

## Ovarian mature cystic teratoma with malignant transformation and fistula formation into ascending colon: an unusual presentation of a dermoid cyst

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### ABSTRACT

Mature cystic teratoma of ovarian origin in postmenopausal female is an unusual differentiation. It is usually a straight forward diagnosis on imaging due to its fat and calcified contents. Here we present how a malignant transformation in mature cystic teratoma causing fistulous communication with bowel loops makes the diagnosis difficult even after using almost all the imaging modalities in the patient's workup and subsequently how it was managed surgically.

**Keywords:** Mature cystic teratoma, Ovarian dermoid cyst, Malignant transformation, Fistula

### INTRODUCTION

Mature ovarian cystic teratomas are benign ovarian germ cell tumors that mainly affect young females. The detection of a cystic ovarian lesion with calcification and fat as seen on radiology confirms the diagnosis. However, at times due to associated complications, less typical radiological features are seen, which pose a difficulty in making an accurate diagnosis.<sup>1</sup>

Malignant transformation is relatively rare (1-2%) but can be seen in perimenopausal women. The most common histological type is squamous cell carcinoma. The formation of a fistula is another rare complication seen in such cases.<sup>2</sup>

### CASE REPORT

A 57-year-old post-menopausal female, para two living two, got admitted with complaints of loss of appetite for two months, weight loss for one month, lower abdominal

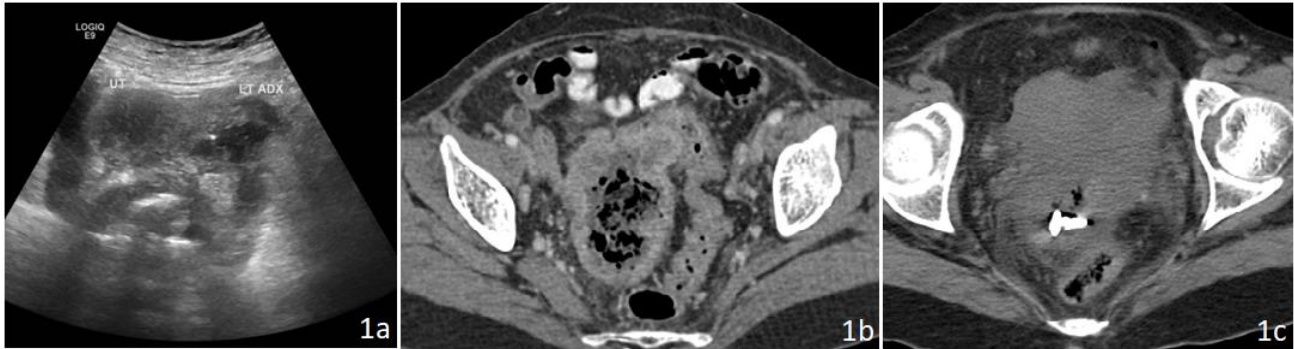
pain for 15 days, inability to tolerate solid food for ten days. She had neither post-menopausal bleeding nor family history of cancer. On examination, a fixed suprapubic mass of 16 weeks size of pregnant uterus was felt per abdomen. Pelvic ultrasonography was suggestive of 11x10x8 cm solid cystic mass in the pelvic cavity suggestive of ovarian neoplasm with a normal uterus.

A computed tomography (CT) scan of the abdomen and pelvis with oral and intravenous contrast which showed a right adnexal lesion measuring 9.5x5.7 cm containing necrotic area and close to the bowel loops with loss of fat plane suggestive of a doubtful fistulous communication. A left adnexal lesion measured 11.5x5 cm in size and contained septae, necrotic area, and air foci close to the rectosigmoid bowel loop. Both ovaries did not seem to be separate from the lesion. Based on these findings, the radiologist suspected a tubo-ovarian mass of infective etiology involving adjacent bowel loops. The remote possibility of neoplastic etiology was also considered.

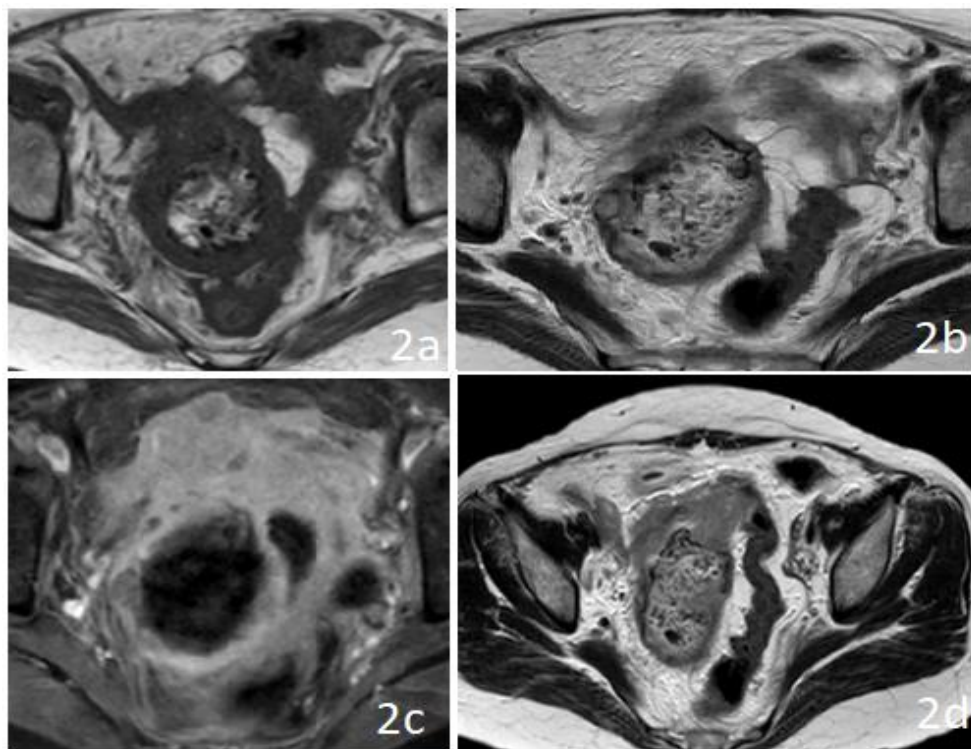
In addition, she had raised carbohydrate antigen 125 (CA125; 73 U/ml; normal <35 U/ml), normal levels of carcinoembryonic antigen (CEA; 1.8 ng/ml; normal <3.8 ng/ml) and carbohydrate antigen 19.9 (CA19.9; 7.37 U/ml; normal <39 U/ml).

Furthermore, pelvic contrast-enhanced magnetic resonance imaging (MRI) was done and correlated with above CT findings. It showed right-sided 9.1x6.1x6.4 cm

pelvic collection with gas within which had a thick enhancing wall, with possible calcific foci within the lesion. It had a communication with the ileocecal junction. Multiple reactive lymph nodes were seen on the scan with regression in the left-sided collection. Likely etiology suggested was inflammatory or infectious, with a rare possibility of neoplasm.



**Figure 1: (a) Transabdominal ultrasonography showing a hypoechoic mass with ill-defined echogenic foci with distal shadowing could represent air or calcification within the mass; (b and c) show contrast-enhanced axial CT scan. Heterogeneously enhancing ill-defined soft tissue density mass seen in the pelvis with necrotic areas; tooth-like structure and air foci within the mass, secondary to possible fistulous communication with the large bowel loop.**



**Figure 2: (a) Findings of MRI images. Pre-contrast T1 weighted shows heterogeneous signal intensity mass with surrounding hypointense rim and peri-lesional fatty stranding, the T1 hyperintense areas within the mass could represent fatty density, (b) is a T2 weighted image shows hyperintense areas within the mass with fistulous communication with a large bowel loop, (c) is a post-contrast T1 weighted image showing peripheral rim enhancement with central non enhancing areas and (d) is a T2 weighted image showing communication of the pelvic mass with ileocecal bowel loops.**

As malignant transformation of a dermoid is rare, the above findings of air foci containing ovarian mass with such clinical picture led to a diagnostic dilemma. It led us to believe that we are dealing with two separate entities: an ovarian mass and intestinal malignancy.

Further management was planned with staging laparotomy. We noted a pelvic mass measuring 12x8x8 cm in size, forming a fistulous communication with the ascending colon, adherent to the rectosigmoid bowel loops. Additionally, the mass was adherent to omentum but without any ascites. Pre-operative intraperitoneal rupture of the pelvic mass was noted by freely lying calcified tissue in the pelvis. Based on the laparotomy findings, the surgical oncology team performed the posterior pelvic exenteration. It consisted of low anterior resection of the rectum, hysterectomy with bilateral adnexectomy, omentectomy, pelvic lymphadenectomy, and right colectomy with anastomosis between distal ileum and ascending colon (circular, stapled, side to side, isoperistaltic ileocolic anastomosis) and formation of loop ileostomy. There was an operative spillage of the tumor from its right-sided wall, consisting of thick, foul-smelling fluid with hair and calcified tissue (teeth).

The postoperative course was uneventful. The patient was discharged on the 14th postoperative day. The histopathologic examination showed the mature ovarian teratoma with a poorly differentiated squamous cell carcinoma (SCC) component, ulcerating the adjacent ascending colon and infiltrating the submucosa of the sigmoid colon. No lymphovascular invasion was noted in the final specimen.

The patient is currently on adjuvant chemotherapy (paclitaxel 175 mg/m<sup>2</sup> =240 mg; carboplatin 425 mg).

## DISCUSSION

Mature cystic teratoma or ovarian dermoid cysts are the most common benign ovarian tumors, accounting for about 20-30% of all ovarian tumors.<sup>2</sup> They originate from the germ cell line. They are relatively common during reproductive years, but at times can also be seen in postmenopausal women. They present with few nonspecific symptoms (pelvic pain, pelvic mass, urinary symptoms). At times, they are detected incidentally on an imaging study.

Ultrasound can either show fat-fluid or hair-fluid levels with dots or lines representing hair in transverse or longitudinal plain or a hypoechoic cyst with an echogenic nodule in the wall (Rokitansky nodule). In CT-scan, the presence of fat-fluid levels and calcifications is pathognomonic. Most often, dermoid cyst contains fat, calcifications, and tissue structures. MRI is reserved for difficult cases and is more sensitive to fat components. It can reliably identify solid invasive components in cases of malignant transformation.

The main complication is torsion, rupture and malignant transformation being uncommon. The formation of fistulas or invasion into the neighboring organs (small bowel, sigmoid, rectum, bladder, or vagina) is extremely rare for this tumor (less than 1%).<sup>3</sup> The malignant transformation is seen in 1-2% of cases, mostly in perimenopausal women when the lesion is more than 10cm.<sup>2</sup> The symptoms associated with malignant transformation are not specific, often detected as hypogastric pain or a pelvic mass. Squamous cell carcinoma is the most frequent malignancy arising from mature cystic teratoma (80- 90%), followed by adenocarcinoma (5%) and sarcoma (5%).<sup>2</sup> In advanced cases of malignant transformation, there may be contact with other adjacent pelvic organs, or even, as in our case report, a digestive fistula with the ascending colon.

In the Gynecologic Cancer InterGroup consensus, optimal debulking surgery (total abdominal hysterectomy, bilateral salpingo-oophorectomy, and omentectomy) is supported in patients with ovarian squamous cell carcinoma.<sup>4</sup>

Although the dermoid cyst is a benign tumor, due consideration should be given to the risk of malignant transformation. This case report describes an unusual presentation of a dermoid cyst with malignant transformation and ascending colon fistula. The initial doubt of it being an intestinal malignancy was eliminated after an exhaustive assessment and multidisciplinary management, thus drastically changing the treatment strategy.

## CONCLUSION

When dealing with an ovarian dermoid cyst, the chances of malignant transformation should be kept at the back of the mind, especially when the patient presents with atypical symptoms.

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