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Case Study

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LAPAROSCOPIC MANAGEMENT OF A STRANGULATED INTERNAL HERNIA UNDERNEATH THE EXTERNAL ILIAC ARTERY WITH PARIETAL PERITONEAL PATCH RECONSTRUCTION

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ABSTRACT

Introduction: Internal hernia of the small bowel underneath the pelvic vessels is a very rare complication after prostatectomy with pelvic lymph nodes dissection. **Case presentation:** We reported a case of a 57-year-old man who was admit in our hospital for acute abdominal pain four months after prostatectomy with pelvic lymph node dissection. The preoperative exam revealed an internal hernia under the external iliac artery with bowel necrosis. We performed a laparoscopic gap closure with a peritoneal flap and bowel resection. **Discussion:** Internal hernia account for 0,5 to 5,8% of all small bowel obstruction. An internal hernia underneath the squeletized iliac vessels is a very rare complication after extended pelvic lymph node dissection with few cases described in the literature. **Conclusion:** The laparoscopic approach is an optimal technique allowing to perform the defect closure and in the same time providing all the advantages of the laparoscopy.

KEYWORDS: Internal hernia squeletized laparoscopy.

INTRODUCTION

Pelvic lymph node dissection (PLND) for prostate cancer is the complementary technique for lymph node metastasis who provide the best therapeutic benefit by removal of the loco-regional micrometastasis.[2] There are several types of PLND. Generally, PLND is either standard (sPLND) and consist of removal the nodes of the obturator fossa and along the external iliac artery or extended (ePLND) depending the supplementary excision of the lymphatic nodes along the internal iliac artery.[1,2]

The main complication of PLND is the damage of the neural fibers who can cause functional disorders like the incontinence or sexual potency diminution. The others complications that can be encountered are ureteral injury, vascular injury, pelvic lymphocele, deep vein thrombosis and leg edema.[3]

We describe a total laparoscopic management in a case with an internal hernia with the small bowel strangulated behind the external right iliac artery 4 months after a laparoscopic pelvic lymphadenectomy in a patient with a prostate cancer.

CASE PRESENTATION

A 57-year-old patient with medical history of radical prostatectomy with ePLND in November 2018 was admitted four months after surgery in our Emergency Department for acute abdominal pain, principally in the hypogastric region, accompanied with vomiting and nauseas. No transit problems were noted. It was the third episode of abdominal pain in one month. The two others spontaneously self-resolved.

The physical examination revealed abdominal distension, diffuse pain, tympanisme and abdominal guarding. The parameters were in the physiologic norm: blood pressure 149/73 mmHg, pulse 47 beats/minute and a temperature of 36.6◦C.

The blood test at his arrival was revealed an increase value of the white cells and the formula (18070 WBC/µL with 91% of neutrophils).

An injected abdominal CT-scan was performed and showed a mechanical occlusion of the small bowel located on the right iliac fossa with a suspicion of volvulus and some signs of intestinal suffering (infiltration of the fatty mesenteric tissues). Fig.1.

The patient received a prophylactic antibiotic therapy composed of Augmentin 2 g IV and an exploratory laparoscopy in emergency was performed. The exploration revealed an internal hernia between the external iliac artery and the lateral pelvic wall with

necrosed small bowel. We performed a laparoscopic reduction of the herniated bowel and a segment of 80 cm of the small bowel was resected. A side to side anastomosis was performed. The internal hernia window was closed with a patch of parietal peritoneum wrapped around the external iliac artery.

The patient was discharged 5 days postoperatively.

Fig. 1: Abdominal CT scan reveals a mechanical occlusion in the right iliac fossa.

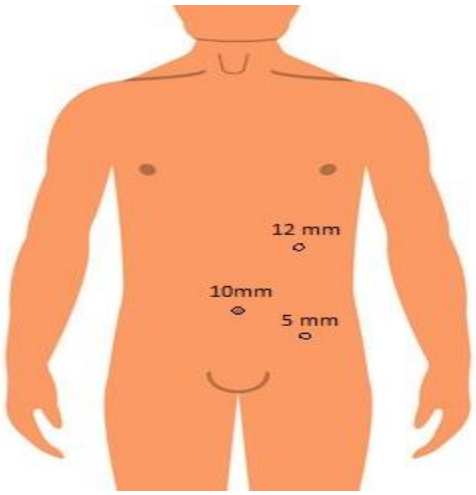

Fig 2: Trocars disposition.

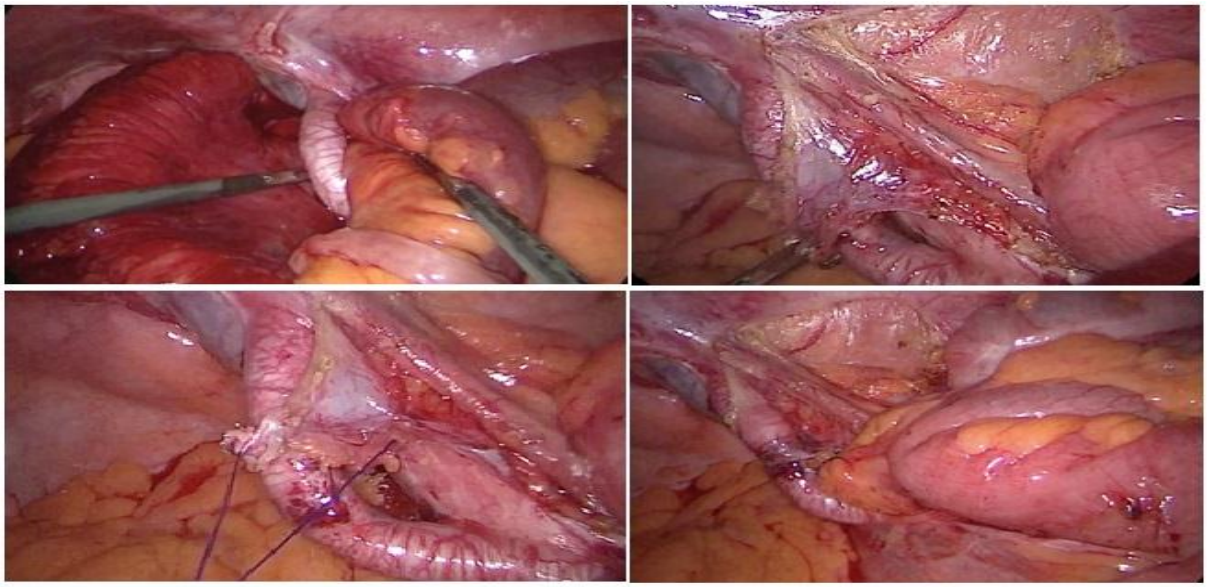

Fig 3: Operative technique.

DISCUSSION

Internal hernia account for 0,5 to 5,8% of all small bowel obstruction.[4] An internal hernia underneath the squeletized iliac vessels is a very rare complication after extended pelvic lymph node dissection with few cases described in the literature.[5-12]

Guba et al. first described an internal hernia of the small bowel involving the external iliac artery in 1978 in a patient 4 month after pelvic lymphadenectomy and irradiation in testicular cancer. He performed a laparotomy and used a free peritoneal graft to cover the bifurcation of the aorta and the iliac arteries.[5] More recently, Ninomiya et al. reported a case in march 2019 of a laparotomy with an orifice unrepaired in a patient 2 months after a robotic-assisted laparoscopic prostatectomy with ePLND.

We resumed the articles found in the literature on this subject analyzing the operative technique and the closing of the vascular defect. As shown in Table 1, internal hernia can occur between 2 and 48 months after the initial surgery. The median timing is 5 months. There are more cases who were managed by laparotomy. In the two others cases managed totally by laparoscopy,[6,7] the defect was no closed because it was considered risky. We conclude that our case is the only publication that describe the total laparoscopic with defect closure approach

For women who underwent radical abdominal hysterectomy and node dissection it was demonstrated that the non-closure of the peritoneum is not hazardous and is not associated with an increased incidence of infection or adhesion-related complications.[13] The reason is that peritoneal defects rapidly reperitonealized after surgery. Kabanali et al demonstrated that closing the pelvic and periaortic peritoneum did not affect morbidity, even more, leaving the pelvic and periaortic peritoneum open significantly decreased the adhesion formation in ovarian cancer.[14]

There are no data about peritoneal closure in prostate cancer. At the moment, there are no consensus about the defect closure and the reperitonealisation after PLND in prostate cancer.

Table-1.

Citation	Age	Sex	Diagnosis	Duration (*)	Operative technique	Closing the defect
Guba et al.[5]	52	M	Testicular cancer	4	Laparotomy	Peritoneal graft
Kim et al.[6]	67	F	Cervical cancer	3	Laparoscopy	No closing
Dumont and Wexels[7]	56	F	Gynecological cancer	48	Laparoscopy	No closing
Ardelt et al.[8]	39	F	Cervical cancer	24	Laparoscopy converted to laparotomy	Gluing collagen patch
Pridjian et al.[9]	50	M	Bladder cancer	5	Laparotomy	Peritoneal flap
Viktorin-Baier et al.[10]	51	M	Prostate cancer	12	Laparotomy	Artery fixed to the peritoneum
Kambiz et al.[11]	64	M	Prostate cancer	12	Laparoscopy converted to laparotomy	No information
Ninomiya et al.[12]	72	M	Prostate cancer	2	Laparotomy	No closing
Our case	57	M	Prostate cancer	4	Laparoscopy	Peritoneal patch

*: Duration between the initial surgery and the internal hernia surgery.

Operative technique

We performed a 3 trocars laparoscopic exploration. The disposition of the trocars was: one trocar of 10 mm was placed in the left flank, one trocar of 12 mm in the left hypochondrium and a 5mm in the left iliac fossa. Fig 2.

The intra-operative exploration revealed free hemorrhagic liquid in the abdominal cavity. A sample was sent to bacteriological analysis. The exploration revealed the internal hernia in the space between the left external iliac artery and the lateral pelvic wall. The strangulated bowel was reduced. A patch of parietal peritoneum was decollate using the monopolar hook. The defect was closed by forming a sheath around the artery and attaching the patch over the vessel on the parietal peritoneum with a stick of non-absorbable wire. A resection of 80 cm of small bowel necrosis (include the Meckel diverticulum) was performed with semi-mechanical side-to-side anastomosis.

CONCLUSION

The internal hernia for the patients who underwent a prostatectomy with PLND, underneath the skeletized pelvic vessels can be fearful complication.

The laparoscopic approach is an optimal technique allowing to perform the defect closure and in the same time providing all the advantages of the laparoscopy.

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