Rare Case of Obturator Hernia: Surgical Anatomy, Planning and Considerations

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Background

Obturator hernia is a rare variation of abdominal hernia that causes significant morbidity and mortality, especially in the elderly population. Incidence rates vary but account for approximately 0.07%-1.0 of all hernias [1,2]. Here, we present a case of an elderly female who presented with complaints of obstructive symptoms and abdominal pain secondary to an obturator hernia.

Case Report

An 89-year-old female presented with complaints of left inguinal pain, distention, nausea and vomiting for approximately 6 days. On exam, patient was hemodynamically stable, albeit thin and frail, with a BMI of 18. Her left leg was flexed and she appeared uncomfortable. Her abdomen was distended with voluntary guarding in the lower quadrants. Bowel sounds were hypoactive. There was no palpable mass in the inguinal region or inguinal canal. Patients surgical history significant for a Ladd's procedure 6 months prior.

A computed tomography (CT) of her abdomen and pelvis with contrast was obtained which revealed dilated loops of small bowel and evidence of a loop of bowel through the left obturator foramen, significant for an obturator hernia, as shown in the Figure. Informed consent was obtained and she was taken to the operating room for surgical exploration.

A vertical midline incision just inferior to the umbilicus extending to the pubic symphysis was utilized. The bowel was delivered out of the abdomen and the left obturator hernia was identified. The hernia was noted to contain a small loop of ileum 4 cm in length and approximately 15cm from the ileocecal valve. This was carefully reduced out of the hernia sac. The defect was repaired with the use of a woven polypropylene mesh plug which was sutured to the surrounding muscle and abdominal fascia using a monofilament, nonabsorbable suture. The peritoneal defect was closed with an absorbable suture in a running fashion to cover the mesh plug. A sheet of biologic mesh was then placed over the peritoneum and secured with nonabsorbable suture to the underlying pubic rami and periosteum. Patient's recovery was complicated by fascial dehiscence and she returned to the OR on POD#3 for closure. She had slow return of bowel function and was eventually discharged from the hospital on a regular diet on hospital day #15. At 30 day follow up, patient was doing well without recurrence or ongoing pain. Patient is slowly gaining weight back and is without further complications or complaints.

Images

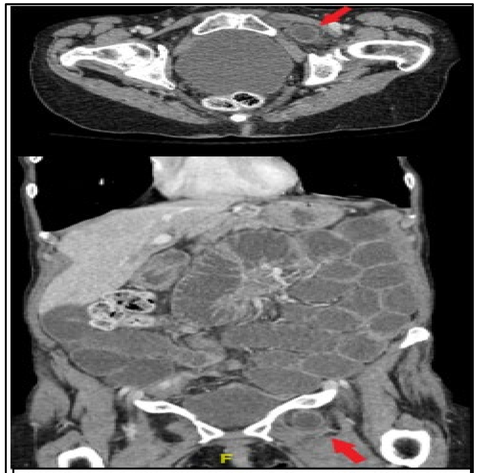

Figure 1: Axial and coronal CT cuts showing the left obturator's hernia (red arrows) causing small bowel obstruction demonstrated by the dilated loops of small bowel.

Discussion

Obturator hernias, which pass through the obturator canal, were first described in 1742 by Arnaud de Ronsil. The canal is formed by a ligamentous band connecting the anterior and posterior portions of the obturator tubercle. The canal is approximately 2-3 cm long and 1 cm wide, allowing passage of the obturator artery, vein and nerve from the pelvis to the thigh. The canal is covered by the obturator membrane which is pierced by these structures. When an obturator hernia occurs, it passes through the obturator internus, obturator membrane and obturator externus. The sac is usually deep to the pectineus muscle and lateral to the adductors. The sigmoid colon overlies the obturator foramen on the left and can prevent hernia formation on this side, and thus obturator hernias are more common on the right. The obturator canal is larger, and more triangular shape in women which increases the risk of herniation compared to men.

Obturator hernias occur typically in elderly, emaciated females between ages 70-90 due to loss of pre-peritoneal fat, which protects the obturator vessels and nerves in the canal. Increase in abdominal pressure such as ascites, COPD and chronic coughs are risk factors for developing an obturator hernia [2].

Discussion cont.

Presentation can vary but over 80% present with obstructive-like symptoms. 40%-100% of symptoms are caused by a Richter's hernia of small bowel [5]. Patients may present with a Howship–Rhomberg sign or obturator nerve neuropathy due to irritation of the nerve by bowel in the hernia. Flexion of the thigh relieves the pain as seen in the patient who is presented here [6] .

Many different surgical approaches have been described, including transabdominal and extraperitoneal laparoscopic approaches in addition to open laparotomy. The open laparotomy approach described in literature, usually via a low midline incision, allows for full evaluation of bowel, exposure of the obturator ring, identification of the inguinal and obturator vessels, and bowel resection if necessary [2,3,4,5]. Extraperitoneal approaches have been favored in more elective procedures if no bowel strangulation is suspected. This technique has its advantages such as reduced rate of postoperative ileus, adhesion formation, risk of injury to other abdominal viscera and decreased length of stay [5]. Simple closure of the hernia is found to have a recurrence rate of 10-22% [3,8,9]. Holm performed a literature review looking at 1299 patients and found a no recurrences of obturator hernias with a laparoscopic technique with the use of mesh [9]. A variety of other flaps and materials have historically been used for repair, but laparoscopic mesh repair is becoming a better and more common method.

Mortality from obturator hernias has ranged from 8% to 47% in the literature. A retrospective study performed at a single institution from 2001 to 2010 reviewed 21 patients with obturator hernias. Overall mortality was 47.6% [10]. Another retrospective study performed in 1999 demonstrated a mortality rate of 11.1% from their cohort of 36 patients [11]. CT scans were thought to decrease morbidity and mortality due to their high sensitivity and specificity for diagnosis. Preoperative diagnosis of obturator hernias allows for perioperative planning with possible avoidance of exploratory laparotomy.

While early operative management is needed for obturator hernias, CT scans remain invaluable for diagnosis and surgical planning. More studies may be necessary to better evaluated CT scans efficacy to decrease perioperative mortality

Conclusion

Literature on laparoscopic vs laparotomy, as well as types of closure (primary vs mesh) have not been well described in the literature. This is partly due to the rarity of these hernias and new techniques of laparoscopic surgery. Obturator hernias, although rare, require a high index of suspicion and care in surgical management as many of these patients will be elderly with a multitude of comorbid conditions. Here we describe one possible strategy for management of obturator hernias, however, more research needs to be done regarding optimal surgical technique and intervention for incarcerated obturator hernias.

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