Sains Medika: Jurnal Kedokteran dan Kesehatan

journal homepage: http://jurnal.unissula.ac.id/index.php/sainsmedika/

CASE REPORT

Ovarian cyst mimicking acute appendicitis in children: a case report

Hafni Zuchra Noor,* Alfaina Wahyuni, Sulistiari Retnowati

School of Medicine, Faculty of Medicine and Health Sciences, Universitas Muhammadiyah Yogyakarta, Indonesia, 55183
*Correspondence: Hafni Zuchra Noor; Address: Jl. Brawijaya, Kasihan, Bantul, Yogyakarta 55183; Email address: hafni.z.n@umy.ac.id

ARTICLE INFO

Keywords:
Appendicitis
Cyst torsion
Ovarian Cyst
Pediatric

ABSTRACT

Pediatric acute appendicitis is common; however, it is different from torsion ovarian cysts. The estimated incidence of ovarian torsion in children is 5 per 100,000 girls. Herein, we report two cases of ovarian torsion mimicking pediatric acute appendicitis mimicking ovarian cyst. In the first case, a girl who was being assessed for acute appendicitis was identified to have torsion of the ovarian cyst during the surgery. In the second case, a girl experienced a ruptured ovarian cyst but then got severe appendicitis following the surgical procedure. The simultaneous occurrence of appendicitis and ovarian cysts is rare. These two patients' acute gastrointestinal complaints and symptoms exhibit similarities and may coincide. Both patients underwent salpingo-oopherectomy and appendectomy. Both patients were healthy on hospital discharge in a healthy condition. Female patients with severe abdominal pain and amenorrhea should be evaluated for ovarian torsion. Diagnosing the condition may be challenging due to non-specific clinical signs.

1. Introduction

Pediatric acute appendicitis is a medical emergency that typically necessitates surgical intervention (Almaramhy, 2017). Approximately 20-30% of adolescents with acute abdominal pain admitted to pediatric surgical centers are affected by acute appendicitis (Stringer, 2017). Appendicitis has a global prevalence of about 1 in 12 individuals, with the highest incidence observed during adolescence (10-19 years old). This is primarily caused by a blockage in the appendix or infections in the abdomen that spread to the appendix (Knaapen *et al.,* 2019; Hirsch, 2017). The occurrence of ovarian cyst torsion in children is uncommon, with an incidence rate of 5 per 100,000 individuals (Dasgupta *et al.,* 2018).

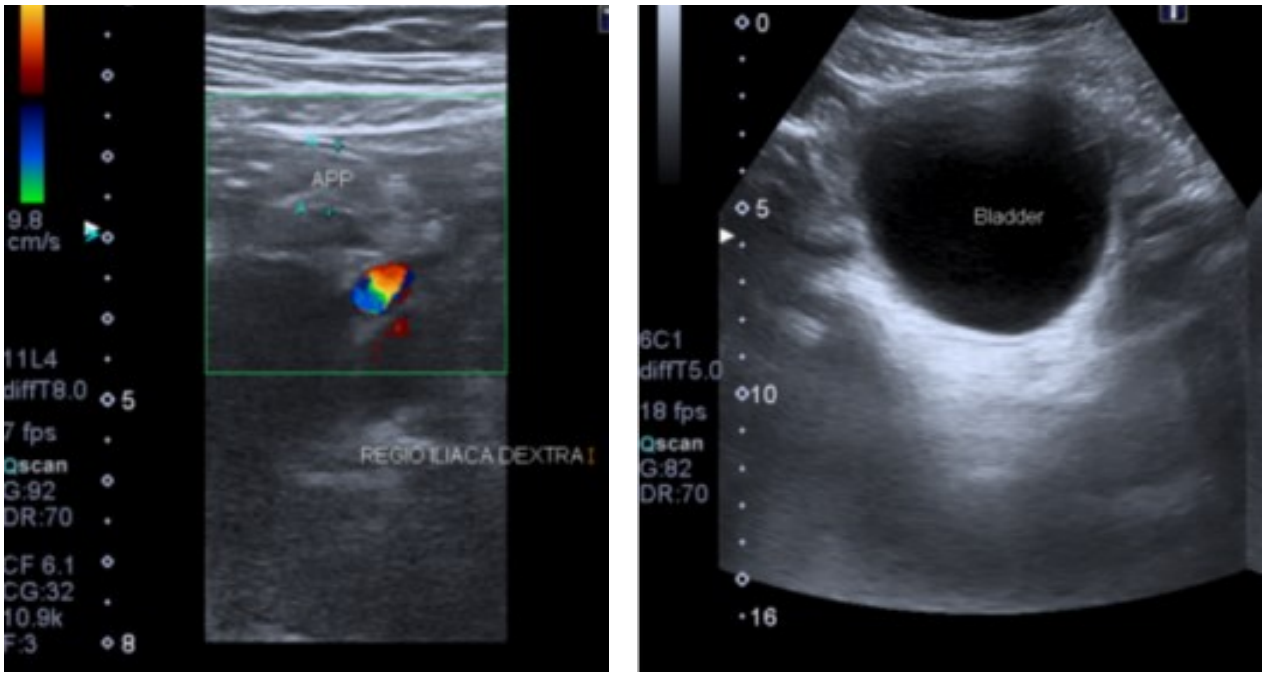
Complaints and symptoms associated with acute appendicitis and ovarian cyst torsion include abrupt abdominal discomfort. The most typical symptom of acute appendicitis is periumbilical pain (which might be limited to the right lower quadrant), followed by anorexia, nausea, and vomiting. However, it can also induce pelvic discomfort (Derakhshanfar *et al.,* 2019). Ovarian cyst torsions typically cause abrupt abdominal pain and may be mistaken for an acute surgical abdomen (Kapoor *et al.,* 2021). However, specific case reports by Aoyagi *et al.* (2024) described symptoms of epigastric stomach discomfort in people with ovarian cyst torsion. When patients report sudden abdominal pain, these two diseases can be considered potential diagnoses. Simultaneous presentation of appendicitis and ovarian cyst torsion is rare. Under these conditions, appendectomy and salpingo-oophorectomy are often necessary.

2. Cases

2.1. Case Report 1

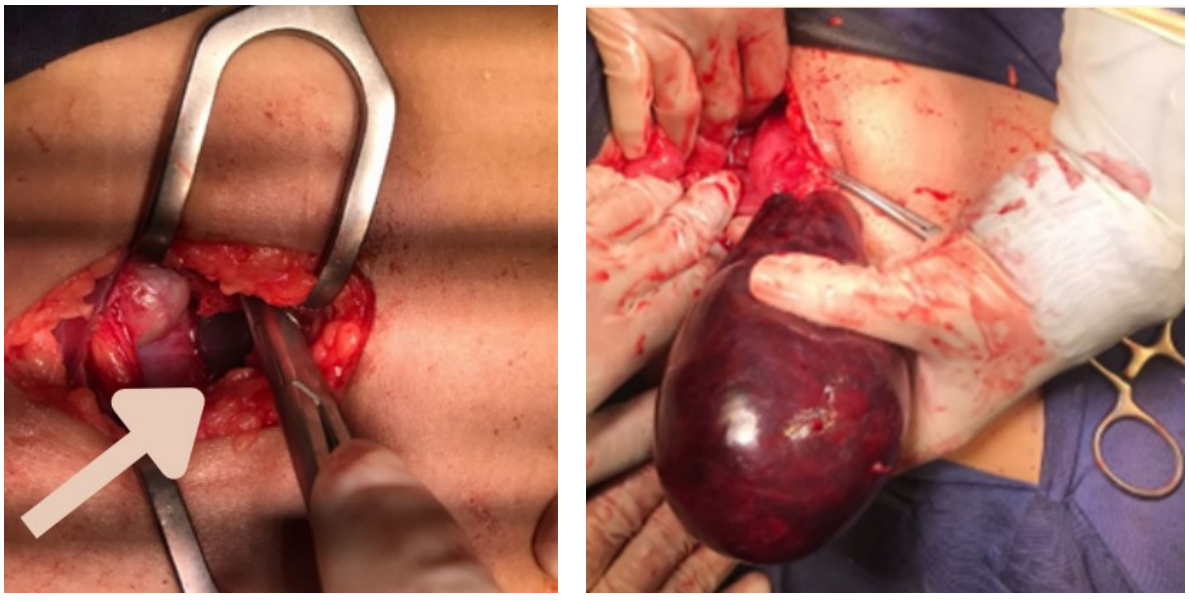
A 12-year-old girl was hospitalized due to severe and recurring stomach pain in the lower abdomen, commonly known as colicky discomfort, which

https://doi.org/10.30659/sainsmed.v15i1.31564



(a) (b)

Figure 1. The result of abdominal ultrasound showed a dilated appendix measuring 8.9 mm in diameter (a) and a cystitis (b)

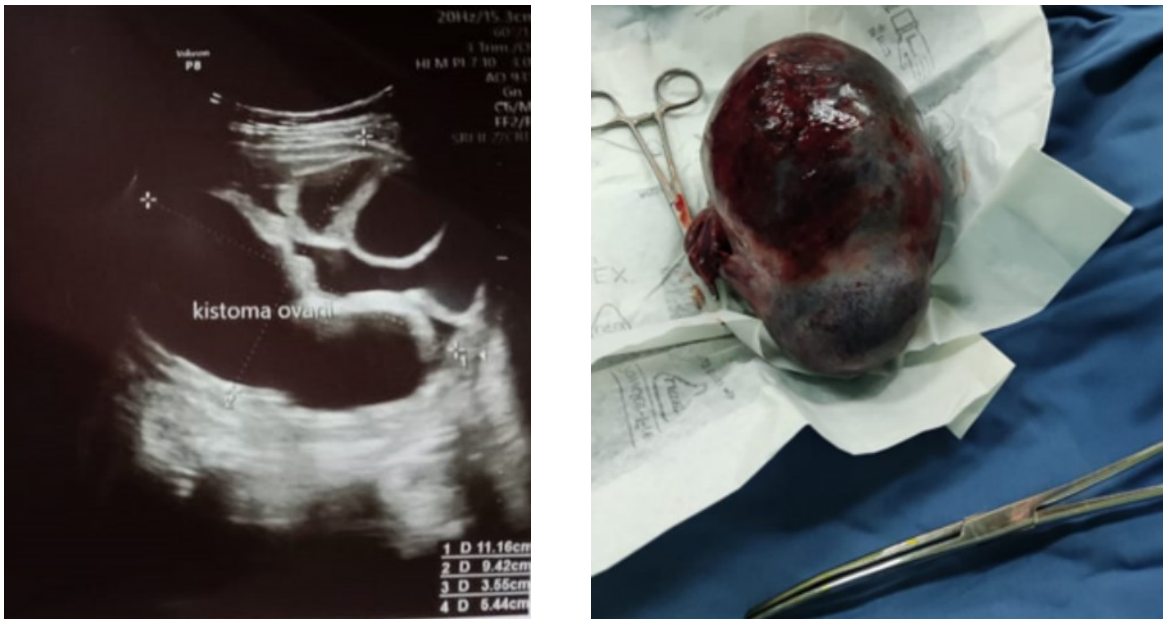


(a) (b)

Figure 2. A black mass discovered during surgery (a) and abdominal exploration revealed torsion of the right fallopian tube and ovary (b)

had persisted for four days. Additionally, she was experiencing frequent episodes of vomiting. Paracetamol was administered to her. The patient was experiencing amenorrhea. There was a lack of detailed medical or surgical background. An abdominal examination revealed tenderness and inflammation in the suprapubic region, consistent with McBurney's point. The blood tests showed no abnormalities; however, the abdominal ultrasonography detected a dilated appendix with a diameter of 8.9 mm (Figure 1a) and cystitis (Figure 1b).

An inflamed appendix was discovered during the surgical procedure, prompting the performance of an appendectomy. During the procedure, a black mass was observed (Figure 2a), prompting the decision to perform an exploratory laparotomy. A dextra salpingo-oopherectomy was conducted following an abdomen examination, which showed a blackish-purple torsion of the right fallopian tube and ovary. Additionally, cysts measuring 10×8×8 cm were observed (Figure 2b). She was discharged in a healthy condition 3 days after the surgery.



(a) (b)

Figure 3. The result of the abdominal ultrasound revealed a lobulated cyst in the uterus (a) and torsion of the right tube ovary (b)

2.2. Case Report 2

A 15-year-old female presented to the emergency room with complaints of lumps, colic in her lower abdomen, fever, and frequent vomiting that had commenced three days earlier. Paracetamol was used to reduce fever and alleviate abdominal pain. There was no notable medical or surgical history. The abdominal examination indicated abdominal distention, a palpable lump 20 cm in diameter, and pain in the suprapubic region. Serum neutrophil counts rose to 86%, accompanied by leukocytosis (24,180/µl). Uterine lobulated cysts were detected during an abdominal ultrasound scan (Figure 3a). The decision was taken to perform a dextra salpingo-oopherectomy following an exploratory laparotomy that identified sticky omentum in the right ovarian mass and torsion in the fallopian tube (Figure 3b). Furthermore, a surgical procedure called an appendectomy was performed in response to the identification of an inflamed appendix with a diameter greater than 10 mm. She was discharged three days after the procedure, with no complications observed throughout the post-operative period.

3. Discussion

Simultaneous presentation of appendicitis and ovarian cyst torsion is rare. Complaints from both illnesses may obscure the genuine one due to their similarities and overlap (Umang *et al.,* 2020). Both patients experienced acute abdominal symptoms, specifically abdominal colic in the lower abdomen. In the first case, the patient underwent an appendectomy following a diagnosis of appendicitis. However, a mass detected during the procedure indicated that the patient had a ruptured ovarian cyst, requiring a salpingo-oophorectomy. In the second case, the patient's diagnosis of ovarian torsion necessitated an appendectomy. Subsequent surgery revealed that the appendix was also inflamed.

Appendicitis can be diagnosed clinically by blood tests and radiographic investigations (Kapoor *et al.,* 2021). In the initial instance, there was significant clinical suspicion to justify the need for early surgical intervention. Contrastingly, ultrasonography examination is not typically indicative of gynecological problems in prepubertal patients due to its infrequency (Cheng & Condron, 2020). The interpretation of ovarian ultrasound features can be highly varied and occasionally deceptive (Nissi *et al.,* 2020).

Ovarian torsion can occur in ovaries with masses, cysts, or tumors (Kiran *et al.,* 2022). Torsion on the right side of the ovary is more common than on the left side due to the restricted movement of the left ovary caused by the sigmoid colon (Shah *et al.,* 2009). Diagnosing ovarian torsion is challenging due to the nonspecific symptoms and clinical markers that may match other gastrointestinal conditions, such as appendicitis. Diagnosing ovarian torsion becomes increasingly tricky in younger individuals, as De Silva *et al.* (2020) indicated. According to Schwartz *et al.* (2018), surgical exploration is the sole and conclusive method of diagnosis. Gasser *et al.* (2016) conducted a systematic study indicating that the primary symptom of ovarian torsion is the abrupt onset of abdominal pain, often accompanied by nausea and vomiting. Girls experiencing sudden

 https://doi.org/10.30659/sainsmed.v15i1.31564

stomach pain should be considered as potential cases of ovarian torsion, regardless of their menstrual cycle status (Algra & Linden, 2022).

Only adult cases of diverse pelvic pathologies were considered in the literature on the association between appendicitis and other pelvic diseases. These include hemorrhagic corpus luteal cysts, tubal pregnancy, ovarian cysts, and bleeding ovarian follicles with hemoperitoneum (Erikci *et al.,* 2017). Ovarian torsion is more common in women of reproductive age and is usually benign (Nissi *et al.,* 2020). In seven cases of juvenile ovarian torsion associated with appendicitis, a correlation between pelvic anomalies and appendicitis was observed (Hoey *et al.,* 2005). Acute appendicitis with ovarian lesion torsion is incredibly uncommon (Maree *et al.,* 2022).

4. Conclusions

Ovarian torsion should be considered in female patients presenting with significant abdominal pain in the absence of menstruation. Non-specific clinical symptoms pose a challenge in making an accurate diagnosis.

Acknowledgment

We want to thank our colleagues from the Faculty of Medicine and Health Sciences, Universitas Muhammadiyah Yogyakarta, and PKU Muhammadiyah Gamping Hospital for their valuable insights and knowledge, contributing to this case report.

Conflict of interest

All authors declare no conflict of interest.

References

Algra, S., & Linden, P. J. van der. (2022). A ten-year-old girl with a rare cause of acute abdominal pain case report. *Annals of Clinical Case Reports,* 7(2148): 1-3. https://www.anncaserep.com/open-access/a-ten-year-old-girl-with-a-rare-cause-of-acute-abdominal-8665.pdf

Almaramhy, H. H. (2017). Acute appendicitis in young children less than 5 years: review article. *Italian Journal of Pediatrics,* 43 (15), 1–9. https://doi.org/10.1186/s13052-017-0335-2

Aoyagi, R., Ishihara, S., Hosoi, K., Tomita, H., & Kumagai, T. (2024). Ovarian torsion presenting with epigastric pain in a pediatric patient: A case report. *Journal of Pediatric Surgery Case Reports,* 102(102781): 1-4. https://doi.org/10.1016/j.epsc.2024.102781

Cheng, C., & Condron, S. (2020). Left lower abdominal pain in a premenarchal girl: A case of ovarian torsion. *Case Reports International,* 9(1): 1–5. https://doi.org/10.5348/100076z06cc2020cr

Dasgupta, R., Renaud, E., Goldin, A. B., Baird, R., Cameron, D. B., Arnold, M. A., Diefenbach, K. A., Gosain, A., Grabowski, J., Guner, Y. S., Jancelewicz, T., Kawaguchi, A., Lal, D. R., Oyetunji, T. A., Ricca, R. L., Shelton, J., Somme, S., Williams, R. F., & Downard, C. D. (2018). Ovarian torsion in pediatric and adolescent patients: A systematic review. *Journal of Pediatric Surgery,* 53(7): 1387–1391. https://doi.org/10.1016/j.jpedsurg.2017.10.053

De Silva, M. H. A. D., Kolombage, P., & Kasthuri, S. (2020). An ovarian torsion in a 2-year-old girl: a case report. *Journal of Medical Case Reports,* 14(194): 1-5. https://doi.org/10.1186/s13256-020-02518-2

Derakhshanfar, H., Pourbakhtyaran, E., Rahimi, S., Sayyah, S., Karbasian, F., Soltantooyeh, Z., & Fallah, S. (2019). Survey of efficacy of pediatric appendicitis score in Iranian patients less than 18 years old referred to the emergency department. *Journal of Family Medicine and Primary Care*, 8(11): 3700-37-5. https://doi.org/10.4103/jfmpc.jfmpc_740_19

Erikci, V. S., Payza, D., Ergin, M., & Hosgör, M. (2017). A paratubal cyst associated with flegmonous appendicitis: A case report and review of literature. *Annals of Pediatric Surgery,* 13(2): 101–103. https://doi.org/10.1097/01.XPS.0000489152.86163.23

Gasser, R-B., Celine., Gehri, M., Joseph, J.-M., & Pauchard, J.-Y. (2016). Is It Ovarian Torsion? A Systematic Literature Review and Evaluation of Prediction Signs. *Pediatric Emergency Care*, 32(4): 256-261. https://doi.org/10.1097/PEC.0000000000000621

Hirsch, T. M. (2017). Acute appendicitis. *Journal of the American Academy of Physician Assistants*, 30(6): 46–47. https://doi.org/10.1097/01.JAA.0000516357.34621.AA

Hoey, B. A., Stawicki, S. P., Hoff, W. S., Veeramasuneni, R. K., Kovich, H., & Grossman, M. D. (2005). Ovarian torsion associated with appendicitis in a 5-year-old girl: A case report and review of the literature. *Journal of Pediatric Surgery,* 40(9): E19-E20. https://doi.org/10.1016/j.jpedsurg.2005.05.068

Kapoor, S., Saeed, S., & Balasubramaniam, D. (2021a).

Paediatric cystic ovarian torsion masquerading appendicitis. *BMJ Case Reports,* 14(2):1-3. https://doi.org/10.1136/bcr-2020-239188

Kiran, B., Praveen, T., Santosh, S., Ullah, K. S., Biradar, K. D., & Priya, R. (2022). Acute abdomen in children: Never miss torsion of ovary in a girl child. *Asia Pacific Paediatric Child Health.* 5: 46-47. http://www.apjpch.com/pdfs/2111197x2011139.pdf

Knaapen, M., Hall, N. J., Van Der Lee, J. H., Butcher, N. J., Offringa, M., Van Heurn, E. W. E., Bakx, R., & Gorter, R. R. (2019). Establishing a core outcome set for treatment of uncomplicated appendicitis in children: Study protocol for an international Delphi survey. *BMJ Open*, 9(5): 1-9. https://doi.org/10.1136/bmjopen-2018-028861

Maree, G., Hemi, F., Ghuzlan, A., Kassab, H., Issa, R., & Omran, A. (2022). Synchronous ovarian epidermoid cyst torsion with appendicitis in a 2.5-year-old girl: Case report. *International Journal of Surgery Case Reports,* 100(107731): 1-3. https://doi.org/10.1016/j.ijscr.2022.107731

Nissi, R., Santala, M., & Talvensaari-Mattila, A. (2020). Histological findings of patients with adnexal torsion who underwent surgical treatment: short reminder. *Gynecological Surgery*, 17(12): 1-3. https://doi.org/10.1186/s10397-020-01081-4

Schwartz, B. I., Huppert, J. S., Chen, C., Huang, B., & Reed, J. L. (2018). Creation of a Composite Score to Predict Adnexal Torsion in Children and Adolescents. *Journal of Pediatric and Adolescent Gynecology,* 31(2): 132–137. https://doi.org/10.1016/j.jpag.2017.08.007

Stringer, M. D. (2017). Acute appendicitis. *Journal of Paediatrics and Child Health,* 53(11): 1071–1076. https://doi.org/10.1111/jpc.13737

Umang, U., Cheema, H. K., Khullar, S., & Nagpal, M. (2020). Pediatric ovarian torsion: a case report and review of literature. *International Journal of Reproduction, Contraception, Obstetrics and Gynecology,* 9(6): 2638-2641. https://doi.org/10.18203/2320-1770.ijrcog20202366