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clinical practice

Small bowel occlusion after trans-abdominal preperitoneal hernia approach caused by barbed suture: case report and review of literature

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SUMMARY: **Small bowel occlusion after trans-abdominal preperitoneal hernia approach caused by barbed suture: case report and review of literature.**

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Background. *Groin hernioplasty is the most performed intervention in the adults worldwide. Small bowel occlusion after hernioplasty with anterior approach is an unusual complication because the peritoneum is not opened during this procedure. However during TAPP the closure of the peritoneal flap is mandatory. In literature some cases of small bowel occlusion related to the barbed suture for the closure the peritoneum are reported.*

Methods. *Here we describe a case of a 64-year old male with small bowel obstruction after TAPP caused by the barbed suture used for peritoneal closure.*

Results. *Intrabdominal use of self-anchoring suture is controversial. Some studies reported good results by using this device, while others from gynecologists describe bowel occlusion and volvulus caused by barbed suture.*

Conclusions. *Self-anchoring device is innovative and reduces operation time. It is most important to know the correct use of this device to reduce some possible troubles.*

KEY WORDS: TAPP - Barbed suture - Small bowel occlusion

Introduction

Inguinal hernioplasty is the worldwide most performed intervention (1). After initial suspicion, laparo-endoscopic approach has spread and at present this technique is considered the gold standard for bilateral, recurrent hernia after open approach (2). One of the positive aspects of total extraperitoneal approach (TEP) was the absence of the closure of the peritoneum. Barbed suture, a knotless device, decreased the troubles during the closure of the peritoneum and resolved this issue. However, in some cases, troubles were reported in literature regarding the use of this device during the closure of the peritoneum.

Case report

We describe a case of a 64-year old male who was referred to our tertiary care Hospital (Department of General Surgery, San Valentino Hospital, Montebelluna, TV) for bilateral groin hernia. TAPP (Transabdominal preperitoneal approach) was performed by a surgeon skilled in laparoendoscopic hernia treatment.

The patient presented with a direct hernia (PM3) on the left side and an indirect hernia (PL1) on the right side; Ultrapro® 15x12 cm meshes were positioned and fixed with 5 ml of Evicel®. Closure of peritoneum was performed by a running suture using a barbed suture (Covidien™, V-loc 180®). The patient was discharged after 24 hours without problems, but he returned 3 days later with important abdominal pain and vomiting. A CT scan showed an abnormal distension of the small bowel that ended in the left lower quadrant of the abdomen (Figures 1, 2). A diagnostic

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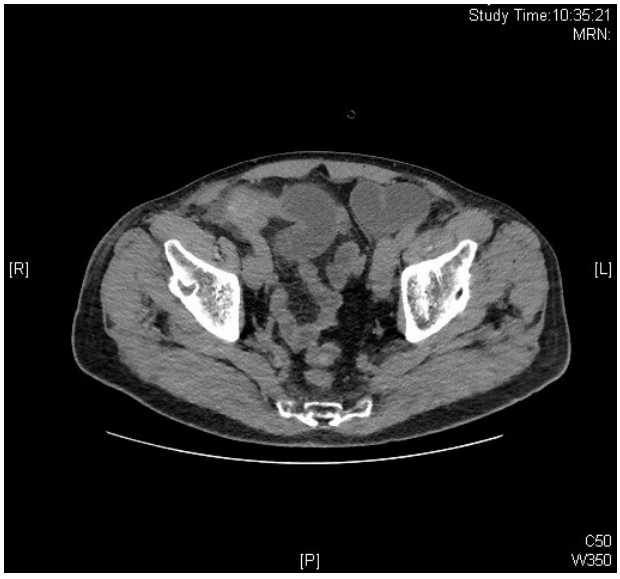

Figure 1 - Occlusion of small bowel.

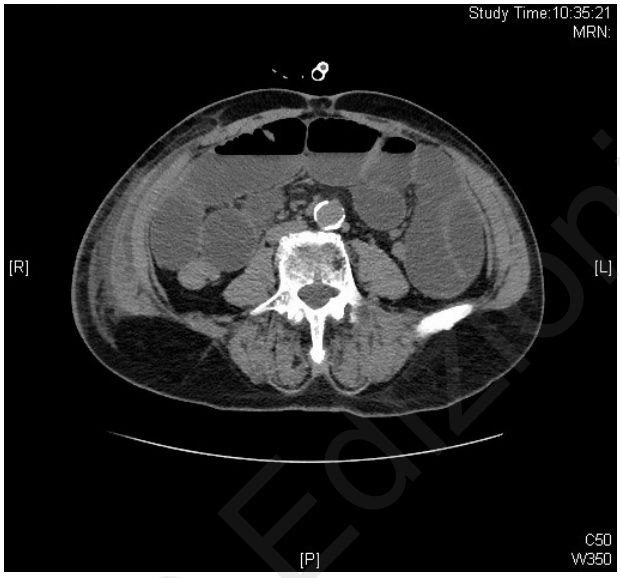

Figure 2 - Passage from abnormal distension of small bowel to normal small bowel.

laparoscopy was performed to confirm a suspect of bowel herniation in the peritoneal closure. The cause of occlusion was found in the left side where 5 cm of ileus were tangled in the barbed suture (Figure 3). The wire was cutted, and the harnessed small bowel was released; resection of the ileus was not necessary. The closure of peritoneum was performed by V-loc 180®. The patient was discharged 5 days after the re-operation.

Discussion

The incidence of small bowel occlusion (SBO) is reported of about 350,000 cases/year in the USA, and 10% are related to hernia (3). However, the incidence of SBO after hernia operation is lower particularly with anterior approach because peritoneum is not violated (4). Complete closure of peritoneal flap during TAPP hernia repair is mandatory to avoid the adhesion of the bowel to the mesh and the use of the barbed suture simplified this procedure. This suture is characterized by the presence of unidirectional barbs that allow to avoid the knotting. In 2012 Takayama et al. described good results the first use of self-anchoring suture for the closure of the peritoneum during TAPP (5). On the one hand some reports analyzed the use of this suture in bariatric surgery for gastrointestinal anastomosis without problems while on the other hand some Authors, particularly gynecologists, described cases of small bowel occlusion related to barbed suture after surgery (6, 7). Literature research (PubMed, Embase and Google Scholar) showed only two articles that reports SBO associated to the barbed suture. Other cases of SBO after laparoscopic groin hernia were described in literature but the postoperative occlusion was related to endoclips and/or spiral tacks (8-10). Complications after laparoscopic treatment of groin hernia were reported rarely. Recurrences and chronical pain were the major complications after hernioplasty (11). Randomized trials *in vivo*, regarding the closure of the peritoneum with self-anchoring barbed suture were not present in literature. Nevertheless, an interesting trial was carried out by Patri et al. in cadaveric models about the closure of peritoneum with barbered suture. The study showed better results than staples and absorbable tacks (12). In our experience, in order to prevent this complication, it is important to follow this sequence: 1) to close the peritoneal flap, 2) to dowel the suture to block it; 3) to complete the suture on plica umbelicalis where the fat is more represented so it is impossible for the suture to go back and 4) to cut the end of the suture so that it is covered by the fat of the plica. Being aware of this potential problem allows to face this uncommon complication.

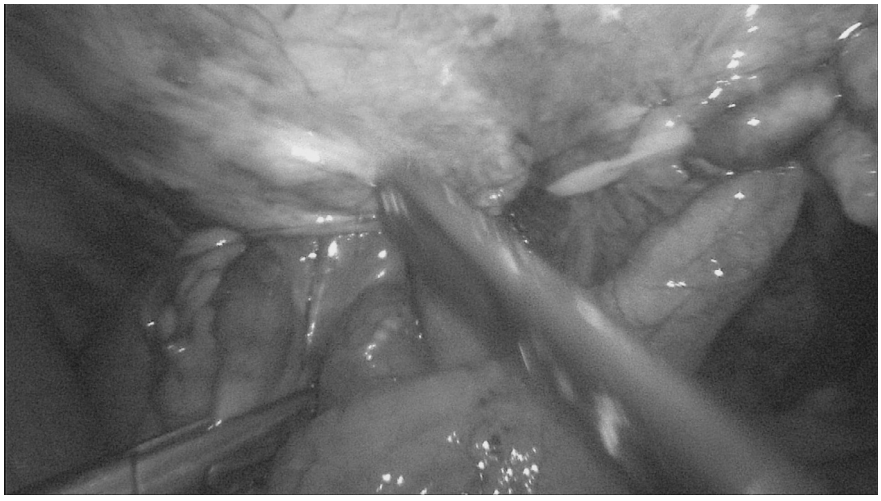

Figure 3 - V-loc.

Conclusions

The self-anchoring device is innovative and reduces operation time. It is most important to know the correct use of this device to reduce some possible troubles.

In the end, citing Neils Bohr and translating one of his famous phrases, we can conclude with this sentence: "the experienced surgeon is the one who has had all the possible complications".

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