% (n = 11). Bilateral inguinal hernia was found in 20 patients (9.8%). 210 (94.2%) of hernias were de novo, while 13 (5.8%) were recurrences. The mean patients age was 54.3 years (range, 32-71 years). The follow-up was completed in 160 patients (78.8%) by clinical examination. The median follow-up period was 3.0 years (range, 1-5 years). Seroma and post-operative neuralgia were observed in one and 5 patients respectively. There was only one recurrence (0.4%) four years later. Lichtenstein tension-free mesh repair of inguinal

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hernia is a simple and safe method, with no significant early and late morbidity and achieved a method with no recurrence during the follow-up period.

Key words: inguinal hernia, recurrence, polypropylene mesh, Lichtenstein technique

Introduction

Hernia particularly is referred as a frequent disease in male population with a prevalence of 36 cases for every 1000 males. Its management is always surgical. Hernia repair is the second most frequently performed operation in France and USA. Especially, inguinal hernia repair is the second most common procedure after appendectomy (17.2% of the procedures in France, 24.1% of the procedures in USA) (1). That means that 100,000 inguinal hernias are repaired in France, 600,000 in USA and 80,000 in Great Britain per year (2-5). Lowering the recurrence rate by 1% would mean 1,000 fewer operations for hernia repair per year in France, for example.

Recurrence following repair of inguinal hernias is a significant problem for both the surgeon and the patient. There is evidence that a defect in the metabolism of collagen is involved in the pathogenesis of inguinal hernia in adults, leading to a weakening of the transversalis fascia. Obviously, the use of such a weakened tissue is problematic for hernia repair. In an attempt to reduce the incidence of recurrences and to reinforce the plastic reconstruction, various techniques have been used including autologous tissue techniques and a variety of biomaterials (6, 7). Usher et al (8) proposed the use of high-density polyethylene to repair tissue defects of the chest and abdominal wall, about half a century ago. Since then, a clear preference for synthetics has been observed and during the last decade a marked interest in the use of prosthetic materials was evident. The reports by Stoppa et al (9) and by Lichtenstein et al (10), where the use of prostheses was associated with many advantages, greatly contributed to this change in our surgical philosophy.

In this retrospective study, we describe the operative strategy and the results of the surgical treatment based on patients who underwent Lichtenstein tension-free repair for inguinal hernia during a 3-year period, at First Surgical Department, 'Evangelismos' General Hospital of Athens.

Material and Method

Between September 2000 and August 2003, 223 groin hernia repairs were performed in 203 patients using the Lichtenstein tension-free technique with a polypropylene mesh. Information regarding diagnosis, operative details, and postoperative complications with a specific focus on patients with recurrences were collected.

189 of the patients were male (93.1%) and 14 patients

were female (6.9%). Inguinal hernia was indirect in 70% of cases (n = 156), direct in 25% (n = 56) and of the pantaloon (mixed) type in 5% (n = 11). Bilateral inguinal hernia was found in 20 patients (9.8%). 210 (94.2%) of hernias were de novo, while 13 (5.8%) were recurrences. The mean patients age was 54.3 years (range, 32-71 years). We performed 45 procedures under epidural anesthesia, 11 procedures under caudal anesthesia, and 167 procedures under general anesthesia. The median follow-up period was 3.0 years (range, 1-5 years) and was completed in 160 patients (78.8%) by clinical examination.

Operative technique

The patient was placed in the supine position. The groin was prepared in the usual fashion. Before the incision, a bolus dose of a second-generation cephalosporin was given intravenously. Firstly, the skin, the subcutaneous tissue and the external oblique aponeurosis were incised. Then the spermatic cord was elevated from the posterior wall of the inguinal canal. In indirect hernias, the hernial sac was identified, dissected to the internal ring and opened to allow examination of its contents. The sac was ligated and its distal portion was usually excised. However, in large indirect inguinal hernias, where the sac descends down to the scrotum, the distal part of the sac may be left open to prevent the formation of a hydrocele, thus allowing spontaneous obliteration. We preferred to imbricate its contents with silk 2-0 in direct hernias.

A polypropylene mesh was trimmed to fit the floor of the inguinal canal, and its apex was first sutured to the pubic tubercle using a No 3-0 vicryl suture. Then we sutured the lower border of the mesh to the free edge of the inguinal ligament using a No 3-0 vicryl suture, after an opening was made into its lower edge to accommodate the spermatic cord. Interrupted vicryl sutures then suture the two cut edges of the mesh together around the spermatic cord. The infero-medial corner of the mesh is then attached well overlapping the pubic tubercle. The mesh is then anchored to the conjoined tendon by sutures (No 3-0 vicryl). The aponeurosis of external oblique was closed by using No 2-0 vicryl sutures. Before the closure of the surgical incision, its edges are infiltrated with a long-acting local anesthetic, such as naropein.

Prophylactic antibiotics were usually given for 24 hours post-operatively. In high-risk patients (i.e. obese patients), low molecular weight heparin was usually administered to prevent deep venous thrombosis the night before surgery and its administration was continued during the hospitalization. The patients were mobilized about six hours after surgery. Postoperative anesthesia consists in the administration of paracetamol or NSAIDs or a combination of these two analgesics.

Results

Postoperative pain was minimal and controlled by the use of

single analgesics such as NSAIDs. In the immediate postoperative period, there were three complications (morbidity: 1.3%); one seroma formation, requiring drainage, and two wound infections which were responded to appropriate antibiotic therapy. We had not observed acute infection or abscess formation related to the presence of the foreign body (mesh).

The median hospitalization was 1.4 days. There was one recurrence of the hernia four years postoperatively (recurrence rate 0.4%). This case was one of de novo hernias. Postoperative neuralgia was observed in five patients (2.2%); the management was conservative by using simple analgesics.

Discussions

Recurrences have been a significant problem following hernia repair. Usually, repair of these hernias is technically more demanding than the origin repairs with a high risk of complications.

The recurrence rates were 6.1%, 8.6% and 11.2% for Shouldice, McVay and Bassini technique respectively according to Hay et al (1) retrospective study, in a median follow-up period of 68 months. Panos et al (11) reported recurrence rates 6.6% and 8.8% for Shouldice and McVay technique respectively; the median follow-up period was 36.4 months. Finally, Kingsnorth et al (12) reported recurrence rates 4.6% and 2.3% for Shouldice and Bassini techniques respectively in a median follow-up period of 24 months.

Hernias recur primarily for two reasons: (1) attrition of tissue due to altered collagen metabolism and (2) tension on the suture line (13). Human tissue alone cannot be used to counteract these causes; a satisfactory prosthesis is needed if results of herniorrhaphy must to improve. The description of the Lichtenstein tension-free mesh repair opened a new era in inguinal hernia repair (10). The method is very simple and associated with a very low recurrence rates (ranging from 0 to 2%) (13-16). This method can be performed under local or regional anesthesia and is very important that the postoperative pain is minimal.

A variety of prosthetic mesh is available to the surgeon. The ideal mesh properties are inertness, resistance to infection, molecular permeability, pliability, transparency, mechanical integrity, and biocompatibility. Absorbable mesh does not remain in the wound long enough for adequate collagen to be deposited, while multi-filament mesh can harbor bacteria. Monofilament mesh is the most popular presently in use with the various types of polypropylene having different characteristic advantages (15). Use of porous mesh (polypropylene) allows a large surface area for in-growth of connective tissue leading to permanent fixation of the prosthesis within the abdominal wall. Intraparietal placement of the prosthesis allows well vascularized tissue coverage of all aspects of the prosthesis. Fears of complications related to mesh implantation have proved to be without foundation. Duration of antibiotic use differ among investigators.

Lafferty et al (17) reported a recurrence rate of 0% after

the use of Lichtenstein tension-free repair of inguinal hernia; the median follow-up period in this series was 1 year. Amid et al (13) reported a recurrence rate of 0.1% in a median follow-up period of 5.1 years, while Sakorafas et al (18) observed a recurrence rate of 0.2% in a median follow-up period of 3.8 years. In our retrospective study, there was one recurrence of inguinal hernia four years postoperatively (recurrence rate 0.4%).

We observe neither acute infection nor abscess formation related to the presence of the foreign body (mesh). There were two wound infections (0.9%) which were treated by using the appropriate antibiotic therapy for 24 hours period. We observed rapid return to unrestricted activities and high patient satisfaction. The same results have been reported from many other authors (13, 17-19).

Tension-free polypropylene mesh inguinal hernia repair is a simple, safe, comfortable, effective method, with extremely low early and late morbidity, remarkably low recurrence rate, rapid return to unrestricted activities and high patient satisfaction. This method can be performed by all surgeons and is very effective in the prevention of recurrences. It is our preferred method for inguinal hernia repair.

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