Lumbar Hernia Treated with Lightweight Partially Absorbable Mesh : Report of a Case

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https://doi.org/10.15017/1440938

出版情報：福岡醫學雜誌. 104 (12), pp.575-579, 2013-12-25. Fukuoka Medical Association
バージョン：

Lumbar Hernia Treated with Lightweight Partially Absorbable Mesh : Report of a Case

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Abstract
Superior lumbar hernia, also known as Grynfeltt-Lesshaft hernia, is an uncommon abdominal wall defect. We report a case of superior lumbar hernia, which was successfully treated with a lightweight partially absorbable mesh. A 73-year-old man visited our department with complaints of lumbar pain and a feeling of pressure associated with a right lumbar mass. A CT scan of the abdomen demonstrated a defect in the aponeurosis of the transversus abdominis muscle and a protrusion of the small intestine through the defect. The diagnosis of a right superior lumbar hernia was made. The lumbar hernia was surgically treated with a lightweight large-pore polypropylene mesh containing an absorbable component consisting of poliglecaprone (ULTRAPRO Plug). The patient had no evidence of recurrence after 4 years of follow-up without any sense of discomfort. This is the first case report of a lumbar hernia treated with a lightweight partially absorbable mesh. This partially absorbable mesh can be considered to be suitable for the treatment of a lumbar hernia.

Key words : Superior lumbar hernia・Grynfeltt-Lesshaft hernia・Partially absorbable mesh・Ultrapro・Surgical repair

Introduction

Superior lumbar hernia is a very rare variety of abdominal defect in the posterolateral abdominal wall. Grynfeltt first reported a case of this type of hernia and described the anatomical boundaries of the defect in 1866[1)]. Various surgical treatments have been reported in the literature, but owing to the rarity of this hernia, there is insufficient evidence to select one procedure as the optimal treatment. Although the tension-free method using a synthetic mesh has often been performed for various hernias, a partially absorbable mesh has recently been reported to have advantages over the standard mesh owing to the reduced amount of materials left after the implantation[2)]. We report a case of a primary lumbar hernia, which was successfully treated using a lightweight partially absorbable mesh.

Clinical presentation and surgical treatment

A 73-year-old man presented with lumbar pain and a feeling of pressure associated with a right lumbar mass. He had initially noticed the mass about 9 years previously, but did not have any symptoms. The mass has been enlarging since then, and the symptoms had appeared recently. There was no history of trauma or surgery.

On physical examination, a soft and smooth-surfaced mass located in the right lumbar region was found (Fig. 1). A CT scan of the abdomen demonstrated a defect in the aponeuro-

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Fig. 1 A huge soft and smooth surfaced mass was located in the right lumbar region.

Fig. 2 Computed tomography showed protrusion of the small intestine through the defect in the right superior lumbar triangle.

Fig. 3 The lumbar hernia was surgically treated with a lightweight partially absorbable mesh.

sis of the transversus abdominis muscle and a protrusion of the small intestine through the defect (Fig. 2). The diagnosis of a right superior lumbar hernia was made and a surgical procedure was performed.

With the patient in the left lateral position, a transverse incision was made over the apex of the hernia. After the subcutaneous tissue was dissected, a hernia sac was found in the center of the superior lumbar triangle. The hernia orifice was 3cm in diameter. The hernia sac was opened and the connection into the peritoneal cavity was identified. Although the hernia content had already been reduced, intraperitoneal fat tissue was adherent to the hernia sac. Therefore, the hernia sac including the fat tissue was resected and the peritoneal defect was closed with sutures. A lightweight large-pore polypropylene mesh plug containing an absorbable component consisting of poliglecaprone (ULTRAPRO Plug, medium size) was used to reinforce the defect. The anchor of the plug was inserted into the extraperitoneal cavity, and the rim was placed over the defect and sutured to the fascia of the surrounding muscle using absorbable sutures. The patient recovered uneventfully and was discharged on the ninth postoperative day. The patient had no evidence of recurrence at the 4-year follow-up (Fig. 3).

Discussion

A lumbar hernia is a protrusion of intraabdominal or extraperitoneal organs of the abdomen through a defect in the posterolateral abdominal wall. This type of hernia is very rare, and only about 300 cases have been reported in the literature[3].

Barbette first suggested the existence of a lumbar hernia in 1672[4]. The first case of a lumbar hernia was reported by Garangeot in 1731[5]. In 1783, Petit delineated the anatomical borders of the inferior lumbar triangle and reported a case of a strangulated lumbar hernia[6]. Since then, all lumbar hernias have been thought to originate from the inferior lumbar triangle. However, Grynfeltt identified the boundaries of the superior lumbar triangle in 1866[1] and Lesshaft further described the same anatomical area in 1870[7]. The

boundaries of the superior lumbar triangle (Grynfeltt–Lesshaft triangle) are the internal oblique muscle anteriorly, the sacrospinalis muscle posteriorly, and the twelfth rib and serratus posterior inferior muscle superiorly. The roof is formed by the latissimus dorsi muscle, and the floor is formed by the aponeurosis of the transversus abdominis muscle. On the other hand, the boundaries of the inferior lumbar triangle (Petit triangle) consist of the external oblique muscle anteriorly, the latissimus dorsi muscle posteriorly and the iliac crest inferiorly. The roof is the superficial fascia and the floor is the internal oblique muscle. Overall, 95% of lumbar hernias are reported to arise from these two spaces of the lumbar wall. It has been reported that lumbar hernias arise more frequently in the superior lumbar triangle than in the inferior triangle[8].

Lumbar hernias include congenital and acquired hernias[9]. About 20% of lumbar hernias are reported to be congenital[10], and these are often associated with anomalies in children or infants[11]. About 80% of lumbar hernias are acquired[12], and these can be divided into primary and secondary hernias. Primary lumbar hernias mainly occur in elderly patients, and are estimated to represent about 55% of the lumbar hernias often found in the left side and in the superior lumbar triangle[13]. They may be associated with increased intraabdominal pressure, such as physical activity or chronic bronchitis[3]. Anatomical alterations of the posterior abdominal wall owing to aging or extreme thinness can also cause these hernias. Secondary lumbar hernias are reported to account for 25% of lumbar hernias[13]. The causes are surgical incisions, flank or lumbar traumas, and retroperitoneal abscesses or hematomas[12].

The only treatment for a lumbar hernia is surgical repair of the defective wall. For small hernias, the defect can be securely repaired by simple closure of the aponeurosis or approximating the transversalis fascia. For large hernias, simple closure is not sufficient and tension-free methods have been adapted using a fascial strip[13], a fascial rotation flap[14] or free fascial grafts[15]. Currently, various synthetic meshes have been developed and are often used to reinforce the defect[16]. Although the open approach with a posterior oblique incision is preferred by many surgeons, transabdominal and extraperitoneal laparoscopic procedures have also been reported as alternatives to the open approach[8][17][18].

In a recent study, the benefits of using a new partially absorbable mesh for hernia repair were demonstrated based on the reduced amount of materials that persist in the host tissue after the implantation, which leads to diminished foreign-body reactions and less fibrosis in the host tissue. Such phenomena can decrease a certain degree of the rigidity, producing discomfort for the patient. Furthermore, absorbable meshes can maintain the same tensile strengths against the repair zone as standard nonabsorbable meshes since they induce good recipient ingrowth of the host tissue, which can contribute to less recurrence[2].

Recently, several reports have demonstrated that inguinal hernia repair using partially absorbable meshes improves the quality of life of the patients and the functional outcomes[19][20]. In the present case, we selected a partially absorbable mesh for a lumbar hernia, and placed it over the defect in the aponeurosis of the transversus abdominis muscle. The postoperative course was uneventful and the patient has no sense of discomfort at present. No cases of a lumbar hernia treated with a partially absorbable mesh have previously been reported, and we believe this is the first such case. Although long-term follow-up is needed, a lightweight partially absorbable mesh seems to be comparable with other techniques and is also suitable for a lumbar hernia.

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(Received for publication October 10, 2013)

（和文抄録）

軽量半吸収性メッシュを用いて治療し得た上腰ヘルニアの一例

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Grynfeltt Lesshaft ヘルニアとして知られる上腰ヘルニアは，稀な腹壁欠損疾患である．我々は，軽量半吸収性メッシュを用いて治療し得た上腰ヘルニアの一例を経験したので報告する．73 歳男性が腰痛と右腰部腫瘤による圧迫感を主訴に，当科を受診した．CT では右腹横筋腱膜の欠損と欠損部からの小腸の脱出を認め，右上腰ヘルニアと診断した．この右上腰ヘルニアは吸収成分を含む軽量ポリプロピレンメッシュ（ULTRAPRO Plug）を用いて，外科的に治療した．術後 4 年間，不快感なしに再発なく経過している．当症例は腰ヘルニアに対して軽量部分吸収性メッシュを用いて治療した初めての症例である．軽量部分吸収性メッシュは，腰ヘルニア治療に対して有用であると考えられる．