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Case Report

Laparoscopic right salpingo-oophoropexy for torsion in a young patient thought to have acute appendicitis

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ABSTRACT

Acute appendicitis is a common surgical emergency. However, it also has many mimickers i.e. other clinical conditions which closely mimic it vis-à-vis symptoms, signs, imaging and laboratory investigations. In female patients many of these mimickers happen to be gynecological conditions. The authors, herein, present the case of a 22 years old unmarried female who was pre-operatively diagnosed to have acute appendicitis. But, intra-operatively she was found to have acute torsion of the right fallopian tube – ovary complex. She was successfully managed laparoscopically without excision, thereby, hopefully; not diminishing her future fertility.

Keywords: Acute, Appendicitis, Fallopian tube, Fertility, Laparoscopically, Mimicker, Ovary, Torsion

INTRODUCTION

Ovarian torsion is a significant gynecological emergency characterized by the partial or complete rotation of the ovary around its supporting ligaments, resulting in compromised blood flow.[1] Although torsion can occur at any age, it is most commonly seen in women of reproductive age and is frequently associated with the presence of ovarian cysts or masses. The condition poses a strong diagnostic challenge due to its nonspecific symptoms, which often mimic other acute abdominal disorders.

Prompt recognition and early surgical intervention are essential to preserve ovarian function and prevent long-term complications. Understanding the anatomical factors, clinical presentation, and diagnostic tools associated with ovarian torsion is critical for improving patient outcomes.

CASE REPORT

A 22 years old unmarried female patient presented to the surgical out patient's department (OPD) with chief complaint of acute severe non radiating pain in the right lower abdomen for 1 day. She gave history of associated nausea and 1 episode of bilious vomiting. There was no history of fever. On examination, her pulse was 90 beats per minute, blood pressure was 120/80 mms of Hg and respiratory rate was 14 per minute.

A per abdomen examination revealed severe tenderness in the right iliac fossa. She was then investigated for the same. Laboratory workup revealed a leukocytosis of 15000. An ultrasound scan of the abdomen and pelvis revealed a probe tenderness in the right iliac fossa, thereby suggesting appendicitis. It was decided to take her up for surgery. After due anaesthesia fitness evaluation and consent procedures, she was planned for a laparoscopic appendectomy.

At laparoscopy, she had a normal looking appendix. A local pelvic exploration by the scope revealed the actual cause of the pain – a torsion of the right fallopian tube and ovary with grey colour change. There was no ovarian or para-metrial cyst.

The meso-salpinx was noted to be very lax and long. Immediately, the involved structures were de-rotated, anaesthesiologist instructed to administer 100% oxygen

and warm gauze was placed on the de-rotated structures (Figure 1).

These manouvres gradually made the colour of the tube and ovary better and it was decided to conserve these, given that the patient was unmarried. The de-rotated tube and ovary were suture fixed to the parietes with 3-0 mersilk via multiple interrupted sutures. A local toilet was then given, pneumoperitoneum desufflated and trocar sites suture – closed (Figure 2).

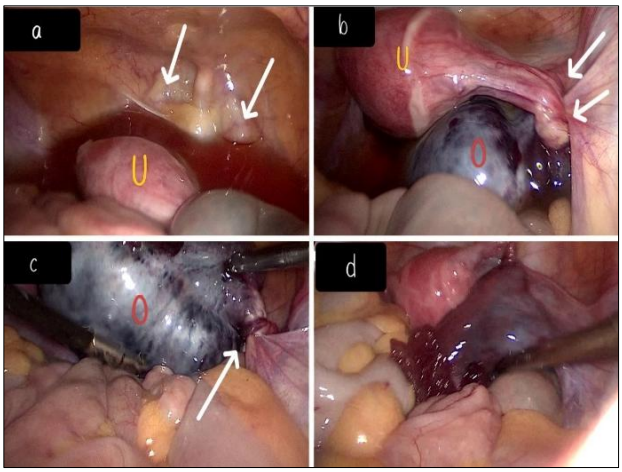


Figure 1: (a) 1st look lap – free fluid in pelvis (white arrows), (b and c) torsion of right fallopian tube and ovary (white arrows) along with dusky right ovary and tube, and (d) torsion de-rotated with colour of fallopian tube getting better.

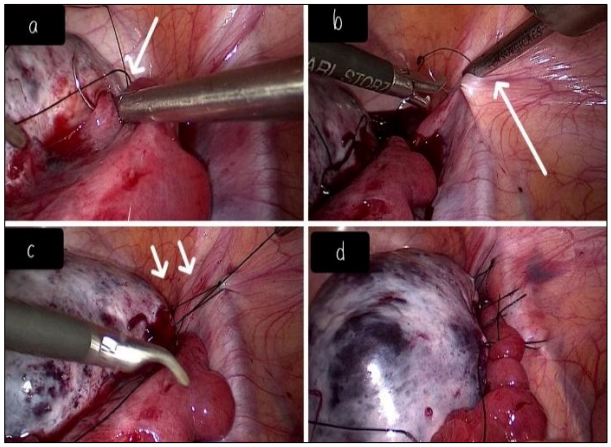


Figure 2: (a-c) Right salpingo-oophoropexy in progress with right lower parietes using 3-0 mersilk (white arrows), and (d) end result after pexy.

The patient had an uneventful post-operative recovery and was discharged from the hospital on POD 2 (Figure 3). On her POD 10 post operative OPD visit, all her wounds had healed well and she was asymptomatic. At the time of writing this paper, a telephonic interview was held with her; 7 years after her surgery and she continues to be asymptomatic.

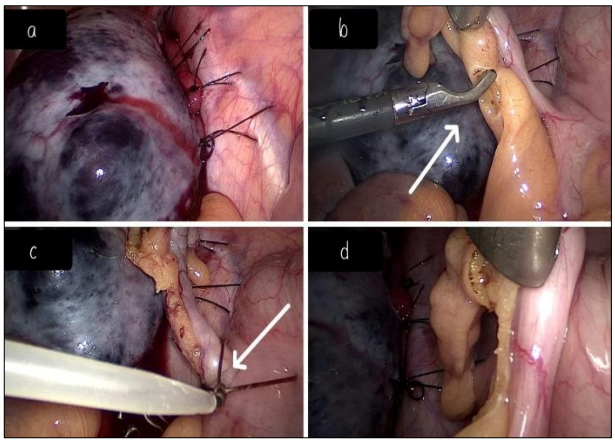


Figure 3: (a) End result of right salpingo-oophoropexy, (b) meso-appendix being coagulated and divided (white arrow), (c) base of appendix being ligated prior to division (white arrow), and (d) specimen (appendix) being extracted.

DISCUSSION

Ovarian torsion is a gynecological emergency, occurring in approximately 4.9 per 100,000 females aged 1-20 years.[1] It develops when the ovary twists around its vascular pedicle, initially obstructing lymphatic and venous drainage and eventually compromising arterial blood flow. If untreated, this progression leads to ischemia and tissue necrosis.

Although torsion can affect females of any age, it is most frequently seen in women of reproductive age and often occurs in the presence of an ovarian cyst or mass. Overall, it represents the fifth most common gynecologic emergency, accounting for about 2.7% of cases.[2]

Anatomically, the ovary is suspended by the infundibulopelvic ligament, which contains the ovarian artery and allows a significant degree of mobility. The utero-ovarian ligament, which connects the ovary to the uterus, carries branches from the uterine artery. Because these structures are not rigidly fixed, the ovary is capable of rotating around them. The presence of a pelvic mass increases this mobility and predisposes the ovary to twisting. During torsion, venous and lymphatic return are impaired first due to the compressibility of their thinner vessel walls. The resulting congestion causes ovarian swelling, which further restricts arterial inflow and leads to ischemia and eventual necrosis.

Torsion occurs more commonly on the right side, likely because the sigmoid colon limits movement of the left ovary, whereas the right ovarian ligament is relatively longer.

Clinically, ovarian torsion typically presents with sudden, intermittent, non-radiating lower abdominal pain, often accompanied by nausea and vomiting. These symptoms occur in over half of affected patients and are reported

more frequently in premenarchal girls and adolescents. Abdominal tenderness is present in up to 88% of cases, while rebound or peritoneal signs are less common.[3] A pelvic mass may be palpable, although bimanual examination is usually not feasible or appropriate in pediatric and adolescent patients.

Evaluation includes a physical examination focused on identifying pelvic tenderness or masses, as well as laboratory tests such as serum human chorionic gonadotropin (to assess for pregnancy or germ cell tumors), complete blood count, and electrolytes. While no serum marker definitively diagnoses torsion, markers such as CA-125 can provide clues to underlying pathology. Elevated interleukin-6 levels have been suggested in some studies, but further research is needed.[4]

Ultrasound has a reported sensitivity of 70- 72% and specificity of 87-99.6%.[5] Computed tomography (CT) and magnetic resonance imaging (MRI) may assist in difficult cases. Sonographic findings vary but commonly include enlarged ovary compared with the contralateral side, ovarian stromal edema, often appearing hypoechoic, peripheral displacement of follicles, whirlpool sign, indicating a twisted vascular pedicle, pollicular ring sign, showing a hyperechoic rim around follicles, altered or asymmetric Doppler flow, although normal flow does not exclude torsion, and free pelvic fluid, which may also be physiologic.

Although the definitive diagnosis of ovarian torsion is made through laparoscopic exploration, pelvic ultrasonography with color Doppler is the imaging modality of choice. It can show reduced or absent flow in torsed ovaries, which is a sensitive sign of torsion, however presence of flow in vessels does not rule out torsion. This can be due to the dual blood supply of ovary and preservation of arterial blood flow till late in the disease.

Different studies demonstrated different results varying from decreased/absent venous flow to noncontinuous flow pattern on pulsed Doppler. Persistent arterial flow has been seen in surgically proven nonviable ovaries, while absent or reversed diastolic flow has also been documented, thus making Doppler study unreliable in confirming torsion.[6]

When torsion is suspected, prompt diagnostic laparoscopy is essential to preserve ovarian function and future fertility. The preferred approach is minimally invasive detorsion with preservation of the adnexa, regardless of the ovary's appearance. Oophorectomy should be reserved only for non-viable tissue that cannot be salvaged.

Oophoropexy may be considered to prevent recurrence. The effectiveness of oophoropexy itself is not uniform and appears highly dependent on the degree of ovarian ischemia and on the technique. Various fixation sites have been proposed—including the pelvic sidewall, utero-ovarian ligament, utero-sacral ligament, and round ligament—most often using non-absorbable sutures but no standardized approach has been validated. Dual-site fixation approaches may provide greater stability, yet the fundamental issue remains that conventional fixation corrects ligament length without fully controlling adnexal mobility. This variability contributes to the conflicting evidence and uncertainty surrounding oophoropexy.[7] While generally effective, these procedures carry risks, such as altered blood supply or disruption of the natural anatomical relationship between the ovary and fallopian tube.

With timely diagnosis and appropriate management, outcomes are excellent. However, delayed recognition frequently leads to ovarian infarction. Reported ovarian salvage rates are less than 10% in adults but may reach 27% in pediatric patients.[8] Although the loss of a single ovary rarely results in significant fertility impairment and deaths from torsion are not reported, early detection allows conservative treatment and reduces complications.

CONCLUSION

As seen in this report, acute appendicitis which is a common emergency clinical surgical condition, it sometimes gets misdiagnosed for some of its rare mimickers. Also, as seen here, it is feasible and indeed possible to manage even the mimicking surgical/ gynecological condition through the same ports inserted for the purported laparoscopic appendectomy. Adopting the conservative approach, whenever possible, especially in young girls of reproductive age group; in torsion of internal genitalia, avoids reduced chances at fertility.

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