

Incisional Hernia in Subxiphoid Trocar Port in Cholecystectomized Patient

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ABSTRACT

Laparoscopic surgery is a minimal access procedure that maintains the integrity of the abdominal wall, however, it is not exempt from complications, such as vascular and intestinal injuries and the rarest complication: incisional hernia of the trocar port with an incidence of 0.65. -There are risk factors related to the appearance of trocar port hernias, they are divided into those associated with the surgical technique and the characteristics of the patient. We present a clinical case of a patient with an incisional hernia in the laparoscopic trocar port with a subxiphoid location due to cholecystectomy, which was repaired with polypropylene mesh.

KEYWORDS: Laparoscopic cholecystectomy; incisional hernia; subxiphoid port, mesh.

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INTRODUCTION

Laparoscopic surgery is a minimal access procedure that maintains the integrity of the abdominal wall avoiding large abdominal incisions, so the possibility of an incisional hernia decreases¹⁻³. It has also been associated with a decreased risk of surgical site infection, postoperative pain, improved esthetics and early return to work¹. However, as with any new technique, it is not free of complications, the most common being vascular and intestinal lesions² and trocar port incisional hernia (TIPH), which is the rarest complication with an incidence of 0.65-6.0%⁴⁻⁵.

Laparoscopic port hernias are a rare but significant complication associated with the performance of laparoscopic surgical procedures. These hernias are characterized by protrusion of intra-abdominal structures through the insertion sites of the ports used during laparoscopic surgery. Despite advances in surgical technique and port design, laparoscopic port hernias remain a clinical challenge and can result in significant morbidity for patients.⁶

The exact incidence of laparoscopic port hernias is not clearly defined, due in part to the lack of a universally accepted definition and variability in monitoring and detection methods. However, the incidence is estimated to vary between 0.5% and 3% in different studies. It is important to

note that the risk of developing a port hernia can vary according to factors such as the size and number of ports used, the type of surgery performed and the experience of the surgeon.⁶

Risk factors related to the occurrence of trocar port hernias have been described; they are divided into those associated with the surgical technique and the patient's own characteristics³⁻⁶:

The risk of hernia at the trocar site is higher in obese and bariatric patients, due to their larger preperitoneal space and elevated intra-abdominal pressure, which makes it difficult to achieve a full-thickness closure, as well as technical difficulties.^{6,7}

Some surgeons performing minimally invasive procedures generally do not attempt to close the fascia in defects smaller than 10 millimeters, due to the technical difficulties associated with closure²; however, port size is known to be another important risk factor, as hernias in 3 mm ports have been reported in children.^{2,6}

The pathophysiology of laparoscopic port hernias involves a combination of mechanical and biological factors. During port insertion and manipulation, a defect is created in the abdominal fascia, allowing tissue and organs to pass through that site. In addition, intra-abdominal pressure during insufflation of the gas used to create the working space in the abdominal cavity can contribute to hernia formation. Lack of

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adequate healing and weakness of the abdominal fascia at the port insertion site may also predispose to hernia formation.⁷ The diagnosis of laparoscopic port hernias can be challenging due to the variety of clinical presentations and the possibility of nonspecific symptoms. Patients may experience pain, discomfort, bulging, or changes in the appearance of port insertion sites. Clinical suspicion and careful evaluation of patients are critical for an accurate diagnosis. Diagnostic tests, such as ultrasound, computed tomography and magnetic resonance imaging, can be helpful in the confirmation and characterization of port hernias.

Management of laparoscopic port hernias can vary depending on the severity of the hernia and the patient's symptoms. Therapeutic options include conservative management with observation, use of bandages or external supports, open or laparoscopic surgical repair of the hernia, and in severe cases, removal of the ports and closure of fascial defects. The choice of therapeutic approach depends on factors such as the size of the hernia, the presence of complications and the experience of the surgeon.^{5,6,7}

In summary, laparoscopic port hernias are a rare but important complication of laparoscopic surgical procedures. Understanding their pathophysiology, diagnosis and management is essential to minimize associated morbidity and improve clinical outcomes. Careful perioperative surveillance and adequate clinical evaluation are required for early detection and appropriate therapeutic approach to laparoscopic port hernias.⁶

The prevention of this complication requires knowledge of the risk factors of this condition, so an adequate preoperative assessment should be performed and the risk of this pathology should be widely explained to all patients who present risk factors, in addition to implementing hygienic and dietary measures prior to surgery.⁶

Presentation of the clinical case

This is a 55-year-old female patient with a history of pathology: grade II obesity, cesarean section, appendectomy 18 years ago, right inguinal plasty, umbilical plasty and 5 months prior to her current care, laparoscopic cholecystectomy with 3 ports (10 mm umbilical, 10 mm subxiphoid and 5 mm right subcostal). The cholecystectomy was performed without complications, and only the umbilical port was closed (the subxiphoid port could not be closed due to the thickness of the subcutaneous cellular tissue), and she was discharged home because she presented favorable evolution and was discharged the following day.

Two days after her discharge, she reported an increase in volume over the subxiphoid port wound, which was only present with Valsalva maneuvers. It progressed without management or visit to the doctor for another 3 months, increasing in size and appearing when standing upright and in supine decubitus, so she was seen in outpatient surgery where an ultrasound of the abdominal wall was requested,

which reported a hernial defect (Figure 1). With this finding, a protocol was established to perform wall plast.



Fig. 1 Ultrasound hernia defect.

During surgery an aponeurotic defect of 3 x 2 cm was found, with a sac of 3 x 3 cm. Chevrel M1 W1 R0 incisional hernia is diagnosed and the management is with placement of Atramat® PROPYMESS "sublay" mesh; it is fixed with Polypropylene Monofilament American suture 2-0 single stitches. The patient is discharged the next day due to clinical improvement.

During her outpatient evaluation, the patient was asymptomatic and did not present hernia recurrence. Three months later, the patient came for a new reevaluation without presenting a hernia defect.

DISCUSSION

Port closure is performed by different techniques after release of the pneumoperitoneum. Mostly the classic suture method is used due to its simplicity, although it can sometimes be difficult and is associated with the fear of injuring underlying bowel loops, omentum or other abdominal organs with the needle, resulting in complications such as HIPT.^{5,6,8}

Previously, the Deschamps needle was used to achieve full-thickness closure of trocar sites⁸⁻⁹. Other authors such as Moreno-Sanz, in his pilot study, have expressed the feasibility of using a surgical plug in the muscle layer of the trocar wounds to prevent trocar site hernias⁹. Specific clamps are now available to allow closure of the abdominal wall, after the use of 10 mm trocars, to prevent possible cases of eventration or hernias. Reverdin needles or the Berci clamp¹⁰ can also be used.

In a 2014 study by Comajuncosas et al, they analyzed whether the preexistence of an umbilical hernia could predispose to the development of HIPT, but no association was found in univariate or multivariate analysis. They also analyzed the association between diabetes mellitus and HIPT and conclude that apart from the known effect of diabetes on tissue scarring, it is difficult to explain this association⁷.

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In relation to the size of the lithium, in lithiums larger than 2 cm, the fascia wound is usually opened wider to facilitate its extraction, favoring eventration³.

According to a study of 19 cases of incisional hernia, it was found that total exsufflation of the pneumoperitoneum intraoperatively, total relaxation of the patient until skin closure and avoidance of heavy lifting for at least one month postoperatively can reduce the risk of HIPT¹¹.

Several risk factors associated with the development of HIPT have been described; in the current case, the surgical risk factors identified were that the subxiphoid port did not close, despite being a trocar of more than 10 mm. The risk factors associated with the patient include grade II obesity and the fact that she is a female patient.

CONCLUSION

The incidence of incisional hernia in our hospital is unknown, since we do not have studies that report the incidence of HIPT, adding to this the lack of follow-up, late diagnosis and even the fact that the management of the complication is performed in another institution.

Follow-up studies of the cholecystectomized patient should be implemented to verify the real frequency of this complication. Incisional hernia through the subxiphoid trocar postcholecystectomy should not go unnoticed and it should be considered fundamental to diagnose this post-surgical complication.

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REFERENCES

- I. Rose LH, Jeffery SC, Jamies G, Dermot H, Sean M, Daniel M, et al. Incidence of Port-Site Hernias: A Survey and Literature Review. *Surg Laparosc Endosc Percutan Tech.* 2016;26:425-430.
- II. Marta RT, Eduardo RV, Avelin VG. Bilateral incisional hernia after laparoscopy. Case report and review of the literature. *Rev Peru Gynecol Obstet.* 2017;63(4):647-650.
- III. Lindsay VL, Roxaana GC, Luis BRS. Incidence of umbilical incisional hernia by laparoscopic ports in cholecystectomized patients over a five-year period. *Endoscopic Surgery.* 2018;19(2):68-71.
- IV. H JK, Jun BP, Ji young S. Umbilical port site hernia and diastasis tecti. *J Minim Invasive Surg* 2020;23(2):80-85.
- V. Lambertz A, Stüben BO, Bock B, Eickhoff R, Kroh A, Klink CD, et al. Port-site incisional hernia - A case series of 54 patients. *Annals of Medicine and Surgery.* 2017;14:8-11.
- VI. Abdulzahra H, Hind M, Rarun S, Santosh B, Jackie N, Shamsi E-H. Long-Term Study of Port-Site Incisional Hernia After Laparoscopic Procedures. *JLS.* 2009;13:346 -349.
- VII. Jordi C, Judith H, Pere G, Jaime J, Rolando O, Helena V, Jose L. LN, et al. Risk factors for umbilical trocar site incisional hernia in laparoscopic cholecystectomy: a prospective 3-year follow-up study. *The American Journal of Surgery.* 2014; 2017(1):1-6.
- VIII. Nicola DL, Giorgio C, Francesca L Achille G. Port-Site Closure: A New Problem, An Old Device. *JLS.* 2002(6): 181-183.
- IX. Sangeetha J, S DR, Case series of Umbilical and Extra-umbilical Port Site Herniae. *Indian Journal of Surgery.* 2013;75:488-491.
- X. Chauvet P, Rabischong B, Curinier S, Gremeau AS, Bourdel N, Kaemmerlen AG, et al. Laparoscopy and laparoscopic surgery: general principles and instrumentation. *EMC - Gynecology-Obstetrics.* 2018;54(2):1-17.
- XI. Karin N, Mohamed AC, Asma C, Mohamed BK, Mossaab G, Moez B. Trocar site post incisional hernia: About 19 cases. *Pan African Medical Journal.* 2018;29