Ovarian torsion discovered during surgery for suspected acute appendicitis. A case report

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Background: Adnexal torsion is an uncommon but potentially serious gynecological emergency characterized by the rotation of the ovary, fallopian tube, or both structures around their vascular pedicle, potentially compromising blood supply and resulting in ischemia and tissue necrosis. Its clinical presentation is frequently nonspecific and may mimic other causes of acute abdominal pain, particularly acute appendicitis, representing a diagnostic challenge in women of reproductive age.

Keywords: Ovarian torsion, acute abdominal pain.

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Case Report

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Acute appendicitis is one of the most common causes of surgical acute abdomen and represents a frequent reason for emergency department visits. However, the clinical presentation of acute abdominal pain may be nonspecific, particularly in women of reproductive age, in whom gynecological conditions may produce manifestations similar to those of gastrointestinal disorders. This clinical overlap represents a diagnostic challenge, as conditions such as adnexal torsion, ovarian cyst rupture, and ectopic pregnancy may mimic acute appendicitis and complicate the identification of the underlying etiology before surgical intervention [1,2].

Ovarian torsion is a gynecological emergency characterized by the partial or complete rotation of the ovary, fallopian tube, or both structures around their vascular pedicle. Initial obstruction of venous and lymphatic drainage results in congestion and edema, which may progress to impaired arterial perfusion, ischemia, and hemorrhagic necrosis. Clinically, it typically presents with sudden-onset abdominal or pelvic pain, frequently accompanied by nausea and vomiting. Nevertheless, the location of the pain and physical examination findings may be indistinguishable from those observed in other causes of acute abdomen, including acute appendicitis [2,3].

The preoperative diagnosis of ovarian torsion can be challenging due to the variability of its clinical manifestations and the limitations of imaging studies. Pelvic ultrasonography with Doppler assessment is an essential diagnostic tool for identifying morphological abnormalities of the ovary and adnexal structures. However, the presence of preserved blood flow does not exclude torsion; therefore, clinical suspicion should remain high even when ultrasonographic findings are inconclusive. Comprehensive patient assessment and timely recognition of this emergency are essential to reduce the risk of irreversible tissue damage and promote the preservation of ovarian and tubal function [2,3].

In patients presenting with right lower quadrant pain, acute appendicitis is commonly prioritized in the differential diagnosis. Nevertheless, the clinical similarities between gastrointestinal and gynecological disorders may lead to diagnostic uncertainty and, in certain circumstances, result in the definitive etiology being identified only during surgical exploration. The identification of a torsed adnexal structure in a patient undergoing surgery for suspected appendicitis highlights the importance of systematic evaluation of the abdominal and pelvic cavities, particularly when the appendix shows no abnormalities that adequately explain the clinical presentation.

Intraoperative assessment is particularly relevant in this setting, as it allows the identification of alternative causes of acute abdomen and guides definitive treatment according to the anatomical findings. The literature has documented diagnostic challenges and atypical presentations in which appendicitis and adnexal torsion are considered differential diagnoses or may even coexist. These scenarios emphasize the importance of avoiding premature diagnostic closure and considering alternative etiologies when clinical, radiological, or surgical findings are inconsistent with the initial diagnosis [1,4].

The aim of this article is to describe the case of a patient who underwent surgery for suspected acute appendicitis, in whom adnexal torsion was identified during intraoperative exploration, highlighting the clinical and surgical features that

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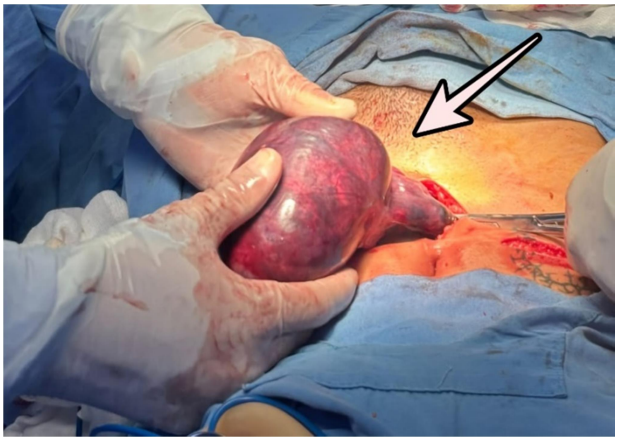


Figure 1. Intraoperative image showing ovarian torsion.

contributed to the definitive diagnosis, as well as the importance of considering gynecological conditions in the differential diagnosis of acute abdomen.

Case report

We present the case of a 19-year-old female patient who presented to the hospital with a 12-hour history of abdominal pain. The pain initially manifested as diffuse abdominal discomfort and subsequently migrated to the right iliac fossa, accompanied by nausea and five episodes of vomiting. Due to the persistence and progressive worsening of her symptoms, she initially sought medical attention from a private physician, who prescribed medical treatment without clinical improvement. As the abdominal pain intensified, she presented to the emergency department of our institution.

During the initial assessment by the General Surgery Department, physical examination revealed signs of peritoneal irritation, including tenderness at McBurney's point and positive McBurney, Blumberg, and psoas signs. Laboratory investigations revealed leukocytosis of 12,000 cells/µL with a left shift. Taken together, the clinical and laboratory findings supported a presumptive diagnosis of acute appendicitis; therefore, surgical intervention with abdominal exploration was indicated.

The procedure was initiated through a Rocky-Davis incision in the right iliac fossa. However, surgical exploration revealed a macroscopically normal appendix, without evident signs of inflammation. Given the absence of appendiceal findings that could explain the clinical presentation, further exploration of the abdominal cavity was performed, revealing a large right ovarian cystic mass with torsion of its vascular pedicle, consistent with ovarian torsion associated with a giant ovarian cyst. (Figure 1)

Considering the characteristics of the lesion and the intraoperative findings, the surgical approach was extended through a lower midline infraumbilical

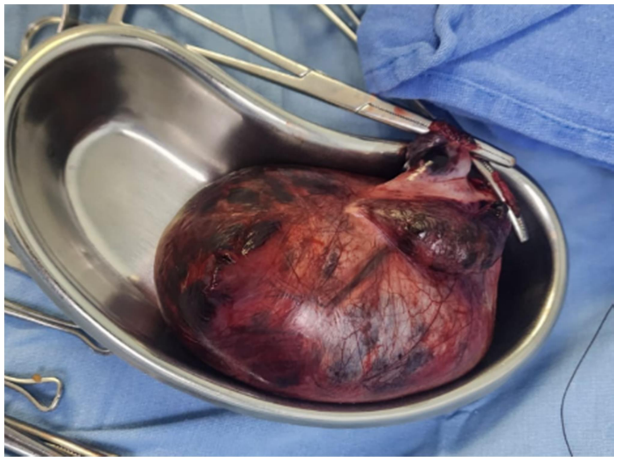


Figure 2. Surgical specimen showing a giant right ovarian cyst.

incision. Clamping, division, and ligation of the corresponding vascular and ligamentous structures were performed, followed by right salpingo-oophorectomy and removal of the surgical specimen. A cystic ovarian mass measuring approximately 15 × 8 cm was obtained (Figure 2). Adequate hemostasis was subsequently confirmed, and the abdominal wall was closed in anatomical layers using the standard technique.

During the postoperative period, the patient demonstrated a favorable clinical course, with adequate tolerance of oral intake eight hours after surgery and no documented immediate complications. Given her satisfactory recovery, she was discharged home with medical instructions and recommendations for outpatient follow-up

Discussion

Ovarian torsion is a gynecological emergency whose diagnosis represents a clinical challenge because of its nonspecific manifestations and the similarity of its presentation to other causes of acute abdomen. In young women, pain localized to the right iliac fossa frequently raises suspicion of acute appendicitis; however, gynecological conditions should also be considered in the differential diagnosis, particularly when the clinical presentation includes nausea, vomiting, and signs of peritoneal irritation. The present case illustrates this diagnostic challenge, as a 19-year-old patient underwent surgery for suspected acute appendicitis, during which a large right ovarian mass associated with torsion was identified, establishing a gynecological etiology for her clinical presentation [1,2].

The patient's clinical presentation is consistent with the manifestations described in the literature on ovarian torsion. Acute-onset abdominal pain accompanied by nausea and vomiting is among the most common presentations of this condition. Torsion of the vascular pedicle initially causes obstruction of

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venous and lymphatic drainage, resulting in ovarian congestion and edema. Subsequently, impaired arterial perfusion may lead to ischemia and hemorrhagic necrosis. The severity of pain and the presence of peritoneal signs may make it difficult to distinguish ovarian torsion from other surgical emergencies, including acute appendicitis [1,3].

In the present case, migration of abdominal pain to the right iliac fossa, positive McBurney, Blumberg, and psoas signs, and leukocytosis of 12,000 cells/μL with a left shift supported the preoperative suspicion of acute appendicitis. Nevertheless, these findings are not exclusive to appendiceal inflammation. The inflammatory response associated with complicated adnexal torsion may also contribute to nonspecific abdominal manifestations. Therefore, clinical and laboratory findings should be interpreted comprehensively, avoiding the consideration of an isolated sign or laboratory abnormality as definitive evidence of a specific etiology [1,2].

The identification of a right ovarian mass measuring approximately 15 × 8 cm is a relevant finding in this case. The presence of an adnexal mass may predispose to torsion by altering ovarian weight and mobility around its supporting structures. The risk of torsion increases in the presence of adnexal masses, particularly those larger than 5 cm, although torsion may also occur in ovaries without pre-existing lesions. In adolescents and young women, lesions associated with torsion are predominantly benign; however, the nature of a mass cannot be established solely on the basis of its size or macroscopic appearance. Histopathological examination is therefore important to determine its etiology [1,3].

From a diagnostic perspective, pelvic ultrasonography is the initial imaging modality of choice when adnexal torsion is suspected. Suggestive findings include ovarian enlargement, stromal edema, peripheral displacement of follicles, and visualization of the twisted vascular pedicle. However, the absence of conclusive ultrasonographic findings does not exclude the diagnosis, and preserved Doppler blood flow should not be used in isolation to rule out torsion. Imaging findings must be interpreted in conjunction with the clinical presentation and should not delay surgical intervention when clinical suspicion is high [1,2]. In the present case, the definitive etiology was identified during surgical exploration. Since no information regarding preoperative imaging studies was available, it is not possible to determine whether any of these findings could have raised suspicion of adnexal pathology before surgery.

An important aspect of this case was the identification of a macroscopically normal appendix during the initial exploration through a Rocky-Davis incision. In the absence of appendiceal abnormalities that could explain the clinical presentation, the abdominal exploration was extended, leading to the identification of the torsed ovarian mass. This finding highlights the importance of a systematic assessment of the abdominal cavity when intraoperative findings are inconsistent with the preoperative diagnosis. Although the coexistence of appendicitis and adnexal torsion has been described in case reports, both conditions should be evaluated independently, as the identification of one potential cause does not necessarily exclude the presence of another concomitant pathology [4,5].

The goals of adnexal torsion management are to resolve the torsion, minimize vascular injury, and preserve ovarian function and reproductive potential whenever possible. In young women, current recommendations favor a minimally invasive approach and detorsion with ovarian preservation when clinical and anatomical conditions permit. A dark or congested macroscopic appearance of ovarian tissue does not, by itself, constitute definitive evidence of irreversible necrosis. Therefore, the decision to perform oophorectomy should be based on intraoperative findings, tissue viability, and the characteristics of the associated lesion [1,2].

In the patient described, right salpingo-oophorectomy was performed through laparotomy, with removal of a large cystic mass and a favorable initial postoperative course. Given the patient's age of 19 years, the decision to remove the ovary and fallopian tube is particularly relevant because of its potential reproductive implications. Proper interpretation of this surgical decision requires correlation with the intraoperative description of the lesion, the degree of torsion, the presence or absence of necrosis, tissue integrity, and any suspicion of neoplasia. Since these details were not available in the information provided, it is not possible to retrospectively establish whether complete adnexal resection was the only viable therapeutic option. This consideration does not diminish the value of the case; rather, it underscores the importance of thoroughly documenting the findings that support surgical decisions in young patients [1,2].

The immediate postoperative course was satisfactory, with tolerance of oral intake eight hours after surgery and hospital discharge following clinical improvement, without documented immediate complications. This outcome reflects favorable initial recovery; however, short-term postoperative improvement alone does not establish reproductive prognosis or exclude late complications. Clinical follow-up and histopathological findings, when available, provide additional relevant information for a more complete characterization of the case.

Overall, this case highlights the importance of considering ovarian torsion among the differential diagnoses of acute abdomen in young women, even

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when the clinical presentation initially suggests acute appendicitis. Surgical exploration enabled the identification of an alternative etiology and guided treatment toward the underlying pathology. Correlation of clinical findings, complementary investigations, and intraoperative assessment, together with an individualized evaluation of ovarian preservation options, is an essential component of the management of these patients.

Conclusion

Ovarian torsion is an important cause of acute abdomen in young women and may pose a diagnostic challenge because its clinical manifestations can resemble those of other common surgical conditions, particularly acute appendicitis. This case highlights the importance of considering gynecological etiologies in the differential diagnosis of acute abdominal pain, even when the initial clinical presentation and laboratory findings suggest a gastrointestinal cause.

Systematic exploration of the abdominal cavity during surgery is essential when intraoperative findings are inconsistent with the preoperative diagnosis, as it allows alternative pathologies to be identified and appropriate treatment to be initiated. Furthermore, in young patients with adnexal torsion, the choice of surgical procedure should be individualized, prioritizing the preservation of ovarian tissue and reproductive function whenever clinical and anatomical conditions permit.

This case underscores the importance of a comprehensive diagnostic approach to acute abdomen and the inclusion of adnexal torsion in the differential diagnosis, with the aim of facilitating timely recognition of this gynecological emergency and reducing the risk of complications.

Conflicts of interests

None declared by the authors.

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