

**FULL PAPER**

# Medical evaluation of ovarian torsion in a 7-year-old child: case report

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Ovarian torsion occurs when the ovary is twisted around the supporting tissues. Sometimes the fallopian tube may also twist. This painful condition cuts off blood flow to these organs. Ovarian torsion is a serious medical condition that must be treated immediately. If left untreated, it can lead to ovarian failure. If you have an ovarian cyst that can cause the ovaries to swell, you are more likely to experience ovarian torsion. You may be able to reduce the risk of ovarian torsion by taking hormonal contraceptives or other medications to help reduce the size of the cyst. The longer the diagnosis and treatment process, the greater the risk of ovarian tissue. When torsion occurs, blood flow to the ovaries and possibly the fallopian tube decreases. Decreased blood flow over a long period leads to necrosis (tissue death). If this happens, the doctor will remove the damaged ovary and tissue. The only way to prevent such a complication is to seek immediate treatment. If the ovary is destroyed due to necrosis, pregnancy is possible. Ovarian torsion is not a predictable disease. However, by following the tips emphasized by obstetricians and periodic examinations, ovarian cysts can be detected and treated. In this case, the primary possibility of this disease will be removed from the body. Ovarian torsion is a serious condition that should be treated soon by seeing a doctor. If you feel severe pain in the lower abdomen accompanied by nausea and vomiting, you should immediately go to the emergency room and not seek home treatment.

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**Introduction**

Ovarian torsion is a surgical emergency that requires immediate diagnosis and early surgical intervention to salvage ovaries [1]. There are various differential diagnoses for abdominal pain in pediatrics and contains diseases like urinary tract infections, Constipation, Diarrhea, acute appendicitis [2,3]. The examination of ovarian torsion is challenging because of its uncertain and nonspecific clinical symptoms and radiologic findings. When pediatric ovarian torsion is suspected, an emergency physician should consider that there are not enough clinical or

imaging criteria to approve the preoperative diagnosis. Also, a normal color doppler flow alone should not lead to correct clinical decision-making [4]. Urgent diagnosis can be more difficult in low-risk patient groups like young children [5].

Here we describe a seven-year-old girl diagnosed with abdominal pain in the emergency department and treated for ovarian torsion. A brief discussion of evaluation, treatment, and management of ovarian torsion follows [6].

## Method and case report

A previously healthy seven-year-old Persian girl presented to the emergency department with a one-day history of abdominal pain, following excessive tickling by her playmates. She had a history of two episodes of vomiting but no diarrhea [7]. The pain was started one day before admission and had become more severe at the time of admission to the emergency department. Upon arrival at our ED, the patient appeared ill and uncomfortable. She complained of constant, sharp pain without radiation that was not relieved with ibuprofen. She was born full-term and had no previous illness or surgery history. Noticeable history was excessive tickling by her playmates performed two days ago [8]. A point-of-care ultrasound (POCUS) exam was performed by a trained emergency medicine specialist on the arrival of the patient to the ED. POCUS exam revealed an enlarged right ovary with 24 mL volume with no evidence of blood flow on color Doppler study favoring a diagnosis of ovarian torsion.

Right ovary: 47x 31x 30 mm

Left ovary: 18x 13 x10 mm

The right ovary was heterogeneous and coarse. The left ovary had a normal appearance and size. No cystic or solid lesions was identified within the enlarged right ovary. Focused assessment for free fluid (FAFF) detection in Morison's pouch and splenorenal space was negative [9-11]. However, minimal fluid was detected in the cul-de-sac of Douglas. The appendix was visualized with a normal appearance and transverse diameter of 5 mm. The urinary tract system was normal with no apparent pathologic finding [12-14]. A board-certified radiologist confirmed the findings on POCUS examination, and again color Doppler study revealed no vascularity in the enlarged right ovary [15].

## Result and discussion

Emergent gynecologic consultation was obtained, and the patient was transferred to

the operating room in less than 30 min. from arrival to the ED. Laparoscopy equipment was not available in our hospital [16-18]. Therefore, she underwent an emergent laparotomy. During laparotomy, the right adnexa was found to be twisted and dark. The right ovary was detorted. Ovarian torsion usually presents with severe pain.

Along with this, pain, nausea, vomiting, and cramping of the abdominal muscles are also seen in the patient [19-21]. These symptoms can also be seen in other diseases that may confuse a person and not think of an ovarian complication. In the case of ovarian torsion, the pain starts suddenly and with great intensity [22-24]. Sometimes the patient feels back pain in the lower abdomen for several weeks. This pain is because the ovary is trying to return to its previous state [25-27]. Diagnosis of this problem may be difficult on initial examination because its symptoms are similar to an appendix, kidney stones, and even severe urinary tract infections [28-30]. So keep in mind that severe nausea and vomiting may not be a sign of ovarian torsion. This complication is always accompanied by severe pain [31]. In severe abdominal pain with severe vomiting and nausea, you should immediately go to the emergency room. The doctor first takes the patient's history and then examines the abdomen and pelvis. Due to the overlap of this disease with many other diseases, the doctor usually looks for a sensitive point of pain or touch of a mass in the examination. She then requests a vaginal ultrasound to carefully examine the ovaries, uterus, and fallopian tubes. In addition to this ultrasound, a blood or urine test may be requested. In addition, your doctor may order a CT scan or MRI to make sure the torsion is correctly diagnosed [32-34]. After confirming the problem of ovarian torsion, the ovary should now be repositioned with corrective surgery.

The patient was discharged on a post-operative day 2 without any complications. On follow-up, after 2 weeks, the patient had no

symptoms, and the follow-up ultrasound showed normal adnexa with good arterial and venous blood flow. Ovarian torsion is an infrequent cause of abdominal pain in children. It requires a rapid gynecological and surgical emergency consultation [35]. Ovarian torsion is a rare disorder with nearly 2.7 % of all cases of acute abdominal pain in pediatrics [36]. Ovarian torsion is not easy to recognize in pediatrics because of its presence of nonspecific signs and its uncommonness in this population. Ovarian torsion can mimic acute appendicitis, UTI, renal colic, gastroenteritis, and other acute abdominal and pelvic pain [37]. Compared to adolescent ovarian torsion, ovarian torsion in pediatrics occurs without an ovarian cyst or mass present in as many as 46% of cases [37]. Our case had a great history of being excessively tickled by her playmates 2 days before admitting to the hospital.

We do not know precisely whether the tickling was the cause of this problem in a hypermobile ovary. As we searched, this cause has not been mentioned in any literature. Further evaluation in this regard must be done in the future. Point-of-care ultrasound or POCUS may play a very beneficial role in the initial diagnosis and accurate clinical decision-making. The POCUS has been widely used and expanded in a few decades. It is one of the few diagnostic modalities that can offer several advantages and perform quickly at the bedside by a qualified emergency physician and have a notable impact on outcomes. It is portable and convenient, readily available, and has economic benefits. There is a lot of evidence that supports the use of POCUS by emergency physicians who have successfully passed the emergency ultrasound courses [9]. It is demonstrated that POCUS has diagnostic accuracy and reduces the time to definitive treatment. While ultrasound technology has developed, POCUS applications have also evolved from being used only in patients with abdominal trauma to the use of approximately all clinical situations imaginable. POCUS is

positively improving clinical practice, patient outcome, and the overall quality of patient care in the emergency department. The only treatment for ovarian torsion is surgery. Until a few years ago, doctors recommended ovarian resection to prevent this from happening again. However, in recent years, with the advancement of medical science, doctors have tried to avoid amputation as much as possible in all diseases. Especially in the case of an organ such as the ovary, which plays an essential role in fertility and has a significant impact on the quality of life of women, organ removal is not highly recommended. Ovarian torsion surgery is performed to open the torsion. Of course, this surgery can be performed in different ways, and like other surgeries, this treatment may have different side effects. Blood clots, infections, and various anesthesia complications are sometimes seen in some patients but are not common. After surgery, the patient should be careful for a few weeks and avoid excessive activity and lifting heavy objects.

Yet, no substantial evidence exists to support this claim. Because it was the first episode of ovarian torsion was not performed. In order of quality and rigor, this case report follows the SCARE checklist 2018.

## Conclusion

Why should an emergency physician be aware of this? Ovarian torsion is an uncommon cause of acute abdominal pain in children. This might cause a delay in diagnosis and management, following in ovarian infarction, and in most acute cases, loss of the ovary. It is crucial to have an immediate diagnosis to preserve the ovaries. Quick diagnosis and surgical intervention are keys to salvaging ovaries (Figure 1). A misdiagnosis can have serious consequences such as ovarian loss. POCUS can play a beneficial role in early diagnosis and good clinical decision-making. When the emergency physician finds a highly

suspicious ovarian torsion, prompt gynecological consultation must be arranged,

so that early surgical treatment should be initiated as soon as possible.



**FIGURE 1** Findings during laparotomy: right adnexa twisted and dark versus normal left adnex

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### References

- [1] C. Huchon, A. Fauconnier, *Eur. J. Obstet. Gynecol. Reprod. Biol.*, **2010**, *150*, 8–12. [[crossref](#)], [[Google Scholar](#)], [[Publisher](#)]
- [2] C. Mazouni, F. Bretelle, J.P. Ménard, B. Blanc, M. Gamberre, *Gynécol. Obstet. Fertil.*, **2005**, *33*, 102–106. [[crossref](#)], [[Google Scholar](#)], [[Publisher](#)]
- [3] S. Bouguizane, H. Bibi, Y. Farhat, S. Dhifallah, F. Darraji, S. Hidar, L. Lassoued, A. Chaieb, H. Khairi, *J. Gynecol. Obstet. Biol. Reprod.*, **2003**, *32*, 535–540. [[Google Scholar](#)], [[Publisher](#)]
- [4] N. Poonai, C. Poonai, R. Lim, T. Lynch, *Can. J. Surg.*, **2013**, *56*, 103–108. [[crossref](#)], [[Google Scholar](#)], [[Publisher](#)]
- [5] A.J. Pomeranz, S. Sabnis, *Pediatr. Emerg. Care*, **2004**, *20*, 172–174. [[crossref](#)], [[Google Scholar](#)], [[Publisher](#)]
- [6] S. Adhikari, L.A. Stolz, R. Amini, M. Blaivas, *Rep. Med. Imaging*, **2014**, *7*, 81-93. [[crossref](#)], [[Google Scholar](#)], [[Publisher](#)]
- [7] S.B. Vijayaraghavan, *J. Ultrasound Med.*, **2004**, *23*, 1643–1649. [[crossref](#)], [[Google Scholar](#)], [[Publisher](#)]
- [8] A.M. Milani Fard, M. Milani Fard, *Eurasian J. Sci. Technol.*, **2022**, *2*, 14-31. [[Crossref](#)], [[Google Scholar](#)], [[Publisher](#)]
- [9] S. Saedi, A. Saedi, M.M. Ghaemi, M. Milani Fard, *Eurasian J. Sci. Technol.*, **2022**, *2*, 233-241. [[Crossref](#)], [[Google Scholar](#)], [[Publisher](#)]
- [10] J. Liu, H. Yu, S. Zhang, *Eur. J. Nucl. Med. Mol. Imaging.*, **2020**, *47*, 1638-1639. [[Crossref](#)], [[Google Scholar](#)], [[Publisher](#)]
- [11] V. Poortahmasebi, M. Zandi, S. Soltani, S.M. Jazayeri, *Adv. J. Emerg. Med.*, **2020**, *4*, e57. [[Crossref](#)], [[Google Scholar](#)], [[Publisher](#)]
- [12] Y. Fang, H. Zhang, J. Xie, M. Lin, L. Ying, P. Pang, P. Pang, W. Ji, *Radiology.*, **2020**, *296*, E115-E117. [[Crossref](#)], [[Google Scholar](#)], [[Publisher](#)]
- [13] F. Shi, J. Wang, J. Shi, Z. Wu, Q. Wang, Z. Tang, K. He, Y. Shi, D. Shen, *IEEE Rev. Biomed. Eng.*, **2020**, *14*, 4-15. [[Crossref](#)], [[Google Scholar](#)], [[Publisher](#)]
- [14] M. Mokhtare, R. Alimoradzadeh, S. Agah, H. Mirmiranpour, N. Khodabandehloo, *Middle East J. Dig. Dis.*, **2017**, *9*, 228-234. [[Crossref](#)], [[Google Scholar](#)], [[Publisher](#)]
- [15] R. Alimoradzadeh, H. Mirmiranpour, P. Hashemi, S. Pezeshki, S.S. Salehi, *J Neurol Neurophysiol*, **2019**, *10*, 1000483. [[Crossref](#)], [[Google Scholar](#)], [[Publisher](#)]
- [16] R. Alimoradzadeh, M.A. Abbasi, F. Zabihi, H. Mirmiranpour, *Iran. J. Ageing*, **2021**, *15*, 524-533. [[Crossref](#)], [[Google Scholar](#)], [[Publisher](#)]
- [17] M.B. Abhari, P.F. Afshar, R. Alimoradzadeh, H. Mirmiranpour,

- Immunopathologia Persa*, **2019**, *6*, e10. [[Crossref](#)], [[Google Scholar](#)], [[Publisher](#)]
- [18] F. Zabihi, M.A. Abbasi, R. Alimoradzadeh, *Ann. Rom. Soc. Cell Biol.*, **2019**, *1*, 2573-2579. [[Crossref](#)], [[Google Scholar](#)], [[Publisher](#)]
- [19] Z. Cheng, Y. Lu, Q. Cao, L. Qin, Z. Pan, F. Yan, W. Yang, *Am. J. Roentgenol.*, **2020**, *215*, 121-126. [[Crossref](#)], [[Google Scholar](#)], [[Publisher](#)]
- [20] Z.L. Zhang, Y.L. Hou, D.T. Li, F.Z. Li, *Scand. J. Clin. Lab. Invest.*, **2020**, *80*, 441-447. [[Crossref](#)], [[Google Scholar](#)], [[Publisher](#)]
- [21] Y. Raziani, B.S. Othman, *Veins and Lymphatics*, **2021**, *10*, 5-10. [[Crossref](#)], [[Google Scholar](#)], [[Publisher](#)]
- [22] S. Ghorbanizadeh, Y. Raziani, M. Amraei, M. Heydarian, *J. Pharm. Negative Results*, **2021**, *12*, 54-58. [[Crossref](#)], [[Google Scholar](#)], [[Publisher](#)]
- [23] Y. Raziani, B.S. Othman, S. Raziani, *Ann. Med. Surg. (Lond)*, **2021**, *69*, 102739. [[Crossref](#)], [[Google Scholar](#)], [[Publisher](#)]
- [24] Y. Raziani, S. Raziani, *J. Chem. Rev.*, **2021**, *3*, 83-96. [[Crossref](#)], [[Google Scholar](#)], [[Publisher](#)]
- [25] A. Susanabadi, S. Etemadi, M.S. Sadri, B. Mahmoodiyeh, H. Taleby, M. Milani Fard, *Ann. Rom. Soc. Cell Biol.*, **2021**, *25*, 2875-2887. [[Pdf](#)], [[Google Scholar](#)], [[Publisher](#)]
- [26] F.E. Sadr, Z. Abadi, N.E. Sadr, M.M. Fard, *Ann. Rom. Soc. Cell Biol.*, **2021**, *25*, 6839-6852. [[Crossref](#)], [[Google Scholar](#)], [[Publisher](#)]
- [27] H. Jahandideh, A. Yarahmadi, S. Rajaieh, A. Ostvar Shirazi, M. Milani Fard, A. Yarahmadi, *JPRI*, **2019**, *31*, 1-7. [[Crossref](#)], [[Google Scholar](#)], [[Publisher](#)]
- [28] K. Ghajarzadeh, M. Milani Fard, H. Alizadeh Otaghvar, S.H.R. Faiz, A. Dabbagh, M. Mohseni, S.S. Kashani, A.M. Milani Fard, M.R. Alebouyeh, *Ann. Rom. Soc. Cell Biol.*, **2021**, *25*, 2457-2465. [[Crossref](#)], [[Google Scholar](#)], [[Publisher](#)]
- [29] K. Ghajarzadeh, M. Milani Fard, H. Alizadeh Otaghvar, S.H.R. Faiz, A. Dabbagh, M. Mohseni, S.S. Kashani, A.M. Milani Fard, M.R. Alebouyeh, *Ann. Rom. Soc. Cell Biol.*, **2021**, *25*, 2449-2456. [[Crossref](#)], [[Google Scholar](#)], [[Publisher](#)]
- [30] K. Ghajarzadeh, M. Milani Fard, M.R. Alebouyeh, H. Alizadeh Otaghvar, A. Dabbagh, M. Mohseni, S.S. Kashani, A.M.M. Fard, S.H.R. Faiz, *Ann. Rom. Soc. Cell Biol.*, **2021**, *25*, 2466-2484. [[Crossref](#)], [[Google Scholar](#)], [[Publisher](#)]
- [31] R. Alimoradzadeh, H. Mirmiranpour, P. Hashemi, S. Pezeshki, S.S. Salehi, *J. Neurology Neurophys.*, **2019**, *10*, 1000483. [[Google Scholar](#)], [[Publisher](#)]
- [32] R. Alimoradzadeh, M. Mokhtare, S. Agah, *Iran. J. Age.*, **2017**, *12*, 78-89. [[Google Scholar](#)], [[Publisher](#)]
- [33] S.G.R. Mortazavi Moghaddam, G.R. Sharifzadeh, M.R. Rezvan, *Iran J Med Sci*, **2016**, *41*, 323-327. [[Google Scholar](#)], [[Publisher](#)]
- [34] G. Mortazavi Moghaddam, H. Akbari, A.R. Saadatjoo, *Iran J Med Sci*, **2005**, *30*, 110-114. [[Google Scholar](#)], [[Publisher](#)]
- [35] G. Mortazavi Moghaddam, A.R. Saadatjoo, *Iran J Med Sci*, **2014**, *39*, 418-423. [[Google Scholar](#)], [[Publisher](#)]
- [36] S. Etemadi, B. Mahmoodiyeh, S. Rajabi, A. Kamali, M.M. Fard, *Ann. Rom. Soc. Cell Biol.*, **2021**, *25*, 2417-2426. [[Google Scholar](#)], [[Publisher](#)]
- [37] S. Saedi, A. Saedi, M.M. Ghaemi, M. Milani Fard, *Eurasian Journal of Science and Technology*, **2021**, *2*, 185-196. [[Crossref](#)], [[Google Scholar](#)], [[Publisher](#)]

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