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Case Report

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Repair of a Lumbar Hernia of the Triangle of Petit with Prolene Mesh Hernia System (PHS): Case Report and Review of the Literature

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Abstract

Many varieties of lumbar hernia repair have been described. Repairing a lumbar hernia is not as straightforward as other abdominal wall hernias. This is because there is a lack of a strong aponeurosis to place anchoring sutures and a risk of injury to nearby major vessels and nerves. With traditional methods that employ suture closure, recurrence rates are high. Although open and laparoscopic mesh repair is frequently conducted, a consensus to the ideal operation is not apparent. We present an alternative method for open mesh repair of lumbar hernia, originating from the Triangle of Petit, that uses the Prolene Hernia System.

Keywords: Lumbar hernia; Prolene hernia system.

Introduction

Open and laparoscopic surgical techniques have been described for the repair of lumbar hernia. Unfortunately, due to a paucity of multi-centre randomized controlled trials that detail complications and recurrence rates we cannot judge the best method for repair Nevertheless, the key to developing a good repair with few complications and recurrence is a good understanding of the anatomy, reasons for development and use of prosthetic mesh.

Anatomy

Congenital lumbar hernias arise from the two lumbar triangles described by Petit and Grynfelt. The Triangle of Petit comprises, as the anterior and posterior boundaries, the free-hanging posterior border of External oblique and Latissimus dorsi muscles. The inferior boundary of the triangle is delineated by the Iliac crest; the roof and floor are made up of skin, fat and the Internal Oblique muscle respectively. The triangle of Grynfeltt, described approximately 100 years after Petit, is bordered superiorly by the twelfth rib, inferiorly and medially by Internal Oblique and Quadratus Lumborum muscles respectively. The triangle is covered by the Latissimus Dorsi muscle.

Hernias of the lumbar triangles

Lumbar hernias can be congenital or arise from trauma [1], nephrectomy flank incisions [2] and Latissimus Dorsi flap formation for breast reconstructions [3].

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Case report

A 70 year old man presented to the General surgery clinic, with discomfort in the left loin. He had no past medical history or past surgical history and denied any trauma to that loin. On examination a small lump (approximately 3 cm) in the left loin above the iliac crest was visible and palpable. The lump had a cough impulse and spontaneously reduced. A diagnosis of congenital left lumbar hernia arising from the Triangle of Petit was made. The gentleman underwent an open left lumbar hernia repair; operative findings are shown in (Figure 1); a circular defect measuring 3cm in diameter is visible within the Internal Oblique muscle.

Defect size, high recurrence rates and lack of firm tissue for anchoring sutures were the main reasons for using the Extended Prolene Hernia system (ePHS) mesh. It is composed of a dual layer of mesh that is united by a central cylindrical core. This allows the mesh to be inserted in such a manner that the inner layer is extraperitoneal and outer on top of the Internal Oblique muscle, overlying the defect (Figure 2). For this case the outer mesh layer was attached, to the External Oblique and Latissimus Dorsi muscles with simple interrupted 0 Nylon suture. Although these do not provide a firm base for anchoring sutures, we felt that recurrence would be low due to the double nature of the mesh and its central mesh core (Figure 3). The patient was discharged the same day. Postoperative complications such as infection and haematoma did not occur. At 9 months follow-up, complications such as chronic pain and recurrence were absent.

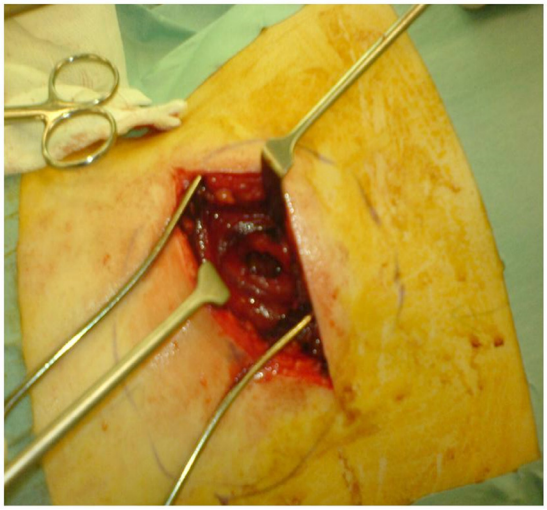

Figure 1: Lumbar Hernia of the Triangle of Petit.

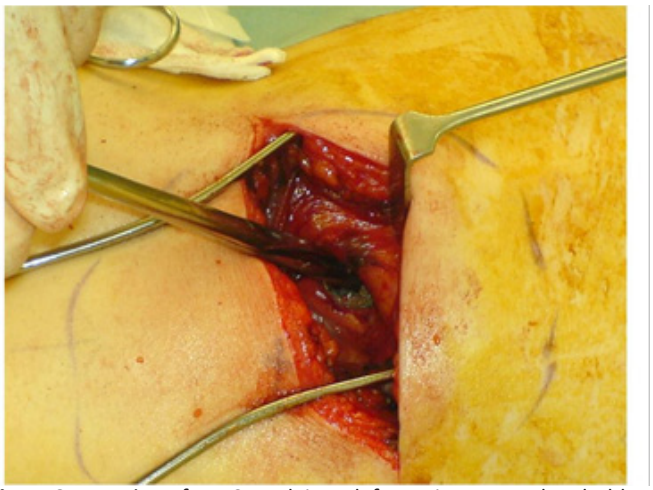

Figure 2: Insertion of ePHS mesh into defect using a Rampleys holder.

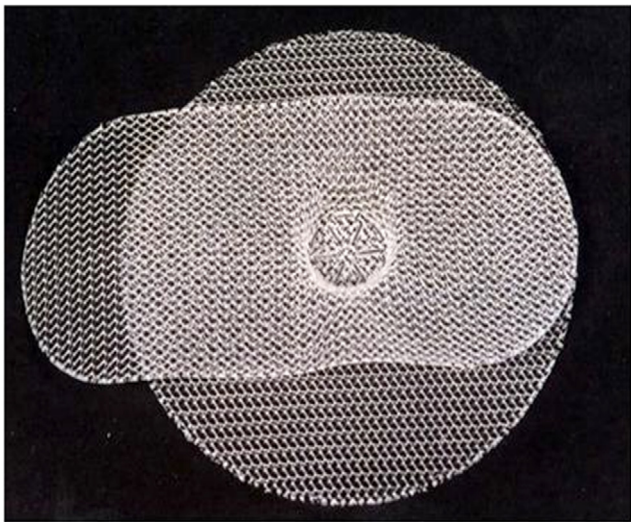

Figure 3: PHS mesh.

Discussion

Pain [4,5], obstruction [6,7] and strangulation [8] are just some of the symptoms that have been reported for lumbar hernia. Obstruction and strangulation, regardless of their frequency, should be a major reason to recommend repair to all symptomatic and asymptomatic individuals. A gold-standard recommendation for lumbar hernia repair is not available. Certain key principles of hernia repair should, nevertheless, be followed. These include use of a prosthetic mesh and tension free repair. We, therefore, feel that the Prolene Hernia System is a viable option for the repair of lumbar hernia from the Triangle of Petit. It will be beneficial when repair by laparoscopic methods is not possible or, not available and the hernia defect is small. Although length of follow-up is small, it is encouraging to know that the patient is symptomless and free of recurrence. It is in keeping with other reports that use different repair techniques.

The Prolene Hernia System may be ideal for lumbar hernias with a small defect for several reasons. First, the authors feel that scar tissue formation between the cylindrical mesh core and muscular defect would prevent mesh migration and reduce recurrence rate. Second, the effect of mesh shrinkage upon recurrence would be minimized by the dual mesh layer. Third, repair is achieved in both an extraperitoneal and onlay fashion further minimizing mesh displacement or migration. The dual layer properties of the Prolene Hernia System may compensate for the lack of firm tissue for anchoring sutures. Fourth, increased intra-abdominal pressure will push the extraperitoneal mesh layer against the defect. It is an argument used by some to explain success of laparoscopic extraperitoneal lumbar hernia repair [9]. Several techniques for lumbar hernia (of the triangle of Petit) repair exist. They encompass laparoscopic [10] and novel open techniques (bone anchor fixation [14] and modification of the Dowd method [11].

Laparaoscopic repair comprises placement of mesh in the extra-peritoneal space. Approaches for mesh placement include the transabdominal [12] and extraperitoneal/retroperitoneal [5] routes. Arguments for laparoscopic repair include improved visibility and smaller scars [9]. These approaches may also necessitate division of adhesions and colonic mobilization [2]. Potential for injury to intra-abdominal organs is, therefore, a reality. One prospective, non-randomized trial of secondary lumbar hernia repair recommended laparoscopic over open surgery as hospital stay and postoperative morbidity was lower [13]; intraoperative complications only occurred in the laparoscopic group (bleeding due to Omental and Inferior Epigastric artery injury). Repair of the hernia using an open technique was longer with a greater length of hospital stay. Chronic pain, return to normal activities and recurrence was higher in the open repair group. This may have been due to case selection; hernias in the open group were larger. Second, drains were used in the open repair and may have increased length of stay. The Prolene Hernia System should be considered for congenital lumbar hernia repair where the defect is small and laparscopic repair is not possible. Benefits include small incision, combined extraperitoneal and onlay mesh placement and short hospital stay.

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