

## Peritoneal defect herniation after laparoscopic inguinal hernia repair (transabdominal preperitoneal) - A case report with review of literature

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Received - 21 September 2018

Initial Review - 07 October 2018

Accepted - 16 November 2018

### ABSTRACT

The development of newer techniques in the field of surgery is associated with its own set of possible complications. Laparoscopic mesh repair is now widely accepted as the standard of care for inguinal hernias. Both transabdominal preperitoneal approach and totally extraperitoneal approach are almost equally popular worldwide. We report a case of intestinal obstruction following herniation of small bowel through the peritoneal defect and resultant adhesions to the mesh. We also present a literature review of instances of small bowel herniation through the peritoneal defect and resultant intestinal obstruction after inguinal hernia repair.

**Key words:** Bowel herniation, Intestinal obstruction, Laparoscopy, Transabdominal preperitoneal approach mesh hernioplasty

Inguinal hernias constitute about 75% of abdominal wall hernias. Men have a 27% and women have 3% lifetime risk of developing inguinal hernias [1], and it is one of the most common operations in general surgery. Conventional open surgical treatment varied from to nylon darning to Shouldice layered repair followed by Lichtenstein mesh hernioplasty. However, with the advent of laparoscopic surgery, laparoscopic mesh hernioplasty is now the procedure of choice for inguinal hernia repair as several well-designed randomized studies have shown comparable results to open repair with the added and advantages of minimally invasive surgery [2,3].

However, any surgical procedure is associated with its own unique complication some of which may be rare but a cause of serious morbidity. Here, we report a case of herniation of small bowel through the peritoneal closure defect after transabdominal preperitoneal (TAPP) approach mesh hernioplasty resulting in intestinal obstruction with relevant review of the literature. This is a rare and known complication after TAPP approach resulting in significant morbidity but is often forgotten.

### CASE REPORT

A 56-year-old male patient reported to our outpatient department with complaints of bilateral inguinal swelling noted since 6 weeks. He had associated complaints of occasional dragging pain on the left side. There were no associated comorbidities. There is no previous history of any abdominal surgery.

The patient had a body mass index of 24.45 (height 168 cm and weight 69 kg). His vitals were stable and systemic examination did not reveal any abnormality. On clinical examination, he had a

bilateral inguinal hernia. The routine pre-operative investigations including complete blood count, random blood sugar, serum creatinine, prothrombin time, chest X-ray, and electrocardiogram were within normal limits.

Accordingly, the patient was admitted to our hospital on April 2017. Under general anesthesia, pneumoperitoneum was created through umbilicus using a veress needle. A 10 mm port was placed in the supraumbilical region and 2 ports of 5 mm each on either side at the level of the umbilicus. The preperitoneal space was created with monopolar cautery, and blunt dissection on the left side hernial sac was reduced. A 10 cm × 15 cm polypropylene mesh was introduced and properly unrolled. It was then anchored using 5 mm tackers (Protack™ AutoSuture™ Fixation device) to Cooper's ligament at the upper medial corner of the Hasselbach's triangle and also at the upper lateral aspect above the level of the anterior superior iliac spine. The peritoneal flap was closed with running 2.0 Vicryl suture. Similar dissection was carried out on the right side. The ports were closed with subcuticular sutures.

The patient had an uneventful post-operative period and was discharged the next day on routine oral analgesics (tablet diclofenac 50 mg with tablet paracetamol 50 mg) twice daily for 3 days and as required. Scrotal support was advised for 6 weeks as per our protocol. Routine follow-up after 1 week was normal.

The patient presented again on April 21, 2018, with complaints of abdominal distension and the inability to pass flatus and motion for 2 days. This was associated with multiple episodes of vomiting. Clinical examination showed a distended abdomen with generalized mild tenderness and increased bowel sounds. X-ray showed multiple air-fluid levels. Routine laboratory investigations were within normal limits. The patient was initially

managed conservatively with nil per oral, Ryle's tube suction intravenous fluids intravenous antibiotics and other supportive management for 48 h. However, in view of the persistence of intestinal obstruction, a computed tomography (CT) scan of the abdomen was planned.

Contrast-enhanced CT whole abdomen showed metallic clips in the lower abdominal wall with collapsed ileal loops close to it. Short segment stricture involving mid ileal loops with proximal dilatation of small bowel up to duodenum. He was taken up for diagnostic laparoscopy under general anesthesia which showed herniation of distal small bowel loop through a bilateral medial peritoneal defect of the previous hernioplasty site with dense adhesions of the bowel to the polypropylene mesh (Fig. 1). The procedure was converted to exploratory laparotomy with adhesiolysis and resection and anastomosis of ileal segment and suture of the peritoneal defect.

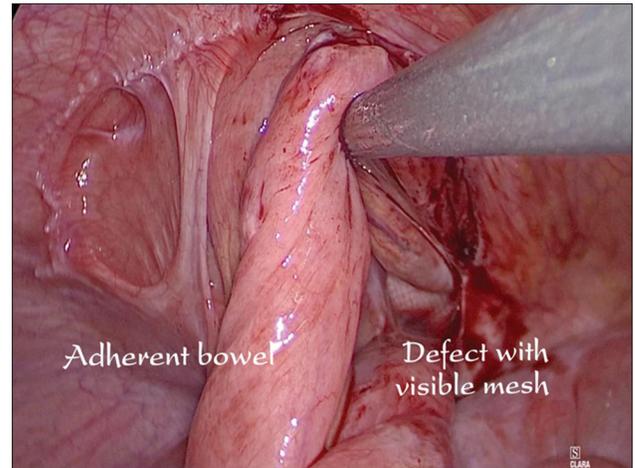
The patient had an uneventful recovery and was discharged on the 6<sup>th</sup> post-operative day. The patient underwent follow-up examination 8 days after discharge and did not have any significant abnormality. Telephonic follow-up 2 months after surgery also revealed no complaints.

## DISCUSSION

Laparoscopic repair has gained universal acceptance and is considered the standard of care for bilateral and recurrent inguinal hernias. TAPP mesh hernioplasty is more widely performed than totally extraperitoneal (TEP) mesh hernioplasty [4]. The significant drawback of TEP approach is the lack of reproducibility by different surgeons with comparable results. However, it is gaining popularity recently. The frequent complication encountered after surgery include hematoma, seroma neuralgia, chronic pain, and recurrences. Rare complications include mesh erosions into bladder and mesh infections. Small bowel obstructions have been reported after laparoscopic repair due to herniation of bowel loop through the port site or through a defect in peritoneal closure. A literature review showed about 16 cases of intestinal obstruction due to herniation through the peritoneal defect similar to our case requiring operative intervention [4].

Kapiris *et al.* [5] in their 7-year study of 3017 patients undergoing TAPP hernia repair had 7 (0.23%) cases of small bowel obstruction due to herniation through the peritoneal defect. In the initial part of the study, they performed a stapled peritoneal closure, but later sutured closure was performed. They observed the decreased incidence of this complication following sutured peritoneal closure. Phillips *et al.* [6] assessed complications following 3229 laparoscopic hernia repairs of which 1944 (60%) were TAPP mesh hernioplasty for inguinal hernias. There were 4 (0.20%) cases of small bowel obstruction due to herniation through peritoneal defect or port site.

Ohta *et al.* [7], Tsang *et al.* [8], and Cueto *et al.* [9] each reported one case of intestinal herniation through a peritoneal defect in the early postoperative period, all of which was managed laparoscopically. Another interesting case report by Köhler



**Figure 1: Peritoneal defect with herniated adherent bowel loop**

*et al.* [10] of intestinal obstruction following self-anchoring barbed suture device peritoneal closure deserves to be noted.

In our case, the patient had a sutured closure of the peritoneal flap after a laparoscopic bilateral TAPP mesh hernioplasty. He presented 1 year after the surgery with features of intestinal obstruction. The herniated loop of bowel through the peritoneal defect was densely adherent to the mesh and therefore required conversion to exploratory laparotomy. The Guidelines of International Endo Hernia society [11] recommends thorough closure of the peritoneal defect in TAPP to decrease the risk of bowel obstruction (Level 3 Grade C) and running absorbable suture as an appropriate method to close the defect (Level 5 Grade D).

## CONCLUSION

Although laparoscopic TAPP mesh hernioplasty has gained widespread popularity and acceptance for management of inguinal hernias, it must be remembered that complications may occur some of them though rare, can cause significant morbidity. An adequate and proper peritoneal closure is recommended to reduce the risk of bowel herniation and intestinal obstruction. We prefer to perform a diagnostic laparoscopy in case of the complication, but conversion to laparotomy may be required.

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*Funding: None; Conflict of Interest: None Stated.*

**How to cite this article:** De A, Roy P, Kumar S. Peritoneal defect herniation after laparoscopic inguinal hernia repair (transabdominal preperitoneal) - A case report with review of literature. *Indian J Case Reports*. 2018;4(6):454-456.

Doi: 10.32677/IJCR.2018.v04.i06.014