CASE REPORT

ENDOMETRIOMA COEXISTING WITH MATURE CYSTIC TERATOMA IN A SINGLE OVARY: A RARE PRESENTATION

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Mature cystic teratomas, commonly known as dermoid cysts, are prevalent benign ovarian tumors that originate from germ cells and mature into diverse tissue types. They are usually asymptomatic but can lead to complications like torsion, rupture, or malignant transformation. Endometriosis is a condition in which endometrial tissue grows outside the uterus and it is commonly associated with pelvic pain and infertility. We report a case of a 27-year-old woman who presented with a history of lower abdominal pain and dysmenorrhea. Initial ultrasonography revealed a complex cyst in the left ovary which, on a later Magnetic Resonance Imaging (MRI) scan, proved to be two distinct cystic lesions within the same ovary. Subsequently, a laparatomy and ovarian resection was done, and histopathologic examination confirmed the coexistence of a mature cystic teratoma and an endometrioma in the left ovary. This case report highlights the unique occurence of these two conditions simultaneously, the challenges of differentiating these coexisting conditions and emphasizes the importance of utilizing multiple imaging modalities to achieve an accurate pre-operative diagnosis.

Keywords: Endometriosis; Endometrioma; Mature cystic teratoma; Ovarian cyst

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INTRODUCTION

Mature cystic teratomas (MCTs), also referred to as dermoid cysts, account for 43–70% of benign ovarian tumors in women of reproductive age and constitute approximately 15% of all ovarian tumors. These are the benign ovarian tumors that occur most frequently.[1] Germ cell tumors, also known as MCTs, originate from totipotent germ cells and are typically asymptomatic. They are unintentionally found during radiologic tests, surgery related to pathology, or standard physical examinations. It was found that 1%–2% of MCTs had malignant transformation.[2]

Endometriosis is a common gynecological condition that is characterized by the presence of endometrial tissue outside the uterus, affecting 7–10% of women in their reproductive years. On the contrary, infertile women have a 20–50% increase in endometriosis, and women who have pelvic pain have a 30–80% increase. Endometriomas, also called "chocolate cysts," are a particular kind of ovarian cyst that contains endometrial tissue that has developed in an abnormal location. Research indicates that approximately 17–44% of women diagnosed with endometriosis may also have endometriomas.[3]

Although it is frequently noted that benign conditions such as mature cystic teratoma and endometriosis are common in women of reproductive age, it is extremely uncommon for them to occur in the same ovary at the same time. We present a unique instance of coexistent MCT and endometriosis.

CASE PRESENTATION

A 27-year-old unmarried woman presented to our gyneacology clinic with a history of lower abdominal pain and dysmenorrhea for several weeks, not relieved by oral analgesics. The patient had regular menstrual cycles with normal menstrual blood loss. There was no previous gynecologic history or any family history of gynecologic disease. Vitals were within normal limits. General physical and abdominal examinations were unremarkable. Bimanual digital and speculum examinations could not be done due to cultural reasons. An initial transabdominal ultrasonography showed a complex left ovarian cyst measuring 9×8.7 cm in size with an internal thick hyperechoic area of 2.8 cm and a right ovarian multiloculated cyst measuring 5.2×3.8cm with internal septations.

Ovarian malignancy was suspected for which tumors markers and a Magnetic Resonance Imaging (MRI) of the pelvis were ordered. All baseline blood tests and tumor markers (AFP, B-hCG, LDH) were within normal limits. Contrary to sonographic findings, the MRI pelvis (Figures A-E) showed two distinct cystic lesions within the left ovary. One of them measured 5.7×8.2 cm, having a fat fluid level and a Rokitansky protuberance in its upper part, showing high Magnetic Resonance (MR) signals on T1, low signals on T2 and suppression on fat-saturation sequences suggesting it to be a dermoid cyst. The other lesion was an abnormal MR signal intensity cystic area measuring 4.8×5.3 cm that was high on T1 and fat-saturation and low on T2 sequences showing

shading sign, appearing to be an endometrioma. The right ovary and uterus were unremarkable. A subsequent laparotomy was carried out which showed two left ovarian masses comprising a dermoid cyst measuring 12×8 cm and an endometrioma measuring 8×8 cm. A left-sided cystectomy was done and the right healthy ovary was conserved. The resected specimens were sent for histopathologic examination, which later confirmed the radiologic findings of a coexistent endometrioma and mature cystic teratoma in one ovary.

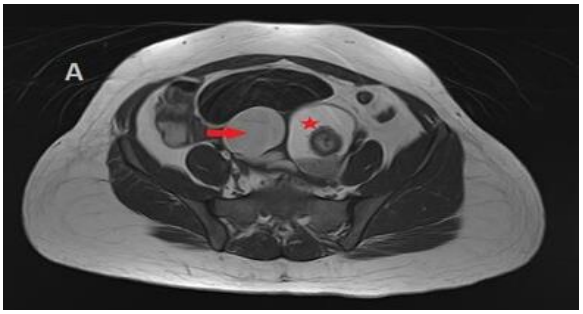

Figure-A: Axial T1-weighted image showing high signal endometrioma (red arrow) and adjacent fat fluid level containing teratoma (red star).

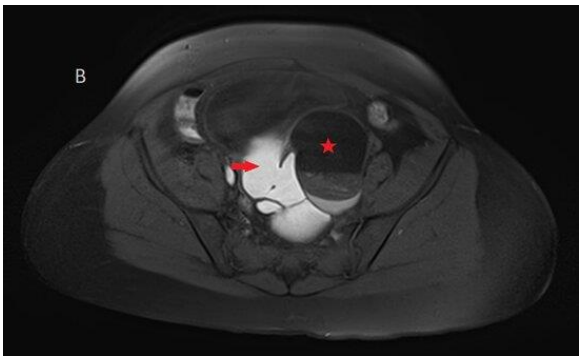

Figure-B: Axial T1 fat-saturated sequence showing high signal endometrioma (red arrow) and signal suppression in teratoma (red star).

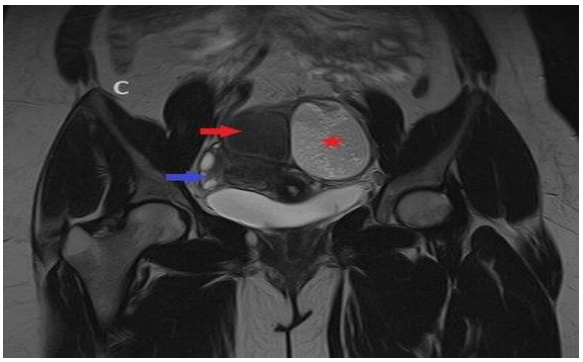

Figure-C: Coronal T2-weighted image showing shading sign in endometrioma (red arrow) and the mixed to high signal teratoma (red star). Notice the normal appearing right adnexa (blue arrow).

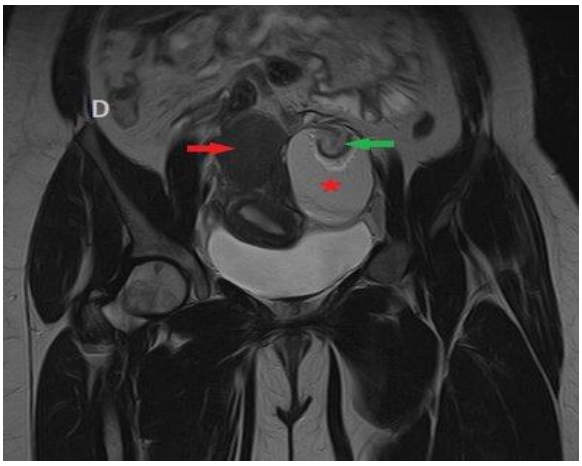

Figure-D: Coronal T2-weighted image showing shading sign in endometrioma (red arrow) and the mixed to high signal teratoma (red start) with Rokitansky protuberance (green arrow).

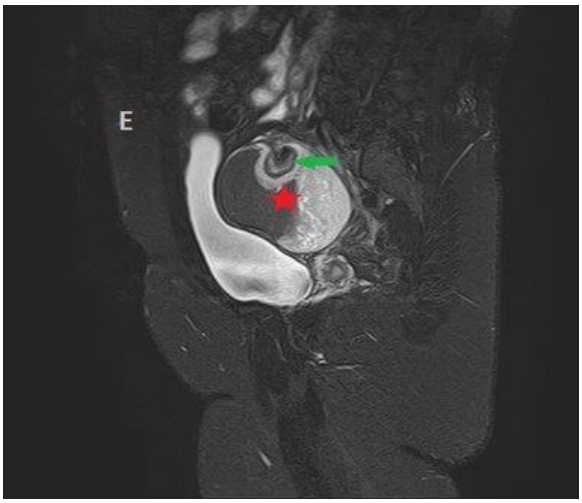

Figure-E: Sagittal STIR showing suppression of fat signals in teratoma (red star) with Rokitansky protuberance (green arrow).

DISCUSSION

Both MCT and endometrioma are relatively common benign ovarian pathologies, yet their simultaneous presence in the same ovary is an infrequent phenomenon. Uptill now, a few cases have been reported. Therefore, it is more challenging to distinguish ovarian endometrioma from malignancy when it coexists with teratoma, as this is uncommon. Ferrario *et al*. carried out a salpingo-oophorectomy on a 23-year-old female patient in 1960 after both pathologies were inadvertently discovered in the same ovary.[4] Similar cases were reported by Frederick *et al*.[5] in 2003, Chen *et al*. in 2013, Taylor *et al*.[6] in 2014, Wagner *et al*.[7] in 2015 and Hwang *et al*.[8] in 2018.

First, Matalliotaki *et al*. assessed the correlation between endometriosis and benign

gynecological tumors in a group of 1,000 endometriosis-affected women.[9] They demonstrated that in 1.5% of endometriosis-affected women, MCTs were discovered. 7.5% (6/80) of the women had both endometriosis and MCTs, according to their research. Another study assessed the frequency of endometriosis in females suffering from fully developed cystic ovarian tumors and examined the clinicopathologic characteristics of this phenomenon.[2]

As consistent with out patients's demographics, previous research has shown that participants in those studies were generally in the reproductive age range, which is between 22 and 35 years old. As observed in our patient, endometriosis tends to occur more frequently on the left side rather than the right. The sigmoid colon's barrier function has been used to explain the hypothesis behind this claim.[10,11] Additionally, it has been noted that women who have endometriomas and cystic teratomas frequently have elevated serum levels of CA-125. Contrary to this, CA-125 levels were found to be normal in our patient. Dysmenorrhea, which was observed in our patient, is the most typical symptom in individuals with a mature cystic teratoma and endometriosis.[2]

The coexistence of two pathology tumors in the same ovary poses a significant diagnostic challenge for radiologists, despite advancements in technology. When diagnosing MCTs, ultrasonography has been the method of choice. According to one study, transvaginal ultrasonography had a 57.9% sensitivity and a 99.7% specificity for diagnosing cystic teratomas.[12] On USG, MCT can occasionally be difficult to differentiate from hemorrhagic cysts, mucinous cystic neoplasms, and endometriomas. MRI is crucial to the diagnosis in these situations.

Magnetic resonance imaging (MRI) and transvaginal ultrasonography (USG) are the imaging modalities most frequently used to diagnose endometriosis. Furthermore, transvaginal USG has become the standard technique for imaging evaluation. According to research by Mais *et al*., transvaginal USG has an 88% sensitivity and a 90% specificity in differentiating endometriomas from other ovarian masses when it uses a characteristic ultrasonographic feature: A spherical, homogeneous hypoechoic "tissue" that is characterized by low-level echoes inside the ovary.[13] If there is a suspicion of malignancy or when the ultrasonographic results are unclear, an MRI is typically ordered for endometriosis. In their study, Hottat *et al*. studied the sensitivity and specificity of MRI imaging in the preoperative evaluation of endometriosis, finding that they were 96.3% and 100%, respectively.[14]

The risk of rupture and leakage of cysts is higher with laparoscopy than with laparotomy, according to studies comparing the two procedures. The risk of intra-operative leakage is higher with laparoscopic cystectomy (40–50%) than with laparotomy with cystectomy (10–15%). It has been reported that spillage of the contents following intraoperative teratoma rupture is linked to adhesion formation and chemical peritonitis, both of which can result in infertility.[15] Because of this, in our case, a laparotomy was carried out due to the patient's young age and being unmarried. The left adnexal mass was resected, confirming the presence of both an endometrioma and a teratoma through histopathological analysis which underscored the importance of utilizing multiple imaging modalities to achieve an accurate pre-operative diagnosis. We believe that this study will contribute valuable insights to the existing literature regarding this topic.

CONCLUSION

In conclusion, the simultaneous presence of both MCT and endometriosis within the same ovary is a rare occurrence among women of reproductive age, yet it presents a significant diagnostic and treatment challenge due to limited research in this area. Recognizing the possibility of concurrent endometriosis in women with MCTs who experience dysmenorrhea is crucial based on available evidence. Moreover, in cases of large cysts or worsening menstrual cramps, a surgical approach may be preferable over conservative management for optimal diagnosis and treatment. However, further investigation is warranted to better understand the underlying pathophysiology, prevalence, and associated risk factors, which will help healthprofessionals develop more effective treatment strategies.

Conflict of interest

None

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