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Unraveling the Enigmatous Path of a Nulliparous Intraoperative Case of Adnexal Torsion

Case report

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Abstract

Adnexal torsion is a rare and rare occurrence, particularly in non-gravid anomalous uterus. Preoperative diagnosis is difficult, and the condition is diagnosed during surgical exploration. Delay in diagnosis can be lethal, as the uterus and adnexa can undergo irreversible gangrenous changes. Timely surgical intervention is crucial for managing such cases. This case involves a 27-year-old nulliparous lady with an anomalous uterus who presented with acute abdominal pain.

Keywords: Adnexal Torsion; Anomalous Uterus; Nulliparous; Ovarian Torsion

Introduction

Torsion of adnexal structures is a rare surgical emergency, affecting women of any age group, particularly reproductive age [1]. It often causes sudden abdominal pain and increases the risk of ovarian twisting due to an ovarian mass larger than 5 cm [2,3].

The right ovary is more likely to undergo torsion due to its longer utero-ovarian ligament compared to the left. The sigmoid colon on the left may help prevent torsion [4]. Delay in diagnosis and correction can lead to adverse effects like hemorrhage, ischemia, loss of ovarian function, necrosis, abscess, or peritonitis. Ultrasound with Doppler flow is the primary imaging modality. [5] Laparoscopy is the ideal procedure for diagnosis and treatment of adnexal torsion, and conservative surgery is preferred over removal. A rare presentation of an anomalous non-gravid uterus with adnexal torsion has not been reported in literature.

Case Report

A 27-year-old nulliparous woman presented with sudden, colicky lower abdominal pain for 30 minutes, radiating to the back and accompanied by four episodes of vomiting. She had a regular menstrual history and had a left iliac fossa tenderness, and no guarding. A USG scan showed a grossly enlarged left ovary with multiple hemorrhagic follicles and no vascularity. The (Figure-1a,b) left ovary measured 50cc and had left ovarian torsion.

Figure 1: a)TAS: left ovary 50cc, measuring:71*31*41c, b) left ovary torsion

The final diagnosis was nulliparous with adnexal torsion was followed by left ovarian torsion surgery, involving laparoscopic left salpingectomy with detorsion of the left ovary and fixation. (Figure 2 A-D and Table 1).

Discussion

This is a rare presentation of an anomalous non-gravid uterus with adnexal torsion which has not been reported in literature yet. Since being unique, this case cannot be compared with other cases of gravid or adnexal torsions. Adnexal torsion, a 3-5% emergency case, primarily affects reproductive-age women and involves rotation of adnexal structures, causing ischemic changes and affecting the reproductive system.[6,7] Ovarian torsion is most common in women aged 20-30, with 70% occurring on the right side due to longer uteroovarian ligament and limited space from the sigmoid colon. [6]

Adnexal torsion is a significant risk in females with acute abdominal pain. Early diagnosis and intervention are crucial to prevent complications like hemorrhage, ischemia, abscess, peritonitis, and organ function loss [6]. A minimally invasive surgical approach with detorsion and preservation of adnexal structures is recommended. Surgeons should not remove a torsed ovary unless oophorectomy is unavoidable, such as when a severely necrotic ovary falls apart**.** This case is significant due to its rarity and the need for conservative fertility preserving surgery. A young nulliparous woman sought to preserve her fertility, and prompt intervention prevented serious consequences. Oophorectomy was not the final treatment, but oophoropexy was performed to prevent recurrence risk. Rody et al. recommend conservative management of ovarian torsion, regardless of macroscopic appearance, as no severe complications occur. Animal studies show reperfusion of ischaemic ovaries after 24 hours improves ovarian viability [8].

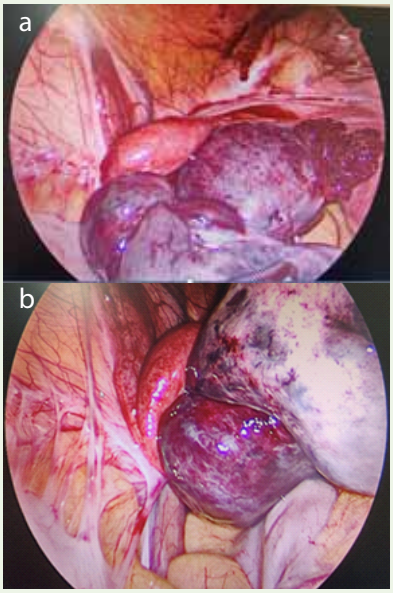

Figure 2: a) left adnexal torsion with dilated, congested tube, b) left tube hydrosalpinx, congested twist 2 turns around pedicle.

Table 1

P/A: soft, tenderness elicited in left iliac fossa, no guarding or rigidity, no distension.
P/V: uterus pushed to right side, left fornix tenderness, no fullness.
USG scan: grossly enlarged left ovary with multiple hemorrhagic follicle, no vascularity on Doppler.
TAS: left ovary 50cc, measuring:71*31*41c
TVS: LEFT OVARY TORSION
FINAL DIAGNOSIS : NULLIPAROUS WITH LEFT SIDED ADNEXAL TORSION
SURGERY: LAPAROSCOPIC LEFT SIDE SALPINGECTOMY WITH DETORSION OF LEFT OVARY AND FIXATION

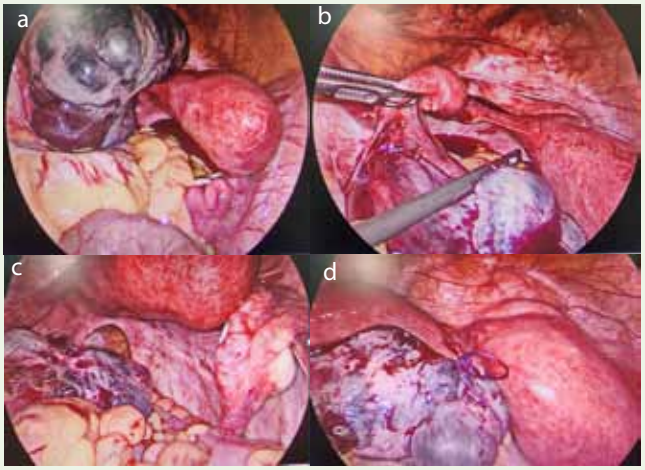

Figure 3: a) uterine anomaly : type 2 c unicornuate uterus, b)left rudimentary non communicating horn, c) unicornuate uterus with well developed right tube and ovary, d)laparoscopic left salpingectomy with detorsion of left ovary and fixation.

Pathogenesis

Ovarian torsion occurs when an ovarian cyst rotates in fundibulo pelvic and UO ligaments, affecting normal ovaries and premenarchal girls with elongated ligaments. The occurrence may decrease post-puberty due to ligament shortening. [9] A 10-year review found 2.7% of emergency surgery cases involved ovarian torsion, with 2%-15% of surgically treated adnexal masses causing torsion. Most ovarian torsion occurs in reproductive age groups, with less common in premenarchal girls and postmenopausal women.

Risk Factors

[10] Over 80% of ovarian torsion patients have 5 cm or larger ovarian masses, with a correlation between mass size and torsion risk. Large cysts in ovarian induction may increase the risk of torsion.

A medical history and physical examination are essential for diagnosing ovarian torsion. Laboratory evaluations include serum hormones, hematocrit, white blood cell count, and electrolyte panel. Imaging studies, such as ultrasound, doppler flow, MRI, and CT, are crucial for evaluating pelvic masses. Surgery, including laparoscopy and laparotomy, is the gold standard for treating ovarian torsion. Postoperative ultrasound shows normal follicular development, and animal studies suggest that artery occlusion may not be total in ovarian torsion.

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We purpose a table for Diagnostic and Management Aspects of Ovarian Torsion (Table 2).

As per our experience, here are the diagnostic and treatment guidelines for ovarian torsion in table format (Tables 3,4).

Please note that these are general guidelines, and individual cases may vary. Prompt diagnosis and intervention are crucial to prevent complications associated with ovarian torsion.

Limited evidence on ovarian torsion diagnosis and management raises uncertainties in patient care. This article provides practical tips for clinicians.

Conclusion

Strong clinical suspicion is the key factor to diagnose adnexal torsion and for timely intervention which could prevent morbidity. Ultrasound with Doppler helps in diagnosing adnexal mass with torsion. Conservative surgery is the preferred mode of treatment for patients in the reproductive age group to preserve the menstrual function.

Table 2: Diagnostic and Management Aspects of Ovarian Torsion

Aspect	Description
Medical History	Essential for assessing risk factors and symptoms.
Physical Examination	Includes abdominal palpation and pelvic examination.
Laboratory Evaluations	- Serum hormones - Hematocrit - White blood cell count - Electrolyte panel
Imaging Studies	- Ultrasound (including doppler flow) - MRI - CT
Surgical Intervention	- Laparoscopy or Laparotomy - Detorsion of the ovary and preservation of adnexal structures
Postoperative Evaluation	- Ultrasound to monitor follicular development. - Artery occlusion may not always be total.
Conservative Management (As Recommended)	- In cases of viable ovarian tissue, conservative surgery aims at preserving fertility.
Risk Factors	- Over 80% of cases involve ovarian masses of 5 cm or larger.
Diagnostic Uncertainties	Limited evidence on diagnosis and management may lead to uncertainties in patient care.
Practical Tips for Clinicians	To improve the diagnosis and treatment of ovarian torsion.

Table 3: Diagnostic Guidelines for Ovarian Torsion

Diagnostic Step	Description/Recommendation
Medical History and Physical Examination	- Obtain detailed medical history and risk factors.
	- Perform thorough abdominal and pelvic examination.
	- Pay attention to sudden, severe lower abdominal pain.
Laboratory Evaluations	- Conduct serum hormone levels, hematocrit, and WBC count.
	- Look for elevated WBC count indicating inflammation.
Imaging Studies	- Use ultrasound as the primary imaging modality.
	- Assess for the "whirlpool sign" indicative of torsion.
	- Consider Doppler flow to evaluate blood flow to the ovary.
	- Employ MRI and CT if ultrasound results are inconclusive.

Table 4: Treatment Guidelines for Ovarian Torsion

Treatment Step	Description/Recommendation
Surgery (Laparoscopy or Laparotomy)	- Surgical intervention is the gold standard for treatment.
	- Detorsion of the twisted ovary and fallopian tube.
	- Preservation of ovarian and adnexal structures if possible.
Postoperative Monitoring	- Perform postoperative ultrasound to assess follicular growth.
	- Consider the possibility of incomplete artery occlusion.
Follow-Up Care	- Monitor the patient's recovery and symptom resolution.
	- Address any underlying conditions or risk factors.

Summary table Annexure: We purpose Summary table of the key points regarding adnexal torsion diagnosis and treatment from our experience:

Aspect	Key Points
Diagnosis	- Strong clinical suspicion based on symptoms (sudden, severe lower abdominal/pelvic pain, nausea, vomiting) and physical exam (adnexal mass). - Ultrasound with Doppler to assess blood flow and confirm diagnosis.
Treatment (Reproductive Age)	- Conservative surgery preferred to preserve fertility and menstrual function. - Minimally invasive laparoscopic surgery to detorse and preserve ovaries while removing necrotic tissue/masses.
Treatment (Severe Cases)	- In cases of extensive damage or necrosis, oophorectomy (ovary removal) may be necessary . - Timely intervention to prevent complications.
Importance of Early Intervention	- Prompt diagnosis and treatment are critical to prevent morbidity. - Preserve fertility in reproductive-age patients.

Summary

Adnexal torsion diagnosis is challenging, surgical likelihood depends on clinical suspicion, laparoscopy is preferred, and detorsion is safe. The case highlights the difficulty in accurate adnexal torsion diagnosis, urging management as a surgical emergency and considering early laparoscopy/laparotomy for fertility.

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