



# A Case of Bilateral Ovarian Teratomas: Navigating the Treatment of A 10.5 Cm Cyst and a Smaller Counterpart

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## Abstract

Ovarian tumors are a common type of neoplasm found in women. The most common type are mature cystic teratomas, also known as dermoid cysts. Ovarian mature teratomas are benign slow growing cysts of embryonal origin and can be filled with fat, hair, tooth, and other tissue. They can be found bilaterally in 10% of cases. We present a woman in her 40s who presented to the Emergency Department with left lower quadrant abdominal pain for two days. Ultrasound and CT imaging demonstrated a large left adnexal mass as well as a smaller right adnexal mass, both consistent with mature ovarian teratomas. The large left ovarian dermoid cyst was removed via laparoscopic cystectomy. The final pathology report showed adipose tissue, copious hair, and several tooth-like structures, however no malignancy was identified. This case provides valuable insight into the presentation and management of bilateral ovarian cystic teratomas of different sizes, reinforcing the importance of timely imaging and intervention.

Received: Mar 31, 2025

Accepted: Apr 17, 2025

Published Online: Apr 24, 2025

Journal: Journal of Gynecology Case Reports

Publisher: MedDocs Publishers LLC

Online edition: <http://meddocsonline.org/>

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**Keywords:** Case report; Dermoid cyst; Laparoscopic treatment; Benign ovarian tumors; Germ cell tumors.

## Introduction

A dermoid cyst is a benign cutaneous developmental anomaly that arises from the entrapment of ectodermal elements along the lines of embryonic closure [1]. Due to their embryonic origin, teratomas can be filled with all three germ layers such as hair, teeth, and sebaceous material. Ovarian teratomas are the most common of all ovarian neoplasms, accounting for 10-20% of all cases. Bilateral ovarian cystic teratomas occur in only 10% of cases [3]. They are commonly found in patients who are of childbearing age, especially between ages 20 and 40. A single ovarian cyst can measure from less than 1 cm to greater than 10 cm [4]. There is very limited literature of cases featuring ovarian cysts larger than 15 cm [5].

Patients with ovarian dermoid cysts commonly present as asymptomatic. Most common symptoms include pain or pressure in the lower abdomen on the side of the cyst. In the case that an ovarian cyst ruptures, it will cause a sudden sharp abdominal pain. It is also possible for the cyst to cause a torsion of the ovary, which can also cause pain, as well as nausea and vomiting [4]. Initial assessment of a patient with these symptoms should be evaluated with a detailed history, physical exam, vital signs, and pelvic exam. Further evaluation includes imaging, and transvaginal ultrasound is the preferred initial imaging modality for an adnexal mass [4]. A cystic teratoma may appear as a heterogenous mass with echogenic foci causing acoustic shadowing, typically due to calcifications and hair. CT abdomen and pelvis, as well as MRI, are superior to ultrasound in terms



**Cite this article:** Spevack E, Carfagno S. A Case of Bilateral Ovarian Teratomas: Navigating the Treatment of a 10.5 cm Cyst and a Smaller Counterpart. J Gynecol Case Rep. 2025; 4(1): 1017.

of assessing the impact of the mass on nearby structures and are essential for pre-operative evaluation. This case contributes a valuable understanding of the limited literature on management of bilateral ovarian mature cystic teratomas.

### Case Presentation

We present a woman in her 40s who presented to the Emergency Department with nausea abdominal pain for 2 days. She complained of a constant sharp pain in the left lower abdominal quadrant that does not radiate. Movement exacerbated the pain and nothing provided relief. She denied genitourinary symptoms or history of trauma. There was no accompanying fever or vomiting, and vital signs were normal except for tachycardia. Physical exam was remarkable for left lower abdominal tenderness without guarding or rebound tenderness and hCG pregnancy test was negative. A CT abdomen pelvis showed a 1.2×1.0×1.2 cm dermoid cystic lesion in the right adnexa that contains macroscopic fat. There was also a 6.6×8.0×8.3 cm large left adnexal mature cystic teratoma containing multifocal cystic lesions, dominant two containing macroscopic fat as well as dense internal calcifications or dental component. An ultrasound was obtained to exclude an ovarian torsion. Ultrasound showed a small right ovarian dermoid approximately 1.4 cm in diameter with doppler blood flow to the right ovary. The left ovary was not discretely visualized, and there was a large lobular left adnexal teratoma with fat and calcifications, approximately 9.9 cm. Hematological parameters of the patient revealed leukocytosis and the rest within normal limits.

The left ovarian teratoma was removed laparoscopically under general anesthesia. Appropriate suprapubic and infrapubic incisions were made, as well as left and right lower quadrant ports in the abdomen. The teratoma was too large to be removed in a bag through any of the incisions made in the abdomen. The teratoma was punctured within the bag and fluid was suctioned out so it could be removed through one of the ports. After approximately 100-150 cc of yellow purulent fluid was removed from the mass, it was able to be removed in the bag. Examination of the mass revealed cystic cavities filled with adipose tissue, several large tufts of hair, and cartilage.

Pathology report of the left ovarian dermoid cyst described it with smooth outer surfaces, glistening and light tan-pink in appearance. It measured 10.5×5.5×4.0 cm. There was a large aggregate of dark grayish-black hair and a soft friable fatty or soft keratin-like material over an area approximately 3.5 cm. An additional area embedded within the hair structures show the wall with firm calcification, and a grossly visible tooth-like structure measuring approximately 1.0 cm. No malignancy was identified.

### Discussion

Ovarian dermoid cysts are the most common of all ovarian neoplasms, accounting for 10-20% of all cases. Bilateral ovarian cystic teratomas occur in only 10% of cases. An ovarian cyst can measure between less than 1 cm and greater than 10 cm. There is very limited literature of cases featuring ovarian cysts larger than 15 cm. Bilateral ovarian cystic teratomas occur in only 10% of cases. This case is important as it provides valuable diagnostic workup as well as management of a patient with bilateral mature ovarian teratomas of different sizes.

In a patient of childbearing age, any abdominal complaints warrant further investigation to rule out pregnancy. This can be done with a urine or blood hCG test. It can be done in accor-

dance with transvaginal ultrasound to confirm an intrauterine pregnancy [7]. There are no specific tumor markers for mature cystic teratomas. Other notable markers like Lactate Dehydrogenase (LDH), Alpha-Fetoprotein (AFP), and CA19-9 may still be checked and could be indicative of other germ cell tumors such as dysgerminomas or immature teratomas.

Imaging is an essential part of the diagnosis of an ovarian dermoid cyst. Ultrasound is the first line imaging modality for a patient with abdominal pain, particularly a transvaginal ultrasound for a suspected adnexal mass. A cystic teratoma may appear as a heterogenous mass with certain foci that can provide clues as to a possible etiology. Due to the embryonic origin of a teratoma, hair, teeth, and various tissues can cause acoustic shadowing. There may also be cystic structures and air-fluid levels, all of which point towards a dermoid cyst. In a CT abdomen and pelvis or MRI, you will have clearer images of the mass. This imaging may show fat, calcifications, or osseous components. Buy et al showed that a presence of fat was seen in 93% of benign ovarian teratoma cases, and tooth or calcification was seen in 56% of cases [9]. CT abdomen and pelvis and MRI are also superior to examine the impact of the mass on nearby structures and for pre-operative evaluation if surgery is indicated.

Ovarian torsion, or twisting of the ovary, is commonly associated with an enlarged ovarian mass and is an emergency due to disruption of blood flow to the ovary. When a patient presents with abdominal pain, an ultrasound with doppler blood flow is important to visualize ovarian blood flow. The risk is greatest when the mass measures approximately 8 to 12 cm [7]. Our patient's larger mass measured nearly 11cm, falling in the range of increased risk of torsion. While it is uncommon and roughly 2.7% of cases result in an ovarian torsion rule, it is of the utmost importance to be ruled out to preserve fertility [3].

Mature ovarian cystic teratomas carry a good prognosis because malignant transformation is found in roughly 1-3% of cases [11]. The most common malignant subtype was squamous cell carcinoma, with other less common subtypes being transitional cell carcinoma, malignant melanoma, adenocarcinoma, and others [11,12]. If malignant transformation is present, there may be other identifiable clues. One example is that if there is an elevated serum hCG found, while pregnancy is more likely, certain malignancies such as dysgerminomas and trophoblastic tumors must be excluded [13]. There may also be imaging findings that could be indicative of a malignant transformation. You may see less homogeneity of the cyst on imaging, such as a septum or capsules on the surface instead of a smooth surface. Hemorrhage or signs of necrosis within the mass could also make malignancy more likely [14].

### Learning points:

- Ultrasound with doppler blood flow is essential to rule out ovarian torsion and preserve fertility
- Bilateral ovarian cystic teratomas occur in roughly 10% of cases
- Subtle findings like abdominal pain and nausea in the context of a patient of child-bearing age should prompt further investigation into underlying ovarian etiologies.

### Conclusion

Mature ovarian cystic teratomas should always be considered in the setting of a patient of childbearing age presenting with abdominal pain. Ultrasound with doppler flow as well as

CT abdomen pelvis or MRI are the most important imaging modalities, and laparoscopic cystectomy may be necessary, but is not always warranted.

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