

# Ventral incisional hernia with herniation of the left hepatic lobe: A case report

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## ABSTRACT

Incisional hernias are a very common complication of abdominal surgery, reaching from 5–20% to around 69% in the case of high-risk patients with prospective long-term follow-up. Herniation of the liver, however, is extremely rare and there are only a handful of cases reported. Here we present a case concerning a complex incisional defect of the abdominal wall involving liver herniation with mild ischemia that required extensive surgery to repair in a patient with previous history of ovarian cancer with incomplete resection surgery. The treatment choice was manual reduction of the hernia at the moment of presentation and delayed elective surgery for definite correction, aiming at full functional recovery of the abdominal wall muscles and to a better outcome regarding quality of life when compared to mesh repair without closure of the defect. As hernias involving left hepatic lobe are rare and mostly occur in patients with comorbidities, conservative management should be considered. However, depending on the effect they have in quality of life, preoperative conditions should be optimized aiming for a successful abdominal wall reconstruction, despite the patient's comorbidities.

**Keywords:** Complex abdominal wall defect, Incisional hernia, Liver herniation

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## INTRODUCTION

Incisional hernias are a very common complication of abdominal surgery, reaching from 5–20% to around 69% in the case of high-risk patients with prospective long term follow up [1]. Its contents vary widely and it may include almost every organ or structure inside the abdominal cavity, from omentum to preperitoneal fat, small intestine or colon. Herniation of the liver, however, is extremely rare and there are only a handful of cases reported [2–7]. In this case report, we present a case involving a ventral incisional hernia with left hepatic lobe herniation and the respective surgical approach.

## CASE REPORT

A 76-year-old woman presented to the Emergency Room with diffuse abdominal pain of seven days' duration, worsening in the last day and epigastric and infra-umbilical swelling, progressively increasing in the last year. The patient could no longer hold an upright position and had trouble sleeping.

Her medical history was significant for dyslipidemia, arterial hypertension, type I obesity (Body Mass Index 30.2 kg/m<sup>2</sup>) and primary epigastric hernia that was submitted to surgical correction by herniorrhaphy in 2005, with recurrence after a few years. She was diagnosed with undifferentiated ovarian carcinoma

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stage IIIc three years prior treated with surgery and 3 cycles of chemotherapy pre- and postoperative with partial response. The surgical procedure involved a R2 surgical resection with macroscopic disease in the pouch of Douglas and intestinal serosa by the end of the intervention. Furthermore, during this gynecologic surgery was attempted surgical correction of the incisional hernia by herniorrhaphy in 2017.

On examination, she presented with a xipho-pubic midline scar along with two large defects in the abdominal wall, one in the upper midline and the other inferior to the umbilical region, with large lumps protruding through the defects that strongly suggested an incisional hernia. The hernia was incarcerated, but there were no clinical signs of strangulation (Figure 1).



Figure 1: Pre-operative photograph of the patient's abdomen.

## Investigation

Upon discovering the large abdominal wall defects, a computed tomography (CT) scan was ordered to understand the complex nature of the defect. Although it is not a routinely performed preoperative exam, the CT scan was a key component of the diagnosis and surgical planning for this patient. In fact, it revealed a complex hernia with the hernia sac volume representing 12.9% of the abdominal cavity's volume and it was composed by

two defects, one in a subxiphoid location, with >10 cm in width, and the other in the periumbilical region with 6 cm.

The scan reported an anterior paramedian abdominal hernia that contained a portion of the hepatic left lobe with mild ischemia and another large periumbilical defect that contained small intestine and a portion of the transverse colon without signs of strangulation (Figure 2).

When reviewing the data, there was no possible closure of the abdominal wall without component separation in this patient, mainly considering the history of obesity and ovarian cancer with post-surgical macroscopic disease.

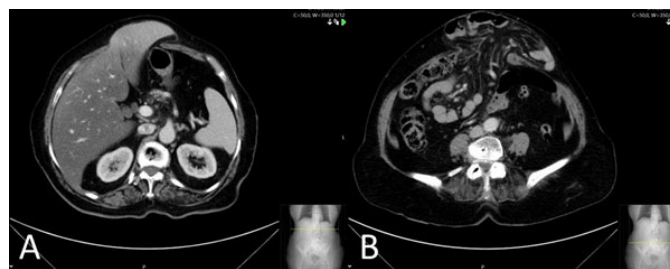


Figure 2: Contrast-enhanced CT of the abdomen. (A) Plate showing hepatic herniation with mild perfusion defect. (B) Plate showing the large periumbilical defect that contained small intestine and a portion of the transverse colon without signs of strangulation.

## Treatment

In this case, we chose manual reduction at the moment to relieve the patient's symptoms and an elective procedure for definite correction of the defect was scheduled two months after.

Intraoperatively, the defect was considered an incisional hernia M1-2-3 (subxiphoidal to the umbilicus) according to European Hernia Society (EHS) classification of ventral hernias and had a total dimension of 24×14 cm. After careful inspection of the abdominal cavity there were no signs of peritoneal carcinomatosis. A tension free technique was used—Rives-Stoppa with Transversus Abdominis Muscle Release, by midline xipho-pubic approach.

Although durable, the Rives-Stoppa technique is limited by the lateral border of the posterior rectus sheath, and thus usually is inadequate for larger abdominal wall defects. This led to the development of modifications to the technique. In this case, the transversus abdominis muscle was divided to allow the tension free closure of the abdominal wall and a polypropylene mesh was placed in a sublay position to avoid recurrence. The linea alba was reconstructed with long-term absorbable monofilament suture.

## Outcome and follow-up

In the immediate postoperative period, there were no major complications. The patient was discharged from the hospital ward after seven days (Figure 3).

At 18 months follow-up, the patient is asymptomatic and reports major improvement in quality of life, without recurrence of the hernia on clinical evaluation or on CT scan (Figures 4 and 5).



Figure 3: Immediate post-operative photograph of the patient's abdomen.

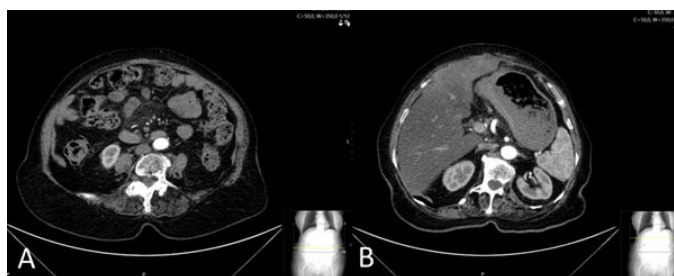


Figure 4: Eighteen months post-operative contrast enhanced CT scan without evidence of hernia recurrence at umbilical level (A) and hepatic level (B).



Figure 5: Eighteen months post-operative photograph of the patient's abdomen without evidence of hernia recurrence in Valsalva.

## DISCUSSION

There are reports of neonatal hernias with hepatic herniation, but incisional hernia with hepatic herniation is a very rare condition, and therefore its treatment is still a challenge. To the best of our knowledge, there are only seven cases of liver herniation reported in the literature, the latest dated 2015. Throughout the literature, there are no case reports of liver herniation with strangulation.

The reason for the hepatic herniation being so rare even though incisional hernia is so common could be related to the fact that the liver is not as pliable as the other viscera that usually protrude through the abdominal wall defects.

Our case is relevant in the abdominal wall field because it is the first case describing the surgical treatment of a major and rare abdominal wall defect in a patient with previous oncologic intra-abdominal disease successfully with good long-term results.

In fact, of the cases reported [2–6], only three opted for surgical treatment and of those, only one opted for functional reconstruction of the abdominal wall.

Firstly, in 2012, a 78-year-old woman who was submitted to right adrenal resection had choledochotomy with stone extraction and cholangiography and reconstruction of the abdomen wall [2].

Secondly, in 2014, a 90-year-old woman underwent emergency surgery with hernia reduction and mesh repair [3].

Lastly, in 2015, a 70-year-old woman who had previous history of hysterectomy and tubectomy was treated with open incisional hernia repair and fixation of the mesh by onlay technique, and thus without functional reconstruction of the abdominal wall [4].

Comparing our case with similar published ones, we realized that most of the surgeons opted for conservative management or less invasive techniques, such as mesh repair, as performing a Rives-Stoppa is a much more invasive procedure and one that requires a longer, harder recovery. The Rives-Stoppa technique is, to our understanding, the most effective way to achieve a functional reconstruction of the abdominal wall with better outcomes in quality-of-life improvement.

Our case report showed a mild liver perfusion deficit that suggests increased probability of greater complication of said defect in short term, maybe even with life-threatening consequences. This fact leads to the radical decision of planning an abdominal wall reconstruction, considering the patient's previous history of ovarian cancer with incomplete resection surgery.

## CONCLUSION

The surgical technique chosen for this patient—Rives-Stoppa with Transversus Abdominis Muscle Repair—aimed at full functional recovery of the abdominal wall muscles, leading to a better outcome regarding quality

of life when compared to mesh repair without closure of the defect. As hernias involving left hepatic lobe are not common and mostly occur in older patients with comorbidities, conservative management should be considered. However, if quality of life is impaired, preoperative conditions should be optimized aiming for a successful abdominal wall reconstruction.

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## Author Contributions

Cristina Silva – Conception of the work, Design of the work, Acquisition of data, Analysis of data, Interpretation of data, Drafting the work, Revising the work critically for important intellectual content, Final approval of the version to be published, Agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved

Mariana Leite – Interpretation of data, Revising the work critically for important intellectual content, Final approval of the version to be published, Agree to be

accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved

Cristina Monteiro – Acquisition of data, Interpretation of data, Revising the work critically for important intellectual content, Final approval of the version to be published, Agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved

Bárbara Castro Lima – Design of the work, Acquisition of data, Revising the work critically for important intellectual content, Final approval of the version to be published, Agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved

Alberto Midões – Interpretation of data, Revising the work critically for important intellectual content, Final approval of the version to be published, Agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved

## Guarantor of Submission

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## Consent Statement

Written informed consent was obtained from the patient for publication of this article.

## Conflict of Interest

Authors declare no conflict of interest.

## Data Availability

All relevant data are within the paper and its Supporting Information files.

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