

Synchronous Bilateral Ovarian Torsion Without Provocation: A Case Report and Literature Review

Roza Berkovitz Shperling*, Roy Bitan, Gal Herskovitz, Yaron Gil and Shai Ram

Lis Hospital for Women's Health, Tel Aviv Sourasky Medical Center, Tel Aviv, Israel, is affiliated with Tel Aviv University, Israelf

*Corresponding author:

Roza Berkovitz-Shperling, MD MPH,
Lis Hospital for Women's Health, Tel Aviv Sourasky
Medical Center 6 Weizman St., Tel Aviv, 6423906,
Israel

Received: 02 Jan 2025

Accepted: 14 Jan 2025

Published: 21 Jan 2025

J Short Name: AJSCCR

Copyright:

©2025 Roza Berkovitz-Shperling, This is an open access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and build upon your work

Keywords:

Bilateral Ovarian Torsion; Non-Provoked Torsion;
Synchronous Ovarian Torsion;
Gynecological Emergency

Citation:

Roza Berkovitz-Shperling. Synchronous Bilateral Ovarian Torsion Without Provocation: A Case Report and Literature Review. *Ame J Surg Clin Case Rep.* 2025; 8(4): 1-5

1. Abstract

1.1. Objective

To describe a rare case of synchronous bilateral ovarian torsion in a young woman with polycystic ovary (PCO) and no significant ovarian pathology, emphasizing the diagnostic and therapeutic challenges.

1.2. Design

Case report and review of the literature.

1.3. Setting

A tertiary care hospital specializing in gynecologic emergencies.

1.4. Participant

A 31-year-old female with PCO presenting with acute abdominal pain and bilateral ovarian torsion confirmed intraoperatively. She underwent laparoscopic detorsion and subsequent oophoropexy for recurrent torsion.

Main Outcome Measure: Identification of clinical, imaging, and surgical findings; preservation of ovarian function following surgical interventions.

1.5. Results

The patient initially presented with severe left lower abdominal pain and was found to have bilateral ovarian torsion involving both utero-ovarian ligaments, confirmed via laparoscopy. Both ovaries were successfully detorsioned without the need for oophorectomy. Fourteen days later, the patient experienced recurrent left ovarian torsion, necessitating repeat laparoscopy.

1.6. Conclusions

This case highlights the diagnostic and management challenges of bilateral ovarian torsion in patients with PCO. While detorsion preserves ovarian function, oophoropexy may prevent recurrence and should be considered in high-risk cases.

1.7. What is Already Known on This Topic

Ovarian torsion is a rare gynecological emergency, often associated with identifiable risk factors such as ovarian cysts or tumors. Bilateral ovarian torsion is exceedingly uncommon, especially in the absence of clear underlying pathology. Polycystic ovary (PCO) may predispose patients to torsion due to the associated increase in ovarian size and weight, although its role as a direct risk factor remains unclear. Current management primarily involves laparoscopic detorsion, with oophoropexy being considered for recurrent cases.

1.8. What this Study Adds

This study highlights the rarity and clinical complexity of synchronous bilateral ovarian torsion without identifiable risk factors. It underscores the potential role of PCO as a predisposing condition, even without significant cystic enlargement, and emphasizes the importance of clinical vigilance in atypical presentations. The successful management of recurrent torsion using oophoropexy demonstrates its value in preventing further episodes, contributing to the understanding and optimization of treatment strategies in similar cases.

1.9. How this Study Might Affect Research, Practice, or Policy

This study provides valuable insights into the rare phenomenon of synchronous bilateral ovarian torsion, potentially prompting further research into its underlying mechanisms and risk factors, including the role of PCOS. Clinically, it emphasizes the importance of considering oophoropexy for recurrent torsion cases to preserve ovarian function and fertility. From a policy perspective, it highlights the need for updated guidelines addressing diagnostic challenges and management strategies for atypical ovarian torsion presentations to optimize patient outcomes.

2. Introduction

Ovarian torsion, the rotation of the ovary and sometimes the fallopian tube around its supporting structures, is a rare but critical condition that often leads to ischemia and potential loss of ovarian function if not promptly treated. This condition is typically associated with an identifiable cause, such as ovarian cysts, tumors, or hormonal stimulation, as frequently seen in patients undergoing assisted reproductive treatments like in vitro fertilization (IVF) [1-3]. Polycystic ovarian syndrome (PCOS) is considered a risk factor for ovarian torsion, even in the absence of a large cyst or other overt ovarian abnormalities. In patients with PCOS, the ovaries tend to be enlarged and heavier due to the presence of multiple small follicles and increased androgen levels, which can increase their susceptibility to torsion. This added weight and volume may cause the ovaries to twist around their supporting structures more easily, leading to ischemia and potentially significant complications if not promptly treated. Although PCOS has not been formally established as a direct risk factor in large studies, clinical observations, and case reports suggest a notable association, highlighting the importance of considering PCOS in patients presenting with symptoms suggestive of torsion [4-6]. Torsion of the normal unilateral adnexa without provocation remains an uncommon clinical occurrence, particularly in postmenarchal women. Its prevalence ranges from 8% to 18% of all torsion cases [7-9]. Bilateral ovarian torsion is even more infrequent, especially when it occurs synchronously and without an obvious underlying pathology. The first adult case of bilateral ovarian torsion was described in 1895 [10], and the condition remains a rare gynecological emergency, with only a handful of cases documented in medical literature. Most of these cases have been associated with underlying ovarian abnormalities such as dermoid cysts or neoplasms. For instance, in a pediatric population review, only two reported synchronous bilateral ovarian torsion cases involving bilateral dermoid cysts [11]. As presented, bilateral ovarian torsion in women with normal adnexa is particularly unusual. One hypothesis suggests that spontaneous torsion could occur during the proliferative phase of the menstrual cycle when the ovary may become temporarily enlarged due to follicular development [9]. This transient enlargement could increase the ovary's susceptibility to torsion, even without structural abnormalities or external triggers such as IVF. While adnexal

torsion primarily affects postmenarchal women, normal adnexal torsion has been reported more frequently in premenarchal girls [12]. The disparity in the prevalence of torsion in postmenarchal women and premenarchal girls may stem from differences in hormonal activity, ovarian size, and the anatomical positioning of the adnexa [13]. Despite these factors, torsion of normal adnexa continues to be poorly understood and under-reported, particularly in bilateral cases without provocation. This literature review explores the clinical presentation, diagnosis, and management of synchronous bilateral ovarian torsion without provocation, as demonstrated by the unique case of a 30-year-old woman with normal adnexa who presented with bilateral ovarian torsion. By reviewing the existing literature, this article seeks to understand better the mechanisms that may contribute to such rare events and provide insights into diagnosing and timely managing this critical condition.

3. Material and Methods

A comprehensive literature search was conducted using electronic databases such as PubMed, Embase, and Google Scholar. Inclusion criteria encompassed all studies, focusing on unprovoked bilateral ovarian torsion cases. Relevant keywords and MeSH terms included "unprovoked bilateral ovarian torsion," "unprovoked torsion," "bilateral torsion," and "PCO torsion." All abstracts and full texts were screened. The patient gave informed consent to publish this case report, and ethical guidelines were followed throughout the study.

4. Case Report

A 31-year-old female, generally healthy, with a diagnosis of polycystic ovary (PCO), based on ultrasound findings and a history of dilation and curettage following a first-trimester termination of pregnancy, presented to the emergency department. She was attempting to conceive and reported acute, severe left lower abdominal pain that had begun 12 hours before her arrival. The pain worsened with movement, and she described one episode of vomiting without any other associated symptoms. During the initial evaluation, her vital signs were stable, and she had a normal pulse, blood pressure, and no fever. Physical examination revealed a soft abdomen without tenderness and no signs of peritonitis. A bimanual examination showed no palpable masses or tenderness. A transvaginal ultrasound revealed a normally shaped uterus with a 7.5 mm luteal endometrium. Both ovaries were enlarged and positioned close to each other ("kissing ovaries"), displaying a polycystic appearance. The right ovary measured 45 x 25 mm, while the left measured 30 x 60 mm. Doppler imaging showed normal blood flow in both ovaries, and a small amount of clear fluid was in the Douglas pouch (Figure 1). Laboratory results were unremarkable. There were no signs of infection or anemia, and the human chorionic gonadotropin (HCG) test was negative. In summary, although the patient's initial pain subsided, the transvaginal ultrasound indicated enlarged ovaries with normal bilateral blood flow. She was admitted for observation in the gynecologic department. The

differential diagnosis included a ruptured corpus luteum, ovarian torsion, and non-gynecologic causes of abdominal pain. Several hours later, the patient experienced a recurrence of severe pain. A repeat transvaginal ultrasound revealed a normal-sized right ovary measuring 42 x 28 mm, while the left ovary had further enlarged to 70 x 41 mm, with reduced blood flow noted on the left side. An emergency laparoscopy was performed.

Intraoperative findings confirmed bilateral ovarian torsion involving the utero-ovarian ligaments. The left ovary showed signs of edema and contained a 4 cm cyst. Both ovaries were successfully detorsion without the need for an oophorectomy. The patient's immediate postoperative recovery was uneventful, and she was discharged the following day. Fourteen days later, the patient returned to the emergency department with severe left lower abdominal pain, accompanied by nausea but without vomiting or fever. Laboratory tests were unremarkable, and her vital signs remained stable. On physical examination, significant tenderness was noted in the left lower abdomen. A transvaginal ultrasound showed

a normal-sized right ovary with adequate blood flow. However, the left ovary was enlarged (5x4 cm), edematous, and exhibited reduced blood flow. Given these findings and the patient's history of ovarian torsion, urgent laparoscopic surgery was scheduled due to suspected recurrent torsion of the left ovary (Figure 2). During the surgery, a single torsion of the left ovary was confirmed. Due to the recurrent nature of the torsion, the decision was made to fixate the left ovary of the utero-ovarian ligament to the round ligament. After the procedure, the patient's overall condition was excellent, and she was discharged the following day, free of pain. Approximately 30 days after the second surgery, the patient attended a routine follow-up at the gynecology clinic. She reported feeling well and having no complaints. A follow-up ultrasound revealed a normal-sized uterus with a 10 mm endometrial lining, and both ovaries appeared normal. The right ovary contained a 24 mm follicle, and Doppler imaging showed normal blood flow in both ovaries (Figure 3).

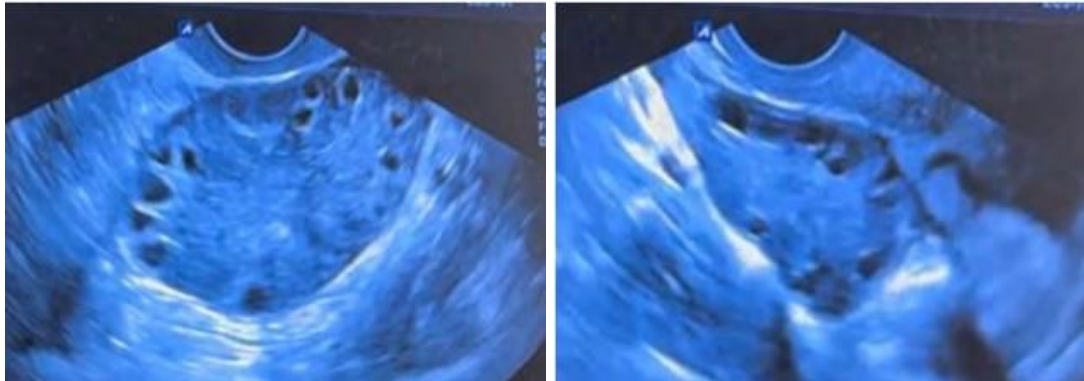


Figure 1: Ultrasound images of the patient's ovaries upon first admission. The right ovary measures 45X25 mm. in size (right side of image), and the left ovary, 60X30 mm in size (left side of image), appears enlarged with a polycystic appearance. Doppler imaging at this time showed normal blood flow in both ovaries.



Figure 2: Ultrasound images of the patient's ovaries upon second admission. The right ovary measures 42.5X28.6 mm. in size (right side of image), and the left ovary, 70.3X40.6 mm in size (left side of image), appears enlarged with a polycystic appearance. Doppler imaging at this time showed reduced blood flow in the left ovary.

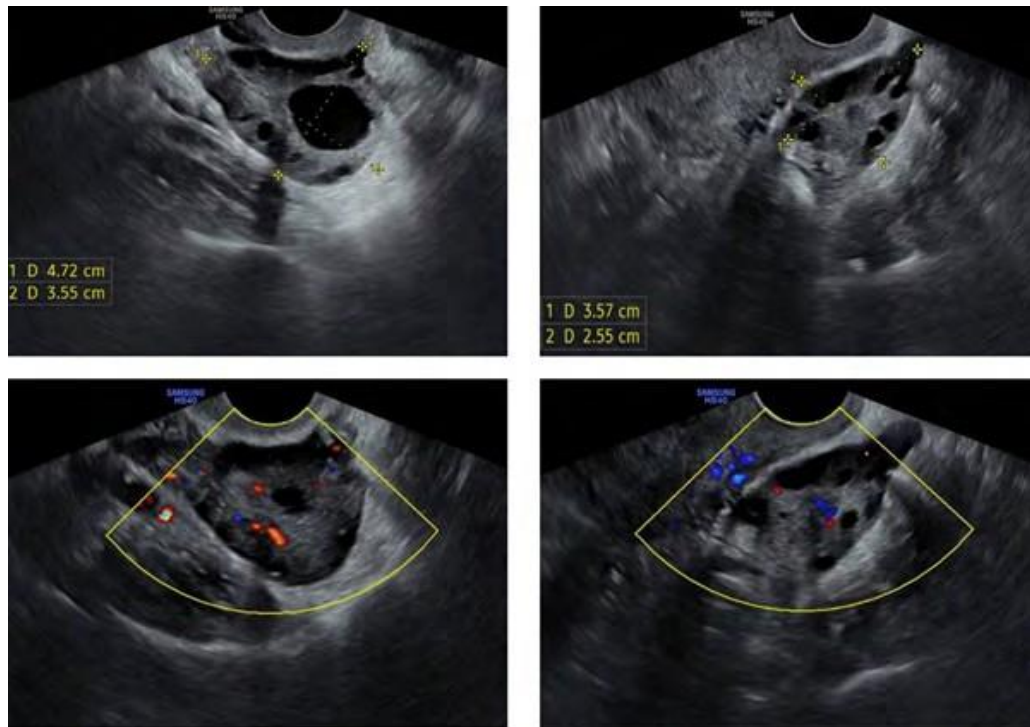


Figure 3: After the follow-up visit, ultrasound images of the patient's ovaries showed a normal ovary appearance. The right ovary measures 35.7X25.5 mm (right side of image), and the left ovary, 47.2X15.5 mm (left side), appears enlarged with a polycystic appearance. Doppler imaging showed normal blood flow in both ovaries.

5. Discussion

This case highlights the unusual occurrence of synchronous bilateral ovarian torsion in a young woman with PCO and no significant ovarian pathology. Ovarian torsion, especially bilateral, is rare without identifiable risk factors like cysts or masses. The patient's subsequent recurrence of torsion on one ovary further complicates the case, underscoring the challenges in diagnosing and managing ovarian torsion under these atypical circumstances. Although not traditionally considered a direct risk factor for torsion, PCO may contribute to a predisposition due to the enlarged ovaries and altered anatomical orientation associated with the syndrome. The increased volume and weight of PCO-affected ovaries may make them more susceptible to twisting. However, neither ovary had an abnormal cystic load or excessive enlargement in this patient, suggesting that even subtle ovarian changes associated with PCO could heighten torsion risk. The initial management with laparoscopic detorsion restored ovarian blood flow and function, preserving fertility. However, the rapid recurrence of torsion on the left ovary soon after the first procedure highlights the limitations of detorsion alone in cases with an underlying predisposition. While Doppler ultrasound initially showed normal blood flow, ruling out torsion can be challenging, as Doppler studies may miss (add ref) intermittent torsion or changes in blood flow. This case emphasizes the importance of clinical vigilance, as intermittent

pain and suggestive ultrasound findings may warrant a more aggressive approach despite initially reassuring Doppler results. After the recurrence, oophoropexy was performed to fixate the ovary and prevent further torsion. This intervention, which anchors the ovary to reduce mobility, has been suggested for recurrent torsion cases (add ref), especially when structural risk factors are present. Although not commonly used, prophylactic oophoropexy may be beneficial in similar cases where there is a predisposition to recurrent torsion, particularly in patients with PCO or other subtle risk factors. This approach could prevent further episodes and associated risks to ovarian health and function. It is worth noting that the first and only reported case of synchronous bilateral ovarian torsion without a provocation factor was documented in 1895 [10], emphasizing the rarity of such occurrences in clinical practice. In summary, this case of bilateral ovarian torsion with a subsequent recurrence after initial detorsion in a patient with PCO illustrates the diagnostic and therapeutic complexities of ovarian torsion in atypical presentations. It reinforces the importance of considering PCO as a potential risk factor, even in the absence of large cysts or masses, and suggests that proactive measures like oophoropexy should be considered in recurrent cases. Further research is needed to establish guidelines for identifying patients at higher risk of recurrence and optimizing management strategies to preserve ovarian function.

References

1. Asfour V, Varma R, Menon P. Clinical risk factors for ovarian torsion. *J Obstet Gynaecol.* 2015; 35(7): 721-5.
2. Bridwell RE, Koyfman A, Long B. High risk and low prevalence diseases: Ovarian torsion. *Am J Emerg Med.* 2022; 56: 145-150.
3. Chang HC, Bhatt S, Dogra VS. Pearls and pitfalls in diagnosis of ovarian torsion. *Radiographics.* 2008; 28(5): 1355-68.
4. Warwar RE, Schmidt GE. Bilateral ovarian torsion with ovarian fusion in the setting of polycystic ovarian syndrome: A case report. *Case Rep Womens Health.* 2019; 23: e00129.
5. Shah AA, Likes CE, Price TM. Early polycystic ovary syndrome as a possible etiology of unexplained premenarcheal ovarian torsion. *J Pediatr Adolesc Gynecol.* 2009; 22(4): 265-9.
6. Tsafirir Z, Hasson J, Levin I, Solomon E, Lessing JB, Azem F. Adnexal torsion: cystectomy and ovarian fixation are equally important in preventing recurrence. *Eur J Obstet Gynecol Reprod Biol.* 2012; 162(2): 203-5.
7. Pansky M, Smorgick N, Herman A, Schneider D, Halperin R. Torsion of normal adnexa in postmenarchal women and risk of recurrence. *Obstet Gynecol.* 2007; 109(2 Pt 1): 355-9.
8. Smorgick N, Melcer Y, Sarig-Meth T, Maymon R, Vaknin Z, Pansky M. High risk of recurrent torsion in premenarchal girls with torsion of normal adnexa. *Fertil Steril.* 2016; 105(6): 1561-1565.e3.
9. Wakui N, Miyoshi A, Kamei Y, Hara T, Fujishiro A, Kanao S, Naoi H. Torsion of Normal Adnexa in a 31-year-old Woman: A Case Report and Literature Review. *Gynecol Minim Invasive Ther.* 2018; 7(1): 33-35.
10. Dunnihoo DR, Wolff J. Bilateral torsion of the adnexa: a case report and a review of the world literature. *Obstet Gynecol.* 1984; 3: 55S.
11. Dumont T, Caccia N, Allen L. Pediatric synchronous bilateral ovarian torsion: a case report and review of the literature. *J Pediatr Surg.* 2011; 46(12): e19-23.
12. Pansky M, Smorgick N, Herman A, Schneider D, Halperin R. Torsion of normal adnexa in postmenarchal women and risk of recurrence. *Obstet Gynecol.* 2007; 109(2 Pt 1): 355-9.
13. Huang C, Hong MK, Ding DC. A review of ovary torsion. *Ci Ji Yi Xue Za Zhi.* 2017; 29(3): 143-147.