

# Synchronous Bilateral Torsion of Nonpathological Ovaries in an Adolescent Girl with Unilateral Recurrence

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## Abstract

Synchronous bilateral ovarian torsion is rare that too in nonpathological ovaries. To the best of our knowledge, this is the second case of synchronous bilateral ovarian torsion of nonpathological ovaries in adolescents. A 14-year-old girl presented with pain lower abdomen, vomiting, and constipation for the last 10 days. Ultrasonography (USG) suggested bilateral ovarian torsion without any ovarian pathology. Emergency laparoscopy confirmed bilateral ovarian torsion with necrosed-looking ovaries, and detorsion was done. During follow-up period, she had intermittent mild pain abdomen, and on USG, her left ovary returned to normal size, but her right ovary had been bulky throughout without any cyst. At around 10 months, the patient presented with severe abdomen pain. This time only right ovarian torsion was there. Laparoscopic bilateral ovarian detorsion with bilateral ovarian ligament plication was done. Ovarian torsion can be bilateral, even in nonpathological ovaries. Ovarian fixation should be done in these cases to prevent recurrent torsion.

**Keywords:** Adolescent, bilateral, laparoscopy, ovarian torsion

## INTRODUCTION

Adnexal torsion can lead to acute abdomen and is the fifth-most common gynecologic emergency.<sup>[1]</sup> Early diagnosis and timely surgery are of utmost importance to prevent ischemic necrosis and permanent damage of the ovary, thereby preserving fertility. However, torsion of the ovary in the absence of pathology is uncommon, this occurs bilaterally in normal ovaries, and is scarcely reported. We present this rare occurrence of synchronous bilateral ovarian torsion followed by unilateral recurrence in nonpathological ovaries in an adolescent girl with a brief review of the literature. Informed patient consent, along with guardian's approval, was taken for the same as the patient was <18 years old.

## CASE REPORT

A 14-year-old girl presented in emergency with pain in her lower abdomen, vomiting, and constipation for the last

10 days. There was no history of similar episodes in the past. Furthermore, there was no history of fever or any urinary complaint. The patient attained menarche 1.5 years back, had regular menstrual cycles with mild dysmenorrhea since menarche, and the last menstrual period was 2 days before presentation. The patient had no history of joint hypermobility or difficulty healing and no family history of connective tissue disease or Ehlers–Danlos syndrome. Examination revealed a pulse rate of 110 beats/min with normal blood pressure and mild pallor. Abdominal examination showed an abdominopelvic mass corresponding to 12 weeks gravid uterus deviated toward the left side, which was tender and cystic. Ultrasound showed normal-sized uterus with an endometrial thickness of 6.8 mm. Left adnexa was enlarged, 6.9 cm × 4.1 cm, with solid homogeneous appearance with follicles in the periphery and minimal peripheral vascularity.

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The right ovary was not seen separately. The right adnexa also revealed an enlarged ovary, 7.7 cm × 3.4 cm in size, with the presence of multiple tiny cysts, minimal color flow in the periphery, and an incomplete whorl. Hence, ultrasound was suggestive of right ovarian torsion and partial torsion in the left adnexa. In either side, no distinct cyst was seen. Although the provisional diagnosis of synchronous bilateral ovarian torsion was made, it being a rare entity, especially in the absence of ovarian pathology and with ultrasound finding of the enlarged solid-looking ovary; tumor markers were done to rule out any malignancy, especially germ cell tumor, which is common in this age group. Markers were normal (lactate dehydrogenase: 277 IU/L, alpha-1-fetoprotein: 1.36 mg/ml, human chorionic gonadotropin: <0.1 IU/L, and cancer antigen-125: 21.65 U/ml).

The patient was undertaken for emergency laparoscopy after informed written consent and with the guardian's approval. Intraoperatively, the right ovary was approximately 6 cm × 4 cm in size, edematous, and black with 2.5 loops of torsion. The left ovary was around 5 cm × 4 cm in size, edematous, maintaining its normal color, and had three loops of torsion, also involving the fallopian tube and infundibulopelvic ligament in the pedicle [Figure 1a]. Bilateral ovarian detorsion was done and within minutes, and black-looking ovaries regained their original color [Figure 1b]. The patient's postoperative period was uneventful, and she was discharged on 2<sup>nd</sup>-postoperative day.

The patient continued to have on-and-off self-limiting episodes of mild pain in the abdomen. Repeat ultrasound of pelvis at 5-month postsurgery showed 6.5 cm × 4 cm right ovary and 2.9 cm × 2.5 cm left ovary with no cyst on either side and normal ovarian blood flow. Approximately 10-month postsurgery patient again presented to the emergency with a recurrence of severe nonresolving pain in the lower abdomen. Examination revealed tachycardia and tenderness in the lower abdomen. Ultrasound showed 7.3 cm × 5.3 cm homogeneously enlarged right ovary and normal left ovary with minimal free fluid in the pelvis. Emergency repeat laparoscopy was done with suspected torsion. Intraoperatively, the right adnexa had torsion with three turns, and the right ovary was enlarged to

around the size of 7 cm × 8 cm and was congested and black in color [Figure 2a]. Ovarian detorsion was done with bilateral ovarian ligament plication with 1–0 proline. Both ovarian ligaments looked elongated and we plicated them to shorten it [Figure 2b]. The patient recovered well and is completely pain-free at 1-month follow-up postsurgery.

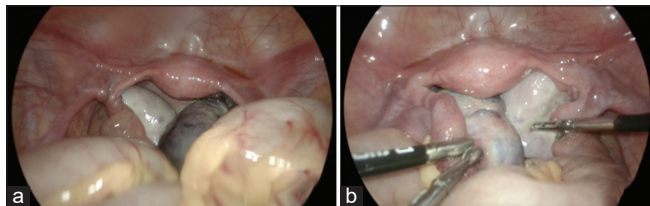
## DISCUSSION

The index case is unique as there was the synchronous occurrence of bilateral ovarian torsion at a young age within 2-year postmenarche, in the absence of any ovarian pathology with unilateral recurrence after surgical detorsion.

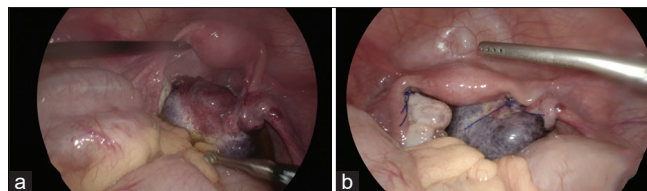
Synchronous bilateral ovarian torsion is a rare condition, and the exact incidence is not known. If not operated timely, ovarian torsion can lead to loss of ovarian function, which is more concerning in bilateral ovarian torsion.

There have been many hypotheses suggested for the causation of torsion in nonpathological ovaries like tubal spasm could cause twisting that might finally cause significant adnexal torsion, congenitally long ovarian ligament, pelvic ligaments which are a very lax, sudden change in intraabdominal pressure, and comparatively small size of uterus providing space for torsion of ovary.<sup>[1]</sup> In this case, congenitally long ovarian ligaments could be the cause of ovarian torsion [Figure 2a]. Diagnosis of torsion is clinical, which can be confirmed on intraoperative findings only.<sup>[1]</sup> The most consistent ultrasonography finding is that these cases are enlarged ovaries, as seen in this case on both occasions.

The present patient presented with a typical history of intermittent pain and vomiting for 10 days. This is the most common presentation of ovarian torsion across all age groups.<sup>[1]</sup> Besides this, our patient had significant constipation for the last 10 days, which is a rare presentation in ovarian torsion. A similar presentation of constipation along with intermittent abdominal pain was reported by Pade and Waterhouse in a 2-year-old girl.<sup>[2]</sup> We performed a Medline search using the keywords “synchronous,” “bilateral,” “torsion,” “ovary,” and “ovarian cyst,” and the case reports in pediatric and adolescent age groups were taken. Furthermore, references of these articles were looked



**Figure 1:** Intraoperative picture showing bilateral ovarian torsion. (a) Laparoscopic view showing twisted pedicle on the left side and necrosed looking ovary on right side, (b) Postdetorsion regain of normal color of right ovary



**Figure 2:** Laparoscopic view during the second surgery. (a) Elongated bilateral ovarian ligaments (right > left) and congested right ovary due to torsion (postdetorsion), (b) Shortened bilateral ovarian ligaments after plication

into for additional cases. Dumont *et al.* also presented the similar case of bilateral ovarian torsion in nonpathological ovaries in a 12-year-old girl who presented with periumbilical pain, nausea, and vomiting. The case was managed with laparoscopic detorsion with oophoropexy.<sup>[3]</sup>

Therefore, there should be a high index of suspicion for ovarian torsion in patients presenting with acute abdomen, even if no adnexal mass or only slightly bulky ovaries are seen in imaging. Sometimes nonpathological fallopian tubes can also undergo torsion.<sup>[4]</sup> Other cases of bilateral ovarian torsion in adolescent girls have also been reported but all in pathological ovaries.<sup>[5,6]</sup>

There are no guidelines to manage torsion of normal ovaries due to the rarity of the condition, but the standard recommendations are for ovarian preservation unless the ovaries are severely necrotic and fall apart.<sup>[1,7]</sup> The blackish necrotic look of the ovary leads to unnecessary oophorectomy.<sup>[7]</sup> Our case also emphasizes that ovaries should be preserved even if they appear necrotic, black, and gangrenous. Intraoperative findings of the second surgery affirmed that the conservatively managed left ovary was salvaged by simple detorsion. The risk of recurrence of ovarian torsion is around 2%–12%, being higher in nonpathological ovarian torsion.<sup>[4]</sup> Recurrent torsion of the ovary as early as 9 days after the first surgery has been reported in the literature.<sup>[8]</sup> We did not perform oophoropexy during the first surgery as it is not a standard of treatment to prevent recurrent ovarian torsion. In cases of recurrent ovarian torsion or patients with an absent contralateral ovary, oophoropexy should be strongly considered.<sup>[1]</sup> Our case also indicates the need for plication, especially if there is no pathology, as such ovaries, may have an inherent tendency to undergo torsion. Bilateral ovarian ligament plication was performed in our case during the second surgery. Even though the left ovary did not have torsion, the left ovarian ligament was plicated as prophylaxis for its recurrent torsion.

## CONCLUSION

Structurally normal ovaries can undergo torsion, which rarely can be bilateral synchronously. Some form of ovarian fixation should be strongly considered to prevent recurrent torsion in these cases.

## Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the legal guardian has given consent for images and other clinical information to be reported in the journal. The guardian understands that name and initials will not be published and due efforts will be made to conceal identity, but anonymity cannot be guaranteed.

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## Conflicts of interest

There are no conflicts of interest.

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