Laparoscopic treatment for incisional lumbar hernia in kidney donor: a new minimally invasive and efficient alternative

Tratamento laparoscópico de hérnia lombar incisional em doador renal: uma nova opção minimamente invasiva e eficiente

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ABSTRACT

This report describes and discusses a new therapeutic laparoscopic technique for incisional hernia secondary to lumbotomy in a kidney donor. The transperitoneal laparoscopic approach was used with the patient placed in left lateral decubitus. Three trocars were placed during the surgery: the first, a 10-mm trocar at the level of the umbilical scar; the second, a 5-mm trocar at the mid-clavicular line, 2 cm below the navel; and the third, a 12-mm trocar at the midline, between the navel and the xiphoid process. The peritoneum was detached from the abdominal wall laterally to the hernia defect and parallel to the colon inferiorly until complete exposure of the limits of the hernia ring was achieved. A polypropylene mesh was placed in the abdominal cavity and fixed along the borders of the previously dissected and prepared hernia ring with titanium staples. Operative time was 148 minutes and the patient was discharged 24 hours after the surgery. There was no intraoperative complication and no hernia recurrence during a 15-month follow-up. The patient resumed regular activities 3 weeks after the surgery. We concluded that the repair of the incisional lumbar hernia in kidney donor via laparoscopic approach was a good minimally invasive treatment option, with adequate functional and cosmetic results. The technique provided excellent exposure and view of the anatomical structures, with reduced pain, shorter recovery time and earlier return to activities of daily life.

Keywords: Laparoscopy/methods; Ventral hernia/surgery; Lumbosacral region/surgery; Tissue donors

RESUMO

O presente relato descreve e discute uma técnica de tratamento laparoscópico original, em caso de hérnia incisional secundária a lombotomia para doação do rim. Foi utilizada a via de acesso laparoscópico transperitoneal, com paciente em posição de decúbito lateral esquerdo. A cirurgia foi realizada por meio de três trocateres: o primeiro de 10 mm ao nível da cicatriz umbilical; o segundo de 5 mm na linha hemiclavicular 2 cm abaixo do umbigo; e o terceiro portal de 12 mm, na linha média entre o umbigo e o apêndice xifóide. O peritônio foi descolado lateralmente ao defeito e paralelo ao cólon, inferiormente, até a total exposição dos limites do anel herniário. Uma tela de polipropileno foi introduzida na cavidade abdominal e fixada com gramos de titânio nas bordas do anel herniário previamente dissecado e preparado. O tempo cirúrgico foi de 148 minutos e a alta hospitalar 24 horas após a cirurgia. Não houve complicações intra-operatórias, e em um seguimento de 15 meses não houve recidiva da herniação. O retorno às atividades normais se deu em 3 semanas. Concluímos que a correção da hérnia lombar incisional em doador renal pela via laparoscópica foi uma boa opção de tratamento minimamente invasivo, com adequados resultados funcionais e estéticos. Ofereceu excelente exposição e visão das estruturas anatômicas, com redução da dor, recuperação mais breve e retorno mais precoce às atividades habituais.

Descritores: Laparoscopia/métodos; Hérnia ventral/cirurgia; Região lombosacra/cirurgia; Doadores de órgãos

INTRODUCTION

Lumbar hernias are unusual, and there are two sites of major weakness in the region - the superior lumbar triangle (Grynfeltt-Lesshaft’s triangle) and inferior lumbar triangle (Petit’s triangle). The other hernias are called diffuse lumbar hernias and are usually related to extraperitoneal lumbar approaches(I).

Several surgical repairs have been described, among which we highlight the open techniques with primary...
closure or the conventional repair using mesh. These techniques require a large incision and an extended exposure and dissection of the herniated area (2-5).

Some services around the world have performed repair via laparoscopic approach with good preliminary results. This procedure seems to offer better results than conventional surgery. The advantages are safety and easiness to be performed by hands used to perform a laparoscopic approach, promoting a short hospital stay and a faster return to habitual activities (3-6).

Our objective is to describe and discuss the laparoscopic technique to repair incisional lumbar hernia in a patient who underwent lumbotomy for kidney donation.

CASE REPORT

A 53-year-old female was submitted to right nephrectomy for donation two years ago via a 12-cm lumbotomy. She reported bulging in that region six months after surgery. The bulging was painless; it increased in size during physical effort and reduced at rest. On physical examination, bulging in the right lumbar region was observed below the twelfth rib in upright position. Palpation revealed an 8-cm hernia ring. Clinical diagnosis of lumbar hernia was established and a CT scan was performed to confirm it. The CT scan showed herniation of the colon through the defect in the fascia. Surgical repair via laparoscopic approach was then indicated. Antibiotic prophylaxis was performed with cephalothin. The patient was placed in left lateral decubitus, with the table tilted at 60°. The surgery started off with insertion of the trocars by means of an umbilical incision, through which the first 10-mm Hasson trocar was introduced under direct view (figure 1).

Pneumoperitoneum was induced through this trocar by inflating the abdominal cavity with CO₂ until pressure attained 15 mm Hg. Immediately after this, a 0° lens was introduced. The cavity was examined for hernia ring (figure 2A). The second 5-mm port was placed under view at the hemiclavicular line, 2 cm below the navel. The third 12-mm port was inserted at the midline between the navel and the xiphoid process (figure 1).

The peritoneum was detached, medially displacing the colon included in the defect in order to expose the entire hernia ring (figure 2B). Transillumination was performed at the herniation area through the peritoneal cavity to assess the size of the polypropylene mesh. Then the mesh was introduced in the cavity through a 12-mm trocar and fixed on the wall with titanium staples at the edges of the hernial defect (figure 3A). During this procedure CO₂ pressure was reduced to 7-10 mm Hg to help to fix the mesh. Next, the entire mesh was covered with the previously dissected peritoneum and stapled on the wall in order to avoid the contact between the mesh and the intestinal loops (figure 3B). Finally the cavity was revised, the ports were withdrawn and the incisions were sutured.

Figure 1. Positioning of portals in the abdominal region for incisional lumbar hernia correction: 10-mm trocar at the level of the umbilical scar; a 5-mm trocar at the mid-clavicular line, 2 cm below the navel; a 12-mm trocar at the midline, between the navel and the xiphoid process.

Figure 2. Identification of the hernia ring (A) and detachment of peritoneum, medially displacing the colon included in the defect to expose the complete hernia ring (B)
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During the videolaparoscopic examination it is possible to clearly evaluate the size of the ring and the anatomical structures related to the hernial defect. The polypropylene mesh was easily inserted in the cavity and fixed with titanium staples at the edges of the ring through the 12-mm port. Total operative time was 148 minutes. No intraoperative events were observed and bleeding was minimal. Analgesia was provided only with dipyrone in the first postoperative day. The patient was discharged within 24 hours following the surgery and resumed activities of daily life within three weeks. At the 15-month follow-up no recurrent hernia was observed.

A control CT scan showed evidences of good positioning of the mesh fixed with clamps and defect correction (figure 4). The plastic and functional features of the defect proved to be highly adequate when compared to the preoperative features.

DISCUSSION

Lumbar hernias are relatively rare with little more than 300 cases described in the literature\(^\text{1,2,7}\). They can be classified as congenital (10-20%) or acquired (80-90%), and acquired hernias are subdivided in spontaneous and traumatic hernias (caused by surgical incisions, wounds, abscesses, etc.)\(^\text{1,2,4}\). In general, lumbar hernias are diagnosed based on clinical criteria\(^\text{6}\). The most common symptom is the feeling of weight or lumbar discomfort but bulging can also be felt at touch. Recent literature describes the importance of computerized tomography to identify hernias since it provides detailed anatomical description and differential diagnosis from other conditions\(^\text{1,6,9}\). CT scan played a very important diagnostic role to identify and confirm hernia in this case.

Management of lumbar hernias is surgical and several techniques have been described in the literature. Because it is a rare condition, there is no standardized technique to manage it. The difficulty to limit the margins of the fascial defect, the weakness of the structures involved, the presence of a bone element and the surgeon’s experience are the elements considered when surgery is planned\(^\text{1,6}\).

Open technique to repair lumbar hernias requires a large incision, which is usually related to more severe pain, longer recovery period and increased morbidity\(^\text{1,4}\). Natural structures from the same region or more frequently prosthetic mesh (polypropylene or polytetrafluoroethylene/PTFE) are used during conventional repair of this type of hernia\(^\text{1,4-5}\).

The use of laparoscopic access was recently described aiming to reduce morbidity related to conventional technique and to maintain the same results of open surgery with mesh.

Based on the experience accumulated in many centers around the world in correcting ventral hernias, the same principles could also be applied to lumbar hernias. The first paper about lumbar hernia correction via laparoscopy was published by Heniford et al., in
The first experience with 7 patients with lumbar hernia treated by laparoscopic access was published in 1998(4). The authors concluded that better view of anatomical defects was provided, with shorter hospital stay. No recurrence was reported in 15 months(6). The first experiences revealed important advantages of the laparoscopic access over conventional surgery. Most papers that describe this technique report low morbidity, less severe pain and early return to regular activities(4,7). Other studies confirmed that this access provides optimal view of the ring limits. It is considered a simple, safe and minimally invasive procedure(2-3,9).

We observed excellent exposure of the structures and perfect anatomical view of the hernial ring. The patient presented little postoperative pain, short hospital stay (24h) and was able to resume her routine sooner (21 days). In spite of being a short period to assess recurrence, there was no evidence of complication or recurrence during the 15-month follow-up.

The prosthetic material used, a Marlex mesh, requires the peritoneum to be detached from the wall and preserved in order to allow covering the mesh at the end of the hernial repair, therefore avoiding its contact with intestinal loops. Recently we used a Goretex (PTFE) mesh in another patient. This type of material does not require peritoneal detachment and significantly reduces operative time. No complications were observed. The main drawback of this material is its high costs.

No paper published described important complications when laparoscopy was applied to correct lumbar hernias(2-7). Comparative studies evaluated open and laparoscopic procedures to surgically treat ventral incisional hernias. There are few studies of that type regarding lumbar hernias and they do not provide an indisputable conclusion to which one is the best access(10-12). Our impression, however, is that laparoscopic repair seems to be advantageous regarding visualizing the hernia and postoperative recovery.

CONCLUSIONS
Correction of lumbar incisional hernia in a kidney donor via laparoscopy was a minimally invasive procedure, with adequate functional and cosmetic results. It offered excellent exposure and view of the anatomical structure as well as shorter hospital stay. The patient reported mild postoperative pain and earlier return to activities of daily life. If comparative studies confirm that the laparoscopic access is better than open surgical procedure, this approach may become the method of choice to correct lumbar hernias.

REFERENCES