



Ovarian Cyst Torsion: A Case Report

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Abstract: Accidents involving ovarian cysts might include cyst rupture, hemorrhage, and torsion. Any girl who has abdominal pain or a pelvic or abdominal mass should be evaluated for ovarian torsion, a rare issue in the juvenile age group. We reported a 10-year-old girl presented with complaints of lower left abdominal pain that began three days prior to her hospital admission. Initially, the pain was intermittent but subsequently became persistent and intensified, with no pain-free intervals. CT-Scan of the abdomen – pelvis without contrast revealed cystic mass with fat components and intralesional calcification, in the suprapubic quadrant. The impression came from the ovary (difficult to determine the right/left ovary), which urged the bladder to the anteroinferior and urged the uterus to the posterior, suspected of mature cystic ovarian teratoma. The patient was managed with intravenous fluids (IVFD), antibiotics, and analgesics for pain control. Due to the high suspicion of ovarian torsion, emergency exploratory laparotomy was performed. Anatomical differences in the paediatric population and their effects on surgery were also be considered. Intraoperative findings confirming a left ovarian cyst measuring approximately 8 x 6 x 4 cm, which had undergone torsion twice. Detorsion was performed, and the ovary was found to be viable. Cystectomy was carried out, preserving healthy ovarian tissue. The right ovary appeared normal. In conclusion, this case underscores the importance of timely surgical intervention, even beyond the traditional "golden period" of 6–12 hours, as collateral blood supply may help maintain ovarian viability. The shift from oophorectomy to ovarian preservation in the management of ovarian torsion reflects evolving clinical practices, emphasizing better reproductive and long-term health outcomes. Early recognition, prompt imaging, and surgical intervention are crucial to preserving ovarian function and improving patient prognosis. This case also highlights the need for increased awareness of ovarian torsion in pediatric and adolescent populations, given its rarity and diagnostic complexity.

Keywords: cyst torsion; ovarian cyst; paediatric surgery

INTRODUCTION

Accidents involving ovarian cysts might include cyst rupture, hemorrhage, and torsion. By the time a woman reaches the age of 65, an ovarian cyst is believed to be the cause of 4% of hospital admissions for women. Up to 18% of post-menopausal women have simple ovarian cysts,^{3,4} and up to 21% of these women have any sort of ovarian tumor. Ovarian cysts are especially frequent in older women.¹

Any girl who has abdominal pain or a pelvic or abdominal mass should be evaluated for ovarian torsion, a rare issue in the juvenile age group.² To date, there are only a few large pediatric studies of ovarian torsion that have detailed the presentation, pathologic findings, and management. The number of study participants has ranged from 12 to 97 patients, reflecting the relative rarity of this condition. Taken together, findings have shown that acute onset lower abdominal pain and vomiting are a consistent presentation of ovarian torsion.

Most cases of torsion occur in ovaries containing masses, such as functional cysts and neoplasms. An ovarian cyst in a woman increases her likelihood of developing an adnexal torsion, especially if the cyst is benign.³ Early in pregnancy, hemorrhagic corpora lutea are frequently observed; the majority of these cases resolve by 12 weeks of gestation. Torsion is reportedly more common on the right side (3:2). This is possibly due to either the sigmoid colon on the left limiting movement or a hypermobile cecum on the right that is more permissive to movement. Major hemorrhage from burst ovarian cysts and numerous case reports of hemoperitoneum in women with congenital or acquired thrombophilias or on anticoagulation medication are related with hemorrhagic disorders associated with poor coagulation.^{4,5} This paper reports a case of ovarian cyst torsion in a 10-year-old girl.

CASE REPORT

A 10-year-old girl presented to the hospital with severe lower left abdominal pain that had persisted for three days. Initially, the pain was intermittent but later became constant and intensified, with no pain-free intervals. The patient also reported nausea, vomiting, and decreased appetite. She denied fever or vaginal bleeding. Her menstrual history revealed menarche in May 2022, with irregular cycles and a recent episode of amenorrhea from December 2022 to March 2023. The patient's first menstruation was in May 2022. She complained of abdominal pain during menstruation, but there was no blood coming out of the birth canal.

In physical examination, the general state of the patient appeared to be seriously ill with *compos mentis* consciousness. The patient's blood pressure, pulse, respiration rate, body temperature, and SpO₂ were within normal limits. The patient's VAS showed a scale of 8-9 out of 10. In examination of the abdomen, the patient complained of left lower quadrant (LLQ) tenderness on palpation, with warm extremities but no edema.

The patient was taken by her family to Siloam Hospital Manado, and CT-Scan of the abdomen was carried out with the results of mature ovarian cysts with teratomas. The patient was then referred to Prof. Dr. R. D. Kandou Hospital for further treatment. CT-Scan of the abdomen – pelvis without contrast revealed cystic mass with fat components and intralesional calcification, measuring +/- 7.14 x 5.1 x 5.2 cm in the suprapubic quadrant. The impression came from the ovary (difficult to determine the right/left ovary), which urged the bladder to the anteroinferior and urged the uterus to the posterior, suspected of mature cystic ovarian teratoma.

The patient was managed with intravenous fluids (IVFD), antibiotics, and analgesics for pain control. Due to the high suspicion of ovarian torsion, emergency exploratory laparotomy was performed. Figure 1 showed intraoperative findings confirming a left ovarian cyst measuring approximately 8 x 6 x 4 cm, which had undergone torsion twice. Detorsion was performed, and the ovary was found to be viable. Cystectomy was carried out, preserving healthy ovarian tissue. The right ovary appeared normal.

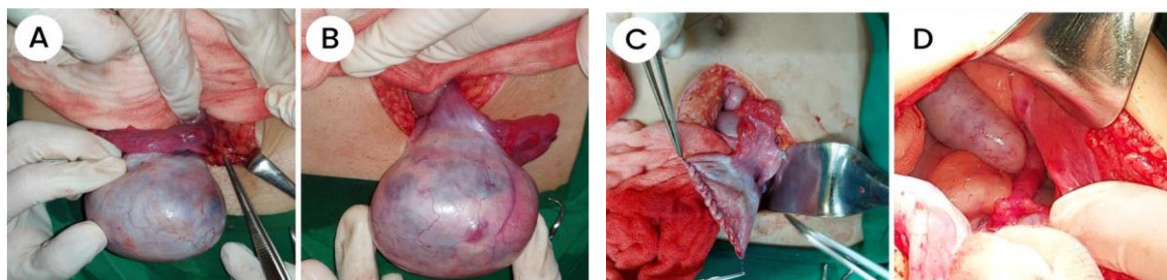


Figure 1. Intra-operative photo; A) Twisted cyst twice; B) Post detorsion; C) Post cystectomy; D) Right ovary

DISCUSSION

A rare cause of abdominal pain in children is ovarian torsion. Since ovarian torsion is such a rare condition, the incidence is not well known. In a 16-year investigation on pediatric ovarian torsion, Kokoska et al⁶ stated that acute ovarian torsion in children is uncommon and challenging to diagnose. If the twist is not released spontaneously or surgically in a timely manner, infarction brought on by ovarian torsion will occur. At or before the age of reproduction, ovarian torsion in children is most likely to develop. In this case, the patient presented with classic symptoms of ovarian torsion, including acute abdominal pain, nausea, and vomiting.⁷ Children are most likely to experience ovarian torsion at or before reproductive age. Between infancy and early childhood, it is incredibly uncommon.⁸ Moreover, torsion is reported more common on the right side (3:2).^{4,5} This patient was 10 years old, not in early childhood phase, presented with left ovarian cyst torsion as one of the complications that often occur in cyst cases.

The diagnosis can be challenging due to nonspecific symptoms, and imaging studies such as ultrasound or CT scans are essential for confirmation.⁹ The patient underwent CT scan of the abdomen and pelvis without contrast examination and was suspected as cyst's torsion image. Ovarian torsion, which affects females of all ages, is a gynecological emergency. It refers to a complete or partial rotation of the adnexal supporting organ, resulting in ischemic changes in the ovary.¹⁰

Anatomical differences in the paediatric population and their effects on surgery must also be considered.¹¹ For example, the abdominal wall around the umbilicus is thinner in children and adolescents than it is in adults. The distance between the umbilicus and the major blood vessels is also shorter. The length of the uterus has been shown to be shorter in premenstrual girls than in postmenstrual girls, which may risk of perforation. The ovaries are also among the abdominal organs in premenstrual children and are usually found above the pelvic rim. Figure 1 showed intraoperative findings confirming the twisted cyst twice in the opposite direction of the clock at its base, where the base of the cyst was attached to the ovary with a thin membrane, and after being released, it was found that the ovary was still in a viable condition. Despite the prolonged duration of symptoms, as the patient has been suffering from severe abdominal pain for three days, there are considerable concerns about the viability of the affected ovary due to the possibility of ovarian torsion. The typical "golden period" for ovarian torsion is recognized as being between 6 to 12 hours from the onset of symptoms, during which timely surgical intervention can preserve ovarian function.¹¹ Given that the patient has been symptomatic for three days, this duration exceeds the generally accepted timeframe for optimal intervention. The presence of collateral blood supply to the affected ovary may have played a crucial role in maintaining its viability. In some cases, the vascular anatomy can allow for alternative blood flow pathways, which may help sustain the ovarian tissue even in the presence of torsion.¹¹

In this case, the patient underwent a laparotomy, and the ovary was preserved in a viable condition despite the presence of ovarian torsion. This outcome aligns with the evolving understanding of the management of ovarian torsion, which has shifted from the traditional approach of oophorectomy (surgical removal of the ovary) to a more conservative strategy focused on ovarian preservation. The findings from the 2009 Cochrane review highlight several

advantages of laparoscopic surgery for benign ovarian tumors, including reduced postoperative pain, fewer surgery-related complications, and shorter hospital stays. However, it is noteworthy that the review also indicated a higher frequency of unintended cyst rupture during laparoscopic procedures compared to open surgery. This underscores the importance of careful surgical technique and decision-making when managing ovarian conditions.¹² Historically, the standard treatment for ovarian torsion involved the removal of the affected ovary. However, recent literature has increasingly advocated for detorsion and ovarian preservation, demonstrating positive outcomes for patients. The shift in practice is supported by evidence suggesting that preserving ovarian tissue can lead to better reproductive outcomes and overall health for women, particularly those of childbearing age.¹³ In this case, the decision to perform a laparotomy and preserve the viable ovary reflects the current recommendations in the field. Urgent surgical evaluation is critical, as studies have shown that timely intervention—preferably within 36 hours of the onset of torsion—can significantly improve outcomes. The successful preservation of the ovary in this patient not only mitigates the immediate risks associated with torsion but also enhances the patient's long-term reproductive potential.^{14,15}

CONCLUSION

This case underscores the importance of timely surgical intervention, even beyond the traditional "golden period" of 6–12 hours, as collateral blood supply may help maintain ovarian viability. The shift from oophorectomy to ovarian preservation in the management of ovarian torsion reflects evolving clinical practices, emphasizing better reproductive and long-term health outcomes. Early recognition, prompt imaging, and surgical intervention are crucial to preserving ovarian function and improving patient prognosis. This case also highlights the need for increased awareness of ovarian torsion in pediatric and adolescent populations, given its rarity and diagnostic complexity.

Conflict of Interest

The authors affirm no conflict of interest in this study.

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