Intestinal obstruction secondary to incarcerated primary lumbar hernia: Laparoscopic approach and repair

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ABSTRACT

Introduction: Complicated primary lumbar hernias are very rare. We report a case presenting as an intestinal obstruction secondary to a lumbar incarcerated hernia in the Grynfeltt-Lesshaft triangle. Case Report: A 75-year-old obese woman referring sudden pain in the lumbar region, related to a non-reducible mass. Computed tomography (CT) scan confirmed the diagnosis of an incarcerated lumbar hernia and identified dilated small bowel loops. She underwent surgical treatment through laparoscopic transabdominal approach. The defect was repaired with a polypropylene mesh. Conclusion: We consider that laparoscopic approach is ideal for the repair of these types of hernias, as it allows correct identification of the hernia ring, as well as the hernia contents and their viability.

Keywords: Hernia repair, Lumbar hernia, Polypropylene mesh

INTRODUCTION

Primary lumbar hernias are extremely rare. They are responsible for 1–2% of all abdominal hernias [1]. The European Hernia Society classifies them as L4 dorsolateral hernias, irrespective of their etiology [2].

First description of these hernias was made by Garangeot in 1731 [3] whereas the first surgical treatment was performed by Ravaton in 1750 in a pregnant patient presenting with an incarcerated lumbar hernia [4].

In our article, we report the case of a primary lumbar hernia located in the Grynfeltt-Lesshaft triangle, complicated with an intestinal obstruction due to the incarceration of the hernia contents.

CASE REPORT

A 75-year-old patient who suddenly suffered from severe right lumbar pain that increased with movements. No nausea or vomiting were present. Abdominal physical examination showed mild distension, with severe pain during palpation in the right lumbar region. Plain abdominal X-ray showed dilated small bowel loops. In addition, CT scan also identified a defect in the right lateral lumbar region, through which an intestinal loop protruded (Figure 1).

With the diagnosis of a lumbar hernia, the patient underwent hernia repair. She was initially placed in supine, followed by a left lateral position. Laparoscopic approach was done with a Hasson trocar and two accessory 5 mm trocars placed in the anterior axillary line. On accessing the peritoneal cavity, a small bowel intestinal loop was found partially introduced inside a hole. It was pulled back into the peritoneal cavity; it showed a stenosis ring that recovered adequate viability, without ischemia. On the parietal aspect, a rounded...
fibrotic ring was identified, around 3 cm in diameter; its contents were explored and preperitoneal fat was found.

A $10 \times 15$ cm polypropylene mesh was used to repair the defect. Before its fixation, a preperitoneal flap was dissected around the hernia ring; it was later used to cover the prosthetic material, in order to avoid its contact with the visceral peritoneum (Figure 2A–F).

Postoperative course was uneventful and the patient was discharged two days after admission. A year after surgery, the patient remains asymptomatic.

DISCUSSION

Lumbar hernias may appear in two locations. The most frequent one is named the superior triangle, described by Grynfeltt and Lesshaft; its limits are the 12th rib (superiorly) and the quadratus lumborum muscle and the internal oblique muscle (laterally). The other site is named the inferior triangle or Petit triangle, located between the latissimus dorsi and the external oblique muscles (laterally) and the iliac crest (below).

In a general context, lumbar hernias are classified into congenital or acquired. The congenital hernias are responsible for 20% of all lumbar hernias and are usually associated to other congenital disorders (e.g., urinary disorders, diaphragmatic hernias, meningocele, etc.) [5]. Acquired hernias are more common, around 80% of the cases, and may be primary or secondary [6].

Figure 1: TAC: image of the primary incarcerated lumbar hernia.

Figure 2: (A, B) Incarcerated small bowel loop. (C) Reduction of the intestinal loop, checking its adequate viability. (D) Hernia hole. (E) Placing of a polypropylene mesh after dissection of a peritoneal flap around the hole. (F) Placement of the omentum above the mesh and the peritoneal flap.

The etiology of primary hernias is unknown, although some predisposing factors are related to their appearance. Thus, superior lumbar hernias may be related to angulations or the length of the 12th rib. Inferior hernias are related to abnormalities in muscular insertions of the external oblique or latissimus dorsi muscles. Other etiologic factors involved include obesity, chronic pulmonary disease, and advanced age [3].

Secondary hernias are usually the consequence of trauma, surgery, or incisional hernias, or even infections in the lumbar region.

Clinical manifestations of primary hernias are diverse. Sometimes they are scarcely symptomatic, especially if they are small. Others, the patient may describe discomfort in the lumbar region that worsens with movement. If a palpable bulge appears, differential diagnosis must be made with soft tissue tumors [7, 8].

The gold standard for image diagnosis is the CT scan [9]. In our case, the patient appeared with sudden back pain, associated to the presence of a non-reducible mass in the lumbar region. Urgent CT scan confirmed the diagnosis of a lumbar hernia with a secondary small bowel intestinal obstruction.

Lumbar hernias must undergo surgical treatment, because of the risk of incarceration, as occurred in our case, or even strangulation [4].

According to surgical technique, there are two options [10], namely, open surgery or laparoscopic approach. The choice will depend highly on the surgeon’s experience. Laparoscopic approach may be extraperitoneal or transabdominal. Laparoscopy offers the patient all the well-known advantages of the procedure, such as reduced trauma, quick recovery, and lower surgical site infection [11–13]. Some cases have been published which were performed on outpatient surgery [14]. On the contrary, open surgery is associated to bigger trauma and higher morbidity; thus, it is recommended for secondary hernias bigger than 15 cm [15]. Recurrence rate is also higher for open surgery, as compared to laparoscopic surgery [10].

In our case, we chose laparoscopic surgery, although the patient suffered from an intestinal obstruction. This way, we could evaluate the hernia contents and their viability under direct vision; in our case, we found a small bowel loop. We could also evaluate the characteristics of the hernia hole and plan its repair depending on its exact size. Like other authors [16], we think the repair must be performed with a mesh, in order to avoid tension. Also, the size of the mesh has to be sufficient to obtain a wide overlap, not smaller than 3–5 cm. We fixed our mesh with tackers. Our prosthesis was a high-density polypropylene mesh that was later covered with a peritoneal flap, in order to avoid contact with peritoneal contents.

CONCLUSION

We conclude that, in the present case, laparoscopic approach was ideal. It allowed us to confirm diagnosis of a
lumbar hernia and helped to identify the hernia contents and their viability under direct vision.

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Author Contributions

Mar De Castro – Conception of the work, Design of the work, Acquisition of data, Analysis of data, Interpretation of data, Drafting the work, Final approval of the version to be published, Agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved

Sonia Morales Artero – Conception of the work, Drafting the work, Revising the work critically for important intellectual content, Final approval of the version to be published, Agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved

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Conflict of Interest

Authors declare no conflict of interest.

Data Availability

All relevant data are within the paper and its Supporting Information files.
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