

Case Report

Intra-Abdominal Abscess Secondary to Panniculitis

Gasman Ochoa A^{1*}, Vanessa Pacheco², Daniel Herrera¹, Daniel Maldonado³

¹General and Laparoscopic Surgeon, Attending Surgeon at "IESS Riobamba" Hospital; Bariatric Surgery Specialist; Faculty Member, Postgraduate Surgery Program, Universidad Técnica de Ambato, Ecuador

²General Practitioner, Ecuador

³Resident Physician, Río Hospital (Private Healthcare Facility), Ecuador

*Correspondence author: Gasman Ochoa A, General and Laparoscopic Surgeon, Attending Surgeon at "IESS Riobamba" Hospital; Bariatric Surgery Specialist; Faculty Member, Postgraduate Surgery Program, Universidad Técnica de Ambato, Ecuador; Email: gasmano@hotmail.com

Abstract

Intra-abdominal abscess is a common and potentially severe complication of various abdominal conditions such as appendicitis, diverticulitis, visceral perforations and neoplastic processes. It may also follow surgical procedures or abdominal trauma. It involves the localized accumulation of purulent fluid in the peritoneal cavity as a response to intra-abdominal infection. Clinical presentations are often nonspecific, delaying diagnosis and appropriate treatment. Diagnostic imaging, particularly Computed Tomography (CT), is crucial for identifying the abscess and guiding management. Treatment includes broad-spectrum antibiotics and either percutaneous or surgical drainage depending on the case. Early identification and multidisciplinary management are essential to reduce morbidity and mortality.

Panniculitis is defined as nonspecific inflammation and significant thickening of the mesentery, sometimes referred to as retractile mesenteritis. The Mayo Clinic classifies panniculitis into three types:

- Type 1: Diffuse mesenteric thickening from the root to the intestinal border
- Type 2: Isolated nodular mass at the mesenteric root
- Type 3: Multiple mesenteric nodules of varying sizes

We present the case of a 50-year-old woman with a one-week history of abdominal pain. Imaging and laboratory studies were inconclusive and the patient underwent laparoscopic surgery revealing an intra-abdominal abscess secondary to mesenteric panniculitis.

Citation: Gasman Ochoa A, et al. Intra-Abdominal Abscess Secondary to Panniculitis. *Jour Clin Med Res.* 2025;6(2):1-5.

<https://doi.org/10.46889/JCMR.2025.6214>

Received Date: 30-07-2025

Accepted Date: 13-08-2025

Published Date: 20-08-2025



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Keywords: General surgery; Intra-abdominal Abscess; Laparoscopy; Panniculitis

Introduction

Intra-abdominal abscess refers to a localized collection of purulent material in the peritoneal or retroperitoneal space and is often associated with previous surgery, trauma or abdominal wall neoplasms [1]. It is characterized by the accumulation of cellular debris, enzymes and microorganisms bacteria, fungi or rarely, parasites and in some cases, may be aseptic. The peritoneal cavity and its reflections (ligaments, mesenteries and omenta) are frequently affected by inflammatory, infectious, traumatic and neoplastic processes. These spaces may also be pathways for disease spread from adjacent organs or systemic disorders.

Mesenteric Panniculitis (MP) is a rare, nonspecific inflammatory condition affecting mesenteric fat tissue. It usually affects adults later in life, is often asymptomatic and is frequently discovered incidentally during imaging. Treatment is rarely needed unless there is bowel obstruction. Untreated infection may progress to peritonitis and sepsis, significantly worsening prognosis and potentially leading to death. Abscess pathophysiology involves an inflammatory cascade triggered by polymicrobial infection, leading to the release of mediators such as neutrophils, macrophages and cytokines including TNF- α , IL-1 and IL-6 [2]. Anaerobic metabolism and the acidic environment contribute to hypoxia and elevated lactate levels, increasing mortality risk [3]. The

abscess capsule, formed by collagen and fibrin, restricts spread but also limits antibiotic and neutrophil access [4]. Aseptic abscesses may result in granulomatous responses such as pyoderma gangrenosum [5]. CT is the preferred imaging modality to assess peritoneal disease and determine location and disease extent through coronal and sagittal reconstruction [1].

Ethical Statement

The project did not meet the definition of human subject research under the purview of the IRB according to federal regulations and therefore, was exempt.

Case Presentation

A 50-year-old female presented with a 7-day history of moderate-intensity hypogastric pain radiating to the right lumbar region. She had previously received outpatient antibiotic therapy at another facility with no improvement. On admission or upon admission to our emergency department, she reported intermittent fever and generalized malaise (Fig. 1,2).

Vital Signs

- BP: 120/70 mmHg
- HR: 84 bpm
- RR: 22 breaths/min
- Temperature: 37.7°C
- SpO₂: 93% on room air

Physical examination revealed a hypogastric and mesogastric mass approximately 20 cm in diameter, tender and poorly mobile.

Laboratory Findings

- WBC: 15,400 / μ L
- Neutrophils: 83.6%
- C-reactive protein: 249 mg/L
- Abdominal CT (contrast and non-contrast):
- Enlarged uterus with fibroid-like appearance, displaced to the right
- Left ovary unremarkable
- Multilobulated mass likely of right ovarian origin with thick, irregular septations and contrast enhancement
- Measurement: approx. 111 × 73 × 79 mm
- Differential diagnosis: complex ovarian cyst or cystadenoma
- Associated para-ovarian fat inflammation suggesting possible torsion



Figure 1: Computed Tomography (CT) of the Abdomen and Pelvis (Axial View): Tumoral lesion, likely originating from the right ovary, presenting as a multilobulated mass with thick, irregular internal septations. These septations and the cyst wall demonstrate enhancement following intravenous contrast administration, consistent with a complex cystic lesion. The mass measures approximately 111 × 73 × 79 mm, with cystadenoma considered as the primary diagnostic possibility.



Figure 2: Contrast-Enhanced Computed Tomography (CT) of the Abdomen and Pelvis - Sagittal Section A multilobulated adnexal mass, likely arising from the right ovary, is observed. The lesion contains thick, irregular internal septations with enhancement of both the septa and the cyst wall following intravenous contrast administration, consistent with a complex cystic lesion. The mass measures approximately 111 × 73 × 79 mm. A cystadenoma is the leading diagnostic consideration.

Surgical Treatment

The patient underwent laparoscopic surgery using a three-port approach. A 20 cm tumoral omental mass was found adherent to the anterior abdominal wall. The mass appeared fibrous, edematous, irregular, hypervascular and contained approximately 100 cc of purulent fluid and necrotic tissue. Drainage and debridement were performed and a mixed drain was placed (Fig. 3-7).

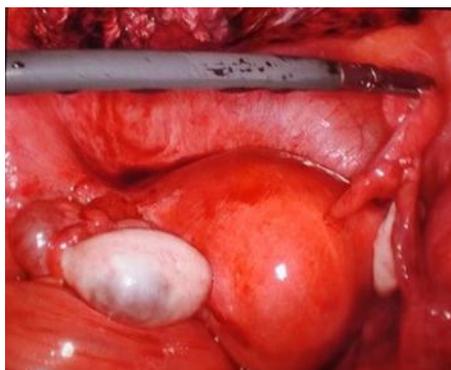


Figure 3: (Laparoscopic View): Ovaries and adnexa with normal gross (macroscopic) appearance.



Figure 4: (Laparoscopic View): Intra-abdominal abscess located between the mesentery and the anterior abdominal wall.



Figure 5: (Laparoscopic View): Dissection and release of phlegmon adherent to the anterior abdominal wall.

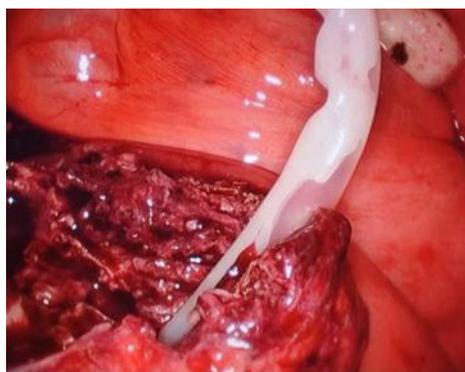


Figure 6: (Laparoscopic View): Mixed drainage performed within the mesenteric abscess cavity.

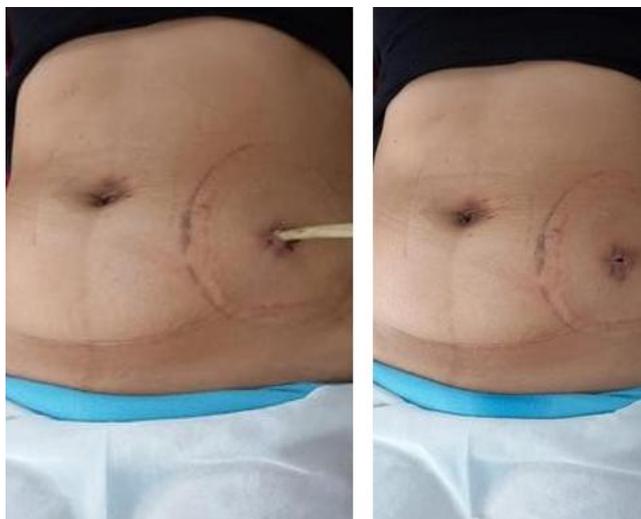


Figure 7: Outpatient follow-up and surgical drain removal.

Postoperative Course

She received broad-spectrum antibiotics and analgesics. Her fever resolved, pain subsided and drain output was minimal and serohematic. She was discharged 48 hours later with outpatient antibiotic and analgesic therapy. The abdominal drain was removed five days later.

Discussion

Intra-abdominal abscesses pose serious clinical challenges. In this case, nonspecific clinical findings made laboratory and imaging studies essential for guidance. Although CT is the gold standard for diagnosis, it was not fully definitive in this case [1]. The standard treatment includes broad-spectrum antibiotics and abscess drainage—either percutaneous or surgical. In cases

with multiple or inaccessible abscesses or associated visceral perforation, surgery (laparoscopic or open) remains the gold standard [6].

Despite technological advances, challenges persist regarding recurrence, identification of the primary source and management in critically ill patients. Further multicenter prospective studies are needed to compare therapeutic strategies and establish standardized protocols.

Conclusion

Panniculitis is a rare condition with diverse etiologies and nonspecific symptoms, complicating early diagnosis. However, timely identification is crucial to prevent complications. Laboratory studies provide guidance but are not definitive, while CT is essential in detecting and localizing disease and evaluating spread. Laparoscopic surgery is preferred due to its minimally invasive nature and must be accompanied by antibiotics and analgesia. Patients should be monitored postoperatively and early discharge may be considered if clinical evolution is favorable within 24 hours.

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

No financial support was received for the writing, editing, approval or publication of this manuscript.

Consent for Publication

Written informed consent was obtained from the patient for publication of this case report. No identifiable data were included.

Acknowledgment

None.

Author's Contribution

All authors have contributed equally to this work and have reviewed and approved the final manuscript for publication.

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