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Case Report

Story of recurrent bilateral ovarian dermoid cyst in a young woman: a case discussion

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ABSTRACT

Mature cystic teratomas (MCTs), also known as dermoid cysts, are the most common benign ovarian germ cell tumors, typically affecting women of reproductive age. Although usually unilateral and slow-growing, MCTs can be bilateral and carry a risk of recurrence, particularly in younger patients with large tumors. We report the case of a 29-year-old second gravida woman, known case of right ovarian dermoid cyst complicated by torsion at 18 weeks of gestation, managed by right salpingo-oophorectomy. Histopathology revealed a collision tumor comprising a mature cystic teratoma and mucinous cystadenoma. Two years later, the patient presented with intermittent left lower abdominal pain. Imaging suggested a left ovarian dermoid cyst. Laparoscopic cystectomy was performed, and histopathology confirmed a mature cystic teratoma. The postoperative course was uneventful. The patient exhibited multiple risk factors for recurrence, including young age at diagnosis, initial tumor size >11 cm, and subsequent bilateral involvement. This case highlights the importance of identifying key risk factors for MCT recurrence-namely, young age, large tumor size, and bilateral presentation. While imaging and tumor markers such as CA 19-9 aid in diagnosis, surgical excision remains the definitive treatment. In reproductive-age women, laparoscopy offers a fertility-sparing approach. Long-term follow-up is essential in high-risk patients to monitor for recurrence.

Keywords: Mature cystic teratomas, Dermoid cysts, Benign ovarian germ cell tumors

INTRODUCTION

Mature cystic teratoma (MCT), commonly known as an ovarian dermoid cyst, is the most prevalent type of benign germ cell tumor of the ovary, accounting for approximately 15-20% of all ovarian neoplasms and 60% of all benign ovarian neoplasm.[1] These tumors predominantly affect women in their second to fourth decades of life, with a mean age of diagnosis around 30 years. MCTs originate from primordial germ cells and are histologically characterized by the presence of well-differentiated tissues derived from all the three embryonic germ layers-most commonly ectodermal elements such as skin and hair, and mesodermal components like fat and muscle.[2]

Typically, MCTs present as unilocular cysts measuring 5-10 cm in diameter, and are bilateral in approximately 10-15% of cases. Although often discovered incidentally during routine imaging, MCTs can occasionally lead to complications such as ovarian torsion (5-16%), rupture (2%), infection (1%), and rarely malignant transformation (<2%). Diagnosis is primarily established through ultrasonography, which can reveal characteristic features including the "tip of the iceberg" sign, dermoid mesh or dot-dash pattern, fat-fluid levels, and the floating ball sign.[3] Advanced imaging with computed tomography (CT) or magnetic resonance imaging (MRI) further enhances the diagnostic accuracy by identifying key elements such as intratumoral fat, calcifications, Rokitansky nodules, and fat-fluid layering, with a reported sensitivity exceeding 98%. Given the potential for complications and the

challenge in distinguishing benign from malignant lesions, accurate radiologic interpretation is essential for timely and appropriate management.[3]

This report presents a case of bilateral mature cystic teratomas in a young woman, with brief discussion of diagnostic strategies, risk factors for recurrence, and fertility-sparing surgical approaches.

CASR REPORT

A 31-year-old, multiparous woman, presented to the gynecology outpatient department (OPD) with complaints of dull, intermittent left side lower abdominal pain for two days. She had regular menstrual cycles with no history of dysmenorrhea. She had a history of right ovarian dermoid cyst with torsion, which was surgically managed at the age of 29 years during her second pregnancy. At that time, she presented at 18 weeks' gestation of second pregnancy, with acute abdominal pain for two weeks. On physical examination, she was afebrile with tachycardia. Abdominal examination revealed a gravid uterus corresponding to 18 weeks with tenderness in the right iliac fossa. Per speculum examination showed a closed cervix with no bleeding, and there was no cervical motion tenderness.

A pelvic ultrasound with Doppler demonstrated an enlarged right ovary measuring 11.7×11.1×9.4 cm. A cystic lesion measuring 6.7×6.1 cm was noted in the right adnexa with Rokitansky nodules and absent vascular flow, raising suspicion of torsion. An emergency laparotomy with right salpingo-oophorectomy was performed. Intraoperatively, the left ovary was inspected and appeared normal. Histopathological examination revealed a collision tumor consisting of a mature cystic teratoma and mucinous cystadenoma. Cytological examination of the peritoneal fluid showed no malignant cells. She delivered a healthy 2.9 kg baby via normal vaginal delivery at 39 weeks' gestation.

After two years, the patient represented with dull, intermittent lower abdominal pain on the left side for two days. She was afebrile, and abdominal examination revealed tenderness in the left iliac region. Per speculum examination showed a healthy cervix and vagina. Bimanual examination revealed left adnexal tenderness. A pelvic ultrasound showed a well-defined hyperechoic lesion measuring 2.2×1.9 cm, with an adjacent complex cystic lesion measuring 5.6×5.1 cm.

The left ovary was not visualized separately, and there was no abnormal vascularity, findings suggestive of a left ovarian dermoid cyst. The patient was counselled for laparoscopic left ovarian cystectomy, which was performed under general anaesthesia. Intraoperatively, the uterus was enlarged to approximately 10 weeks' size. The right ovary and fallopian tube were not visualized, while the left fallopian tube appeared normal. A left ovarian cyst measuring 6×6 cm with a thick wall was identified; the ovary could not be distinguished separately. The cyst was carefully punctured, yellow sebaceous material completely suctioned out. The cyst wall was then carefully separated from the surrounding ovarian tissue and cystectomy completed, using harmonic scalpel and bipolar diathermy.

The pouch of Douglas was free, and no other abnormalities were noted. The postoperative period was uneventful. Histopathological examination confirmed the diagnosis of a mature cystic teratoma. Peritoneal fluid cytology was negative for malignant cells.

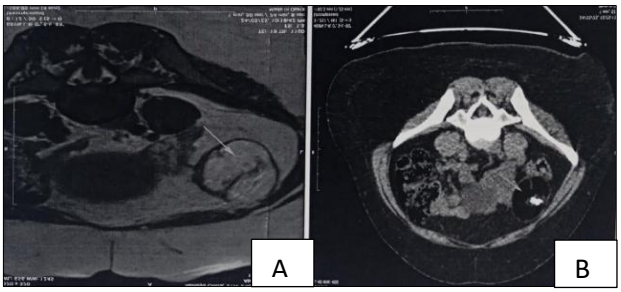

Figure 1 (A and B): MRI pelvis.

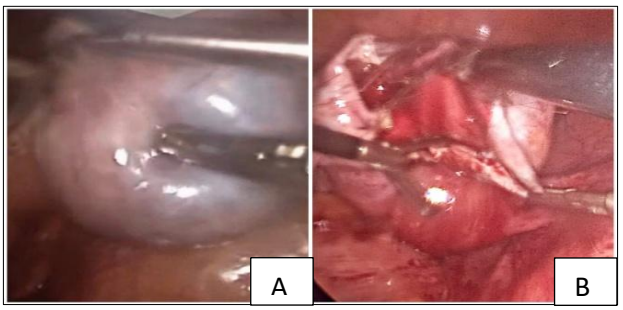

Figure 2: Intraoperative findings; A) cyst punctured; B) cyst wall separated from ovarian tissue.

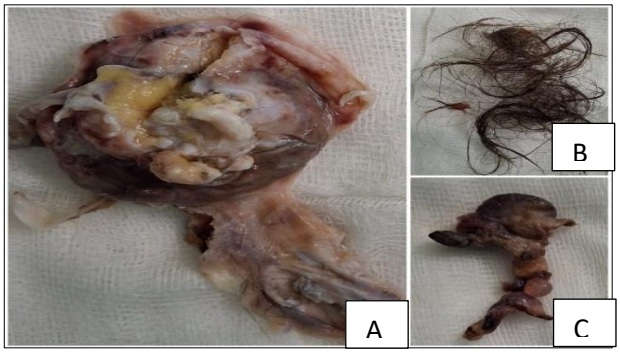

Figure 3 (A-C): Cut section of ovarian dermoid cyst showing fat, teeth and hair material.

DISCUSSION

MCTs are the most common benign ovarian germ cell tumors, accounting for approximately 10-20% of all ovarian neoplasms. They arise from primordial germ cells and are composed of differentiated tissue from all three

germ layers, predominantly ectoderm. These tumors most commonly present during the second and third decades of life and are generally slow-growing, with an estimated growth rate of 1.8 mm per year. While typically unilateral, bilateral involvement occurs in 10% of cases and is associated with a higher risk of recurrence. The most frequent complication of MCTs is ovarian torsion, which may lead to acute, localized abdominal pain, and, if not promptly managed, can result in ischemia and necrosis of the ovary. Other complications, including rupture, infection, and, rarely, malignant transformation, are less commonly observed. In contrast, immature teratomas-though histologically similar in origin-are rare, accounting for less than 1% of ovarian teratomas. These are typically diagnosed in younger patients and carry a higher risk of malignancy. Unlike MCTs, immature teratomas are more likely to present as palpable abdominal masses and may exhibit more aggressive behaviour.[4]

Diagnosis of MCTs is largely based on imaging, with ultrasonography serving as a highly effective, non-invasive modality. Serological tumor markers such as CA125, CA19-9, and alpha-fetoprotein (AFP) are also frequently utilized. Among these, CA19-9 is most closely associated with MCTs and correlates with tumor size. CA125, although less specific, is valuable in distinguishing benign from malignant pelvic masses. In the present case, the patient's elevated CA 19-9 (68.31 U/ml) prompted further investigation, despite the eventual benign histopathology.[5]

Surgical excision remains the cornerstone of treatment, either via laparoscopy or laparotomy. Laparoscopic management is particularly advantageous in young women, where fertility preservation is a priority. In this case, laparoscopic left ovarian cystectomy was performed, with histopathology confirming a mature cystic teratoma. Historically, biopsy of the contralateral ovary was routinely performed to rule out bilateral disease; however, current practice favours intraoperative inspection and palpation due to improvements in preoperative imaging.[6]

Recurrence following excision of MCTs is relatively uncommon but may be influenced by several factors. According to Pinnamaneni et al, young age at diagnosis, tumor size greater than 8 cm, and bilateral presentation are increasing the recurrence rate to 21%. This patient had all three risk factors. Initial diagnosis at age 29, right-sided lesion >11 cm and later developed contralateral MCT. This highlights the importance of recognizing and monitoring these predictive factors during follow-up.

CONCLUSION

MCTs are common benign ovarian tumors that, while typically unilateral and slow-growing, can present bilaterally and recur-especially in young women with large tumors. This case highlights the importance of recognizing key risk factors for recurrence, including young age at diagnosis, tumor size >8 cm, and bilateral involvement. Imaging remains central to diagnosis, with CA 19-9 serving as a useful, though nonspecific, adjunct marker. Surgical excision-preferably via laparoscopy in reproductive-age women-remains the mainstay of treatment, with an emphasis on fertility preservation. Long-term follow-up is essential in patients with risk factors for recurrence, as demonstrated in this case of sequential bilateral MCTs.

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