VIDEO ARTICLE

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Laparoscopic management of presacral retroperitoneal haematoma after sacrocolpopexy

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ABSTRACT

Background: Minimally invasive sacrocolpopexy (SCP) has emerged as the gold standard procedure for pelvic organ prolapse. However, it entails a deep surgical dissection, essential for proper mesh positioning, and is not devoid of intraoperative and postoperative complications, including sporadic cases of potentially life-threatening intraoperative bleeding or postoperative haematomashaematomas. The appropriate management of bleeding complications in this area varies depending on the individual case and presence of hemodynamic instability, from emergency open surgery to a conservative wait-and-see approach.

Objectives: To illustrate an effective method for the management of bleeding complications of SCP and raise awareness about this unusual complication.

Participant: A 69-year-old woman underwent laparoscopic revision surgery due to evidence of a voluminous presacral haematoma on the second postoperative day after SCP.

Intervention: The effectiveness of minimally invasive revision surgery for the management of voluminous presacral haematoma following laparoscopic SCP was assessed. Laparoscopic revision surgery allowed for the complete drainage of the haematoma without complications, resulting in discharge on postoperativeday seven..

Conclusions: The video reviews the steps of the laparoscopic approach for performing a successful and safe revision surgery to manage presacral haematomas after SCP, and illustrates the procedure's adaptability, also providing specific tips and tricks to successfully perform this procedure without the need for mesh removal, thereby preserving the best outcome for the patient.

What is New? This is the first description of the surgical management of a retroperitoneal hematoma following colposacropexy. The study's conclusions provide a valuable resource for gynecologists facing patients presenting with a retroperitoneal presacral hematoma after prosthetic surgery for prolapse.

Keywords: Sacrocolpopexy, laparoscopy, surgical complications, presacral bleeding, retroperitoneal haematoma, revision surgery

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Introduction

Minimally invasive sacrocolpopexy (SCP) has emerged as one of the preferred surgical approaches for managing pelvic organ prolapse (POP) but it is not devoid of intraoperative and postoperative complications. Sporadic life-threatening complications, including vascular lesions leading to intraoperative bleeding and postoperative haematomas, have also been reported. Overall, the incidence of serious vascular injuries, bleeding events requiring blood transfusion, and postoperative haematomas is lower than 1%, with presacral space and sacral promontory being the most common anatomical sites.[1-4]

Therefore, an adequate and careful dissection of the presacral space during SCP is mandatory.[5]

The appropriate management of bleeding complications in this area varies depending on the individual case. Instances of significant and active bleeding resulting in hemodynamic instability often necessitate emergency open surgery. Conversely, postoperative bleeding or haematomas without notable alterations in vital signs may be addressed through minimally invasive surgery or a conservative "wait-and-see" approach.[4,6]

If conservative measures fail due to the patient's clinical condition or the haematomas size, surgical treatment becomes necessary, especially if the haematoma is adjacent to the prosthetic material. This underscores the importance for gynaecologists to be adept at managing such cases with simple and effective procedures to drain it in the least invasive way.

Methods

We present the case of a 69-year-old woman who developed a retroperitoneal haematoma following laparoscopic sacrocolpopexy (LSCP) intervention for multicompartmental POP.

The patient, a Caucasian non-smoker with a body mass index of 26.7 kg/m^2, was referred to our Urogynaecology Department at Fondazione Policlinico Universitario A. Gemelli IRCCS for symptomatic POP. She had a history of three pregnancies with three caesarean deliveries and entered menopause at 44 years of age. Her past medical history included hypertension, arrhythmia, and prior laparoscopic cholecystectomy.

Prior to surgery, the patient received detailed surgical counselling on the different surgical approaches, including prosthetic surgery and native tissue repair techniques. She was made aware of the risks of the procedure and signed an informed consent allowing the use of personal data.

Following appropriate preoperative evaluation, the patient underwent a standard nerve-sparing LSCP procedure,[5,7] with a total operating time of 160 min and an estimated blood loss of less than 100 mL. On the second postoperative day, the patient experienced abdominal pain and anaemia, with haemoglobin levels decreasing from 12.1 g/dL to 9.1 g/dL. The patient's vital signs were within normal limits, except for mild hypotension and moderate tachycardia. Physical examination revealed abdominal swelling and perineal ecchymosis. Thus, an abdominal ultrasound was performed, revealing the presence of a voluminous haematoma in the soft tissue of the presacral region, which was confirmed by a computed tomography (CT) scan having a cranial-caudal extension of 10.5 cm and a lateral-lateral extension of 5.5 cm. Following this, the patient underwent emergency minimally invasive revision surgery.

Results

Under general anaesthesia, the patient underwent emergency minimally invasive surgery for the drainage of the presacral retroperitoneal haematoma and abdominal cavity lavage (Video 1). The ports were placed in the same positions as previous surgery. At the exploration of the abdominal cavity, there was no evidence of hemoperitoneum, but the epiploic appendixes of the sigmoid colon were filled with ecchymosis. The parietal peritoneum was reopened at the presacral level. The mesh was correctly positioned but surrounded by a voluminous haematoma, partly organised and mixed with clots, which filled the retroperitoneal space up to the plane of the levator ani (Figure 1a). After clots removal, active haemorrhage was observed at the lateral pelvic wall near the levator ani muscle, likely of venous origin. After appropriate identification of anatomical landmarks, including ipsilateral ureter, the vessel was coagulated, and the haemostasis was finalised with a haemostatic matrix (Floseal®) (Figure 1b). The peritoneal pocket was closed with 2-0 Stratafix (Figure 1c). Subsequently, a pelvic excavation toilet was performed with repeated washing. Total operating time was 78 min with an estimated blood loss of 100 ml. After reoperation, the postoperative course proceeded uneventfully, leading to the patient's discharge a few days later (day 7).

At the 1- and 6-month postoperative follow-up, the patient reported a complete resolution of all symptoms related to POP.

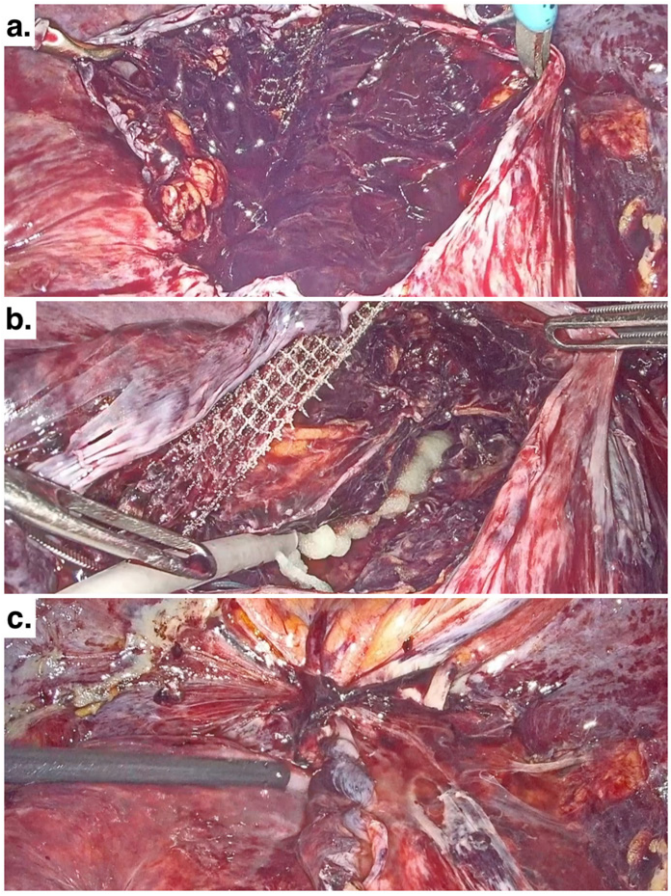

Figure 1. Key steps of revision surgery. a) Shows a view of the retroperitoneal haematoma at the presacral region before drainage. b) Shows the presacral space after blood clots removal and insertion of a haemostatic agent using a flexible cannula. c) Shows the field at the end of the procedure after reclosure of the peritoneum.

Discussion

SCP usually has a low rate of intra- and postoperative complications. Early postoperative issues include urinary tract and surgical site infections, respiratory or thromboembolic events. Minimally invasive techniques are associated with fewer complications, reduced blood transfusions, shorter hospital stays, and fewer readmissions compared to the abdominal approach.[1,8-11] Although rare, serious complications of SCP include vascular haemorrhage, bowel injury, discitis, mesh erosion, and death. Life-threatening bleeding complications, such as left iliac venotomy, right hypogastric vessel injury, and presacral bleeding, may require conversion to laparotomy. The incidence of major vascular injuries, transfusion-requiring bleeding, and retroperitoneal haematomas is less than 1%, with presacral space and sacral promontory being the most common sites for significant bleeding.[1-4,8,12]

A thorough understanding of surgical anatomy is crucial to minimise complications in SCP. The procedure involves deep dissection for mesh placement, extending from the presacral space to the avascular regions between vaginal walls and adjacent organs. Identifying anatomical boundaries is essential to avoid vascular injury.[5]

The presacral space is critical due to the risk of haemorrhage and ureteral injury. On average, the distances between the right ureter and iliac vessels to the midsacral promontory are 3 cm. Nevertheless, there is a wide interindividual variability concerning vessel diameter, presence of anatomical vascular variants, and distance from the vessels and ureter to the midline. The left common iliac vein is often less than 1 cm from the sacral promontory. These anatomical differences highlight the importance of careful dissection, starting with an incision along the medial border of the right common iliac artery, followed by medial displacement to identify key structures, including the right inferior hypogastric nerve and middle sacral artery and vein.[5,13-15] For these reasons, bleeding complications may arise from injuries to the vessels of the presacral region. Nevertheless, in our case, the bleeding source was identified at the level of levator ani muscle, highlighting the need for careful dissection and haemostasis also at this level.

Pelvic haematomas are often diagnosed through clinical signs such as abdominal pain, swelling, and fluctuating vital signs, with contrast-enhanced CT scans being the gold standard for diagnosis.[4,6,16] Bleeding complications are managed based on severity. Active bleeding causing hemodynamic instability usually requires emergency open surgery, while less severe bleeding or haematomas can be addressed conservatively or with minimally invasive techniques.[4,6,17]

Conservative treatment may include antibiotics, drainage, or embolisation. If these fail, surgical intervention is required, utilising haemostatic agents, electrocoagulation, suturing, vessel ligation, or packing in case of significant or unclear bleeding. Intraoperative identification of the bleeding source is essential for selecting the appropriate haemostatic technique. Electrocoagulation is effective for mild bleeding from small vessels but requires caution due to the risk of vessels' damage and retraction, possibly leading to bleeding worsening.[4,6,16,18]

In our case, minimally invasive revision surgery was performed as the first choice due to the haematomas dimensions and risk for postoperative infection related to the proximity to prosthetic material.

Video review from the original procedure, if available, can aid in guiding revision surgery. Complete haematoma drainage is essential, particularly near prosthetic material, with warm saline irrigation helping to dissolve clots. Local haemostatic agents can be used, especially when the bleeding source is unclear or involves smaller vessels.

Conclusion

Presacral bleeding represents a potentially life-threatening complication of pelvic surgery, particularly SCP. The occurrence of this complication underscores the importance of understanding the anatomical intricacies of presacral and retroperitoneal spaces during SCP procedures. To our knowledge, this study presents the first report of minimally invasive surgical management of a retroperitoneal haematoma following LSCP intervention for POP. By providing this detailed video of a complex minimally invasive revision surgery and sharing these tips, we hope that it may be a valuable resource for gynaecologists when faced with a patient presenting with a retroperitoneal presacral haematoma after prosthetic surgery for POP.

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Ethical approval: The patient provided informed consent for the procedure and the use of her anonymised clinical data.

Data sharing: This statement describes the availability of data supporting the results reported in the paper. Due to the nature of this video case report describing a single clinical case, no additional datasets were generated or archived in a public repository. The video material supporting the case is included within the article. Sharing additional data is not applicable as it may compromise patient confidentiality and ethical standards. Further information can be made available upon reasonable request.

Transparency: The lead author affirms that this manuscript is an honest, accurate, and transparent account of the clinical case being reported; that no important aspects of the case have been omitted; and that any deviations from standard clinical practice have been fully explained.

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Video 1. Laparoscopic revision surgery. Steps of laparoscopic approach for performing a successful and safe revision surgery to manage presacral haematomas after laparoscopic sacrocolpopexy.

https://youtu.be/80cYYew02ZE