

Case Report

# Transabdominal Laparoscopic Drainage of Post-Bariatric Retroperitoneal Abscess: A Case Report

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Citation: Álvarez GHO, et al. Transabdominal Laparoscopic Drainage of Post-Bariatric Retroperitoneal Abscess: A Case Report. *Jour Clin Med Res.* 2025;6(3):1-7.

<https://doi.org/10.46889/JCMR.2025.6322>

Received Date: 13-11-2025

Accepted Date: 06-12-2025

Published Date: 12-12-2025



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## Abstract

Retroperitoneal abscess after bariatric surgery is an exceptional and potentially life-threatening complication in which radiologic access for percutaneous drainage may be limited and the optimal minimally invasive strategy remains unclear. We report the case of a 30-year-old woman, two months after laparoscopic sleeve gastrectomy, who presented with sepsis, left flank pain and dyspnea, in whom contrast-enhanced computed tomography demonstrated a massive ( $\approx 7$  L) gas-containing retroperitoneal collection extending into the pelvis. Because a safe window for image-guided percutaneous drainage was not available, the patient underwent transabdominal laparoscopic drainage with wide retroperitoneal debridement and placement of multiple suction drains. *Streptococcus viridans* was isolated from the purulent material and the patient recovered favorably under targeted antibiotic therapy, intensive care support and prolonged drainage, without recurrence of the abscess. This case illustrates that, when percutaneous drainage is not feasible, transabdominal laparoscopy can provide effective source control of post-bariatric retroperitoneal abscesses, even in resource-limited settings.

**Keywords:** Retroperitoneal Abscess; Bariatric Surgery; Sleeve Gastrectomy; Laparoscopic Drainage; Case Report

## Introduction

Retroperitoneal Abscesses (RA) are an uncommon clinical entity whose true incidence is difficult to determine because of their variable presentation and frequently nonspecific manifestations. They account for less than 0.5% of all intra-abdominal infections and are more common in patients with comorbidities such as diabetes mellitus, immunosuppression or prior

surgical history. The rationale for this case report is to illustrate the feasibility of transabdominal laparoscopic drainage as an alternative source control strategy for post bariatric retroperitoneal abscess in a resource limited setting.

The pathophysiology of RA is diverse: They may originate from infections of the gastrointestinal tract (appendicitis, diverticulitis, perforations), the genitourinary system (emphysematous pyelonephritis, renal abscesses), osteoarticular processes (spondylodiscitis, vertebral osteomyelitis), or, as in the case described, major postoperative complications such as those following bariatric surgery. Because the retroperitoneum is a deep, compartmentalized anatomical space, early detection of infection is difficult; patients therefore often present at an advanced stage with large collections and systemic signs of sepsis.

Early diagnosis depends primarily on clinical suspicion supported by imaging studies. Contrast-enhanced Computed Tomography (CT) is the modality of choice because it allows precise identification of the location, extent and characteristics of the collection, as well as planning of the therapeutic approach. Magnetic resonance imaging can be useful in selected cases but

is less accessible in acute settings. Resuscitation and hemodynamic support of the septic patient. Broad-spectrum antibiotic therapy directed at polymicrobial flora (*aerobes, anaerobes, enterobacteria, streptococci, enterococci*). Source control through drainage. Image-guided percutaneous drainage constitutes the first-line approach in most cases due to its low invasiveness and high success rate. However, in very large or multiloculated collections, with abundant necrotic debris or when percutaneous drainage is not feasible, minimally invasive surgery becomes essential.

The laparoscopic approach either retroperitoneal or transabdominal provides wide access with minimal trauma, facilitates debridement, thorough lavage and placement of strategic drains and carries lower morbidity compared with traditional open surgery. Moreover, it shortens hospital stay and accelerates functional recovery. In the context of bariatric surgery, where septic complications are associated with high mortality, laparoscopy offers a safe and effective alternative when other strategies have failed or are not possible.

### Case Presentation

A 30-year-old female with severe obesity (BMI: 41.3), iron-deficiency anemia and hypoalbuminemia, two months after sleeve gastrectomy, presented with left lower quadrant abdominal pain, lumbar erythema on the same side, fever and dyspnea. Physical examination: Heart rate 118 bpm, temperature 38.5 °C, blood pressure 86/48 mmHg and decreased breath sounds at the left lung base. The abdomen was distended due to abundant adipose tissue, with tenderness over the left flank and lumbar region, erythema, edema and warmth with pitting on pressure. The left lower limb was held in adduction with intense lumbar pain on flexion and extension. The patient was admitted with a diagnosis of retroperitoneal abscess and sepsis; fluid resuscitation, piperacillin–tazobactam and analgesia were initiated.

#### Admission Laboratory Findings

Arterial blood gas: pH 7.43; pCO<sub>2</sub> 21.1 mmHg (low); pO<sub>2</sub> 106 mmHg; HCO<sub>3</sub><sup>-</sup> 14.0 mmol/L (low); lactate 1.33 mmol/L (high); SaO<sub>2</sub> 98.5%. Coagulation: PT 18.6 s (high); INR 1.38; aPTT 38.4 s (high). Electrolytes: Na 146 mmol/L; K 1.7 mmol/L (low); Ca 6.2 mmol/L (low); Cl 123 mmol/L (high) (Table 1).

Parameter	Result	Units	Reference
Leukocytes	8.4	×10 <sup>3</sup> /μL	4–10
C-Reactive Protein (CRP)	204.2	mg/L	0–10
Procalcitonin	0.67	ng/mL	0–0.5
Creatinine	<0.30	mg/dL	0.51–1.19
Hemoglobin	11.6	g/dL	13–17

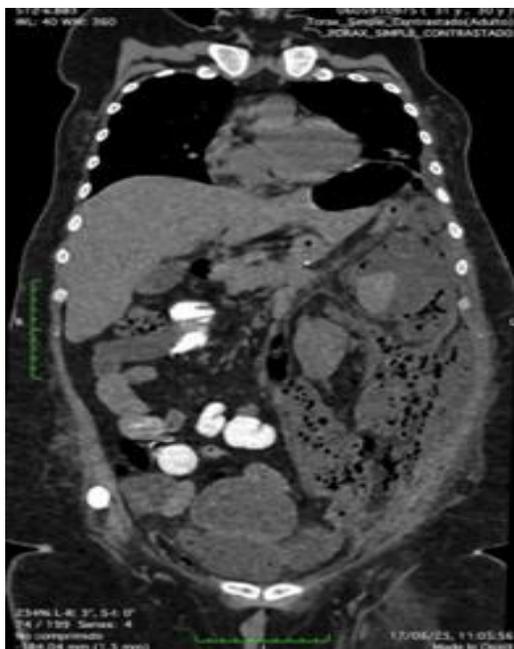
**Table 1:** Laboratory findings.

#### Imaging Studies

Contrast-enhanced abdominopelvic CT: Large left retroperitoneal collection (6900 cc) with gas bubbles and pelvic extension. Chest X-ray: Left pleural effusion with basal opacification (Fig. 1-3).



**Figure 1:** CT axial section showing a large left retroperitoneal collection with gas.



**Figure 2:** Coronal CT section showing pelvic extension.



**Figure 3:** Sagittal CT section showing a large left retroperitoneal collection with gas.

### *Surgical Technique*

The rationale for choosing a transabdominal laparoscopic approach was to achieve effective source control in the absence of a safe percutaneous window while minimizing surgical morbidity. Exploratory laparoscopy was performed using three trocars: the first, a 10 mm transumbilical port and two 5 mm ports in the left flank and left iliac fossa.

Findings: The abdominal cavity was clean; the gastric sleeve staple line was intact; omental and bowel adhesions were observed over the left paracolic gutter, which was bulging.

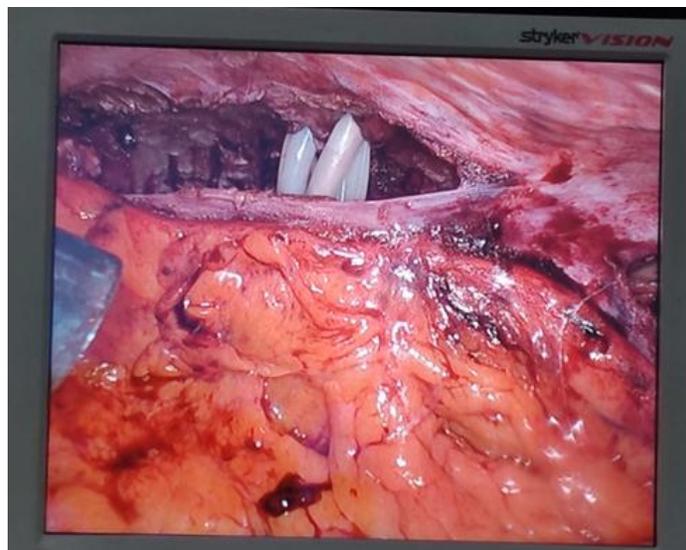
A retroperitoneal window was created using electrocautery, evacuating 5000 cc of thick purulent fluid and necrotic tissue. Lavage was performed with 5000 cc of normal saline plus H<sub>2</sub>O<sub>2</sub>. Two drains were placed through the retroperitoneal window (one directed toward the pelvis and another proximally) and a left pleural tube was inserted with drainage of 400 cc of citrine fluid. Samples were sent for culture and sensitivity testing (Fig. 4-6).



**Figure 4:** Bulging of the left lumbar and flank region with erythema and pitting.



**Figure 5:** Retroperitoneal window.



**Figure 6:** Laparoscopic view of the retroperitoneal window with drains after dissection and aspiration of purulent-necrotic material.

### Microbiological Results and Clinical Course

Secretion culture: *Streptococcus viridans* (alpha-hemolytic).

Pleural culture: Negative.

Broad-spectrum antibiotics were continued and adjusted according to sensitivity, along with analgesia and transfusion support. The patient was admitted to the intermediate ICU for oxygen therapy and respiratory and motor physiotherapy.

The postoperative course was favorable without major complications. She was discharged after 7 days, having completed intravenous antibiotics and continued oral therapy at home. The drain remained in place for two months and was removed after CT follow-up confirmed absence of collections in the abdominal cavity or retroperitoneal space.

### Discussion

Retroperitoneal Abscess (RA) is a rare, complex and potentially life-threatening condition. Its presentation is frequently nonspecific fever, flank pain, malaise and diagnosis is often delayed, especially when deep retroperitoneal spaces are involved or sepsis is advanced [2,7]. Percutaneous drainage is considered the first-line approach for most retroperitoneal and intra-abdominal abscesses due to its minimal invasiveness and high reported success rates [3,12].

However, limitations such as an unsafe percutaneous window, multiloculated collections and large volumes of necrotic debris can make percutaneous access infeasible or ineffective [2,3,12]. In these scenarios, minimally invasive surgical drainage becomes a necessary alternative. Multiple clinical series support the feasibility and safety of laparoscopic drainage for deep intra-abdominal and retroperitoneal abscesses, showing reduced morbidity, shorter hospital stay and faster recovery compared with open surgery, particularly when percutaneous drainage fails or is contraindicated [1,4,9,11,13,14,16].

Compared with a purely retroperitoneal approach, the transabdominal laparoscopic route provides wider access, allows complete exploration of the abdominal cavity and facilitates detection of unsuspected contamination or leakage. Several authors highlight its advantages in selected patients, including better visualization and safer debridement of large or multiloculated abscesses [1,4,9,13].

In the post-bariatric context, abscesses may arise from leaks, ischemia or staple-line complications and their retroperitoneal extension can be atypical. Case reports and series describe successful laparoscopic management of complex abscesses after sleeve gastrectomy, emphasizing the importance of tailored antibiotic regimens based on culture results [5,6,15].

In this case, the choice of transabdominal laparoscopic drainage was driven by the absence of a safe percutaneous window and the need for extensive evacuation of purulent-necrotic material. Prolonged drainage was maintained to prevent recollection and ensure complete resolution, a strategy consistent with recommendations for large, complex abscesses [1,3,7,12].

### **Conclusion**

Post-bariatric retroperitoneal abscess is an exceptional but serious complication that requires a high index of suspicion and early contrast-enhanced computed tomography to define the extent of infection. In complex, large or multiloculated collections, especially when percutaneous drainage is not feasible or has failed, transabdominal laparoscopic drainage represents an effective minimally invasive option for definitive source control. Optimal outcomes depend on individualized decision-making and close collaboration between surgery, radiology, intensive care and infectious disease teams throughout diagnosis, treatment and follow-up.

### **Future Implications**

Further prospective studies and multicenter registries are needed to compare laparoscopic, percutaneous and open approaches for retroperitoneal abscesses, particularly in post-bariatric or immunocompromised patients and to standardize indications, technical strategies and postoperative follow-up.

### **Conflict of Interest**

The authors declared no potential conflicts of interest with respect to the research, authorship and/or publication of this article.

### **Financial Disclosure**

This research did not receive any grant from funding agencies in the public, commercial or not-for-profit sectors.

### **Acknowledgment**

Acknowledge those who provided support during the study.

### **Consent To Participate**

The authors certify that they have obtained all appropriate patient consent.

### **Data Availability and Consent of Patient**

Data is available for the journal. Informed consents were not necessary for this paper.

### **Author's Contribution**

All authors contributed equally for this paper.

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