



## Underlay mesh repair for spontaneous lumbar hernia



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### ARTICLE INFO

#### Article history:

Received 21 February 2013

Received in revised form 13 March 2013

Accepted 13 March 2013

Available online 20 March 2013

#### Keywords:

Hernia

Lumbar area

Hernia repair

### ABSTRACT

**INTRODUCTION:** Lumbar hernia is a rare condition with fewer than 300 cases reported in the literature. It arises through posterolateral abdominal wall defects, named the inferior triangle (Petit) and superior triangle (Grynfelt). It can be congenital or acquired, primary or secondary, peritoneal or extraperitoneal, reducible or complicated.

**PRESENTATION OF CASE:** We report a 63 year old female patient who presented to our hospital with a reducible right superior lumbar hernia. She underwent repair with underlay mesh after inversion of the sac and had a smooth postoperative course.

**DISCUSSION:** In contrast to the classical procedure the underlay mesh modification saved us from enlarging the defect, and was quick and associated with minimal tissue injury.

**CONCLUSION:** Underlay mesh repair for spontaneous lumbar hernia is feasible when the defect is small.

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### 1. Introduction

Although spontaneous lumbar hernia was described more than 200 years ago, it is a rare entity with fewer than 300 cases reported in the literature. The diagnostic approach and the surgical treatment of this type of hernia were dramatically changed in the last decade of the twentieth century with the introduction of the CT scan, mesh repair and laparoscopic surgery. Classically the mesh is spread and fixed to the triangle floor (which is the transversus abdominis muscle). In our case we report a superior lumbar hernia repair with sutureless underlay mesh fixed only to the roof (the latissimus dorsi muscle).

### 2. Case report

A 63-year-old female patient, known to have hypertension, presented to the surgical department in the Jordan University Hospital with a right sided flank swelling of 8 months duration. She gave a history of lifting a heavy object just before developing the swelling but denied any trauma (Fig. 1). The swelling progressively enlarged and caused local discomfort and tightness. On examination there was a round soft non-tender swelling around 10 cm in diameter in the right lumbar area just below the 12th rib posteriorly, with no skin changes. It was reducible with a significant visible and palpable cough impulse. A CT scan of the lower chest and abdomen revealed a lumbar wall defect and a hernial sac (Fig. 2). A diagnosis of lumbar hernia was made on the clinical and radiological findings. She underwent repair using an underlay prolene mesh,

and then closure of the defect with nylon loop sutures including a small bite of the mesh in the closure; the procedure took 30 min. A drain was inserted in the subcutaneous tissue and removed two days post operatively and the patient discharged, with uneventful recovery. She was followed up for two years with no recurrence (Figs. 3 and 4).

### 3. Discussion

The lumbar region is an area defined superiorly by the 12th rib, inferiorly by the iliac crest, medially by the erector spinae muscle group, and laterally by the posterior border of the external oblique muscle as it extends from the 12th rib to the iliac crest.<sup>1</sup> A lumbar hernia may occur at any point in this area but the two most common sites are the superior lumbar triangle and the inferior lumbar triangle. The inferior lumbar triangle (of Petit) is bounded medially by the latissimus dorsi muscle, laterally by the external abdominal oblique muscle, and inferiorly by the iliac crest. The floor of the inferior lumbar triangle is formed by the internal abdominal oblique muscle. Petit in 1783 described a strangulated hernia emerging from this triangle and it was called after him.<sup>2</sup> In a study by Goodman and Speese who dissected 76 cadavers, the superior triangle was present in around 93% of specimens.<sup>3</sup> The superior lumbar triangle of Grynfelt–Lesshaft is bounded superiorly by the 12th rib, the posterior Speese ligament, and the serratus posterior inferior muscle; inferiorly it is bounded by the superior border of the internal oblique muscle, and posteriorly by the lateral border of the sacrospinalis muscle. The deep margin of the superior lumbar triangle is the transversus abdominis muscle, and the superficial margin is the latissimus dorsi muscle. Grynfelt and Lesshaft were the first to report, independently, a hernia through this triangle, distinguishing it from the inferior triangle.<sup>4,5</sup> According to Hume, the hernia lies beneath the latissimus dorsi muscle, but occasionally

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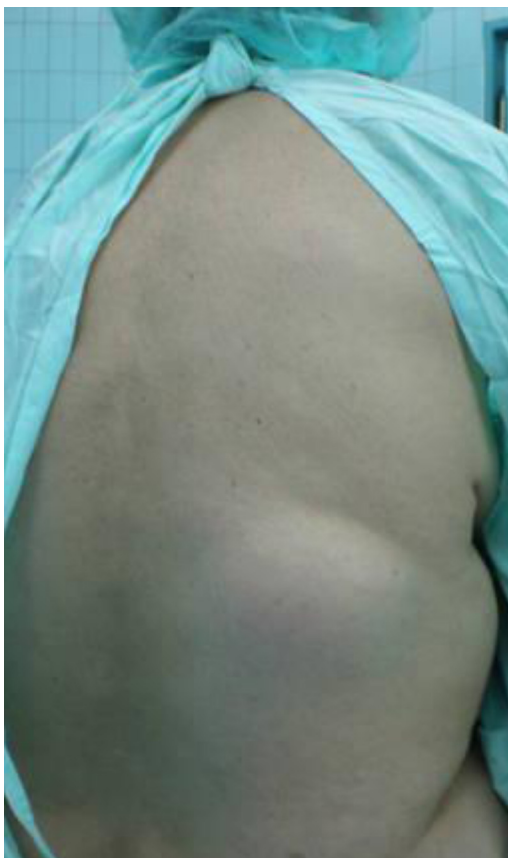


Fig. 1. A 63 year old female patient with a swelling in the Rt. Lumbar area.

it extends laterally to the subchondral region of the abdomen.<sup>6</sup> The size of the triangle varies according to the shape of the body, e.g. a short round-chested person with horizontal ribs has a larger triangle than a tall one with acute angulated ribs. Lumbar hernia is rare, with fewer than 300 cases reported in the literature; it may be congenital or acquired.<sup>7</sup> Congenital lumbar hernia accounts for 20%, appears early in life, is rarely bilateral or associated with other congenital abnormalities, and all reported cases were in the inferior triangle.<sup>8,9</sup> The acquired ones are subdivided into spontaneous or primary, and traumatic or secondary.<sup>1</sup> The primary form occurs in older age due to weakness in the abdominal muscles, while the secondary is attributed to traumatic causes such as surgical incisions, flank or lumbar trauma, seat belt trauma, iliac crest bone



Fig. 2. CT scan showing the lumbar defect and hernia content.



Fig. 3. Intraoperative picture showing the defect after reduction of the hernia sac.

graft and retroperitoneal abscess or hematoma; the traumatic hernia accounts for around 26% of all lumbar hernias.<sup>10–12</sup> Another classification was suggested according to the content of the hernia dividing it into two types: extraperitoneal hernia with no sac, containing only fat or sliding retroperitoneal organs (paraperitoneal), and peritoneal hernia that may include intraperitoneal organs such as small bowel, omentum, ovary and stomach.<sup>13</sup> The diagnosis of lumbar hernia is based primarily on the clinical evaluation, usually presenting as a reducible mass that increases in size upon coughing and straining with a positive cough impulse. It may be associated with mild pain, and in some reported cases it presented only with pain. The differential diagnosis of lumbar hernia includes lipoma, soft tissue tumor, hematoma and abscesses. Investigations like ultrasound, CT scan and MRI can help to make the diagnosis, especially in irreducible hernias. A preoperative barium enema may have a role in the identification of hernial contents. The mainstay of treatment is surgical. Repair can be done either open or endoscopically. In open repair the sac is usually found deep to or within the latissimus dorsi muscle. After reduction of the contents, dealing with the sac depends on whether it was narrow; if so, it should be opened, explored and then ligated. A wide-necked sac can be inverted and plicated. Dealing with the defect varies according to its size and the status of tissues around it: one possibility is to suture it primarily with interrupted heavy non-absorbable sutures. For larger defects some authors reported the use of tensor fascia lata rotational flaps or free fascial grafts. Nowadays in the era of meshplasty a non-absorbable mesh is usually preferred for reconstruction: it can be placed as an onlay, inlay or underlay depending on the size of the defect, and it should cover the whole area between the twelfth rib and iliac crest. Classically it is fixed to the floor by interrupted non absorbable stitches. In our modification

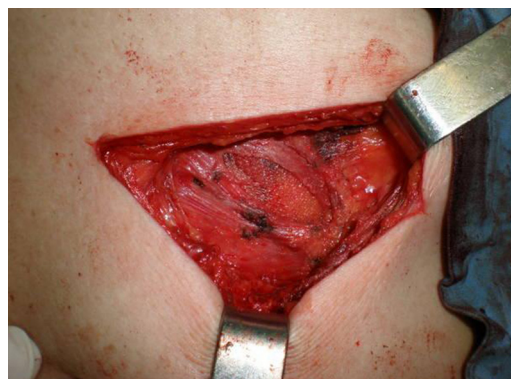


Fig. 4. Intraoperative picture showing the defect after spreading the mesh.

we fixed the mesh only to the roof upon closure of the latissimus dorsi muscle, so we did not have to increase the defect, the tissue injury was less, the procedure was quick and we gained the advantages of tension free mesh repair. Laparoscopic repair can be either transabdominal or totally extraperitoneal with a plane between the transversalis muscle and peritoneum.<sup>14,15</sup> Other possibilities include a mesh plug and a retroperitoneoscopic tension free mesh repair.<sup>16–18</sup> According to Susmallian et al. postoperative seroma detected by ultrasound is reported in most cases of laparoscopic mesh hernia repair although only one third was clinically apparent and all resolved after needle aspiration.<sup>19</sup> In conclusion, lumbar hernia is a rare clinical entity that needs a high index of suspicion to be diagnosed; imaging studies are useful in delineating the anatomy and contents. Reconstruction was revolutionized by the introduction of synthetic mesh repair which can be done either open or endoscopically with minor complications. With a small defect, open underlay sutureless tension free mesh repair can be a quick procedure with minimal tissue damage.

#### Conflict of interest statement

We declare no conflict of interests prior and during preparation of this paper.

#### Funding

None.

#### Ethical approval

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

#### Author contributions

Dr Ayman Mismar collected and analyzed the data, and wrote the manuscript. Dr Mahmoud Al Aradah collected the data and helped toward the preparation of figures. Dr Nader Albsoul supplied the design of study, collected the data and edited the manuscript. Dr Nidal Younes supplied the design of study, edited the manuscript and supervised.

#### References

- Swartz WT. Lumbar hernia. In: Nyhus LM, Condon RE, editors. *Hernia*. 2nd ed. Philadelphia: Lippincott; 1978. p. 409–26.
- Petit JL. *Traite des maladies chirurgicales, et des operations qui leur conviennent*, vol. 2. Paris, TF Didot; 1774:256–8.
- Goodman EH, Speese J. Lumbar hernia. *Annals of Surgery* 1916;**63**:548.
- Grynfeltt J. Quelques mots sur la hernie lombaire. *Montpellier Medical* 1886;**16**:323.
- Lesshaft P. Lumbalgegren in anatomisch – Chirurgischer, Himsicht. *Archives of Anatomy and Physiology Wissenssch Medicine* 1870;**264**.
- Hume GH. Case of strangulated lumbar hernia. *British Medical Journal* 1889;**2**:73.
- Ponka JL. Lumbar hernias. In: Ponka JL, editor. *Hernias of the abdominal wall*. Philadelphia: WB Saunders; 1980. p. 465–78.
- Consiglio G, Consiglio L, Consiglio R. Congenital and spontaneous acquired lumbar hernias [Clinical contribution-three cases]. *Policlinico (Chir)* 1965;**72**(366).
- Galeano F, Casoy A, Apartin A. Bilateral lumbar hernia. *Pensa Media* 1866;**16**:329.
- Esposito TJ. *Journal of Trauma* 1994;**1**:37.
- Oldfield MC. Iliac hernia after bone grafting. *Lancet* 1945;**1**:810.
- Nyhus LM, hakins HN. *Hernia*. Philadelphia: J.B. Lippincott Co.; 1964.
- Thorek M. *Modern surgical technique*. Philadelphia: J.B. Lippincott; 1950.
- Heniford BT, Lanniti DA, Ganger M. Laparoscopic inferior and superior lumbar hernia repair. *Archives of Surgery* 1997;**132**:1141.
- Meinke AK. Totally extraperitoneal laproendoscopic repair of lumbar hernia. *Surgical Endoscopy* 2003;**17**:734–7.
- Losanoff EJ, Kjossev KT. Diagnosis and treatment of primary incarcerated lumbar hernia. *European Journal of Surgery* 2002;**168**:193–5.
- Habib E. Retroperitoneoscopic tension-free repair of lumbar hernia. *Hernia* 2003;**7**:150–2.
- Postema RR, Bonjer HJ. Endoscopic extraperitoneal repair of a Grynfeltt hernia. *Surgical Endoscopy* 2002;**16**:716.
- Susmallian S, Gewurtz G, Ezri T, Charuzi I. Seroma after laparoscopic repair of hernia with PTFE patch: is it really a complication? *Hernia* 2001;**5**:139–41.

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