



Case report

Ruptured mature ovarian teratoma: A case report

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ABSTRACT

Introduction: Dermoid cysts, or also known as mature cystic teratomas, are one of the most common benign ovarian tumors. Spontaneous rupture of this tumor is rare and can be suspected on imaging.

Case report: we report a case of ruptured mature ovarian teratoma. A 21 years old previously healthy woman presented with recurrent pelvic pain, the diagnostic of rupture was made by imaging. The patient underwent surgery with a good follow up.

Discussion: Dermoid cysts are the most common benign ovarian neoplasm and its rupture is rare due to its thick capsule. Imaging has a major role in the diagnosis of dermoid cyst and in the detection of its rupture. CT scan is the most requested modality imaging especially in acute abdominal pains. MRI can performed for further characterization.

Conclusion: the aim of the study is to report a new case of ruptured mature ovarian teratoma and to describe the imaging signs suggesting dermoid cysts rupture.

1. Introduction

Dermoid cysts, or also known as mature cystic teratomas, are one of the most common benign ovarian tumors [1]. It occurs at any age, mostly among young women [2]. Dermoid cysts have insidious growth and are often incidental findings on imaging [3]. Spontaneous rupture is rare, occurring in 1 to 2 % [4,5]. Herein, we report the case of a ruptured dermoid cyst in a 21-year-old woman who presented with recurrent pelvic pain. The objectives of this report is to describe the imaging signs suggesting dermoid cysts rupture. This case report was prepared in accordance with the SCARE guidelines [6].

2. Case report

A 21 years old, virgin, nulliparous, unmarried woman, with no particular medical history. She had regular cycles, presented with recurrent chronic, pelvic pain not related to her menstrual cycles, calmed by paracetamol. She didn't report any intercourse the patient denied history of malignancy in family. Physical abdominal examination revealed pelvic tenderness with no other particularities. Per vaginal

examination wasn't done. At admission, the peripheral blood test indicated a hemoglobin at 12.5 g/dl (12–16 g/dl), increased total white cells count 11,000/ mm³ (normal value: 4000–10,000/mm³). C Reactive protein, 20 mg/ L (normal value <6 mg/ L). An abdominal ultrasound revealed a multilocular cystic mass of the left ovary that measured 90 × 80mm (Fig. 1).

CT scan revealed a left ovarian mass with fat and calcifications associated with ascites and multiple collections. A unilocular cyst of the right ovary, measured 80 × 50 mm, was also noted (Fig. 2).

A pelvic MRI was therefore performed, confirming the presence of this multilocular left ovarian cyst measuring 90 × 65 × 54mm. It showed a heterogeneous signal with presence of a fatty component, calcifications and fluid density areas consistent with a dermoid cyst (Fig. 3). It associated with multiple collections and diffuse fat stranding suggestive of partial rupture of the dermoid cyst.

The patient underwent surgery. An abdominal transverse incision was done (Pfannenstiel incision). Laparotomy revealed clear, yellowish ascites with fat droplets, partial ruptured left ovarian dermoid cyst with widespread adhesions to the anterior abdominal wall. Left and right ovarian cystectomy were done. Adhesiolysis was performed. Uterus and

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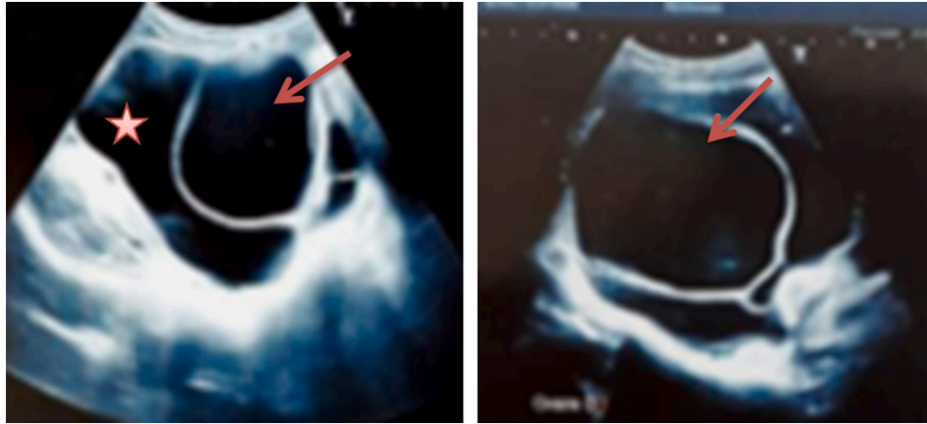


Fig. 1. Ultrasonography: multilocular cystic mass of the left ovary (arrow) with ascites (star).

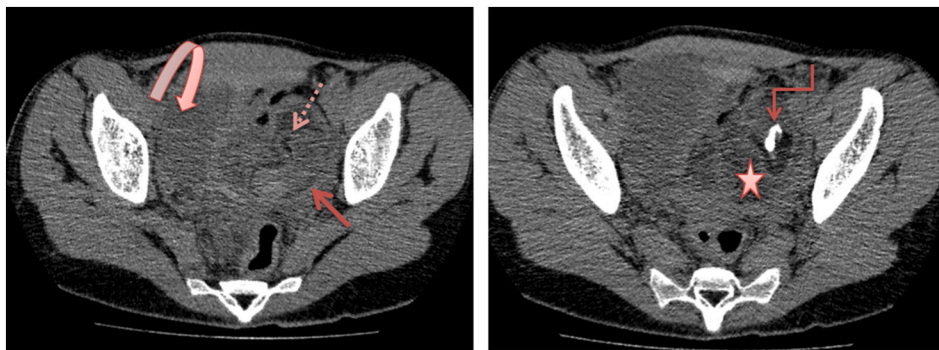


Fig. 2. Axial CT: heterogeneous left ovarian mass (arrow) with fat (discontinued arrow), calcifications (angled arrow) associated to fat stranding (star). Note the cystic mass of the right ovary (curved arrows).

the bowels were found to be normal. Peritoneal lavage was given. Microscopic examination shows several types of mature tissues of the left ovarian cyst (Fig. 4): squamous epithelium, pilosebaceous follicles, smooth muscle and cartilage. No mitosis was observed. The right ovarian cyst was a functional one. At the time of this report (3 years after the operation) the patient was well without tumor recurrence, although careful follow up is required with ultrasound and CT.

3. Discussion

Dermoid cysts are the most common benign ovarian neoplasm counting to 10–25 % [1,7]. Histologically, they are cysts that are lined by an epidermic-like epithelium and contains a variable admixture of elements of three cell lines: meso-, endo- and ecto-dermal derivatives including sebaceous, hair, teeth, or fat [8,9].

They are characterized by a slow and insidious growth pattern causing often a diagnosis delay. Symptomatic dermoid cysts have often a large size or are complicated. This latter circumstance remains rare and the main complications are torsion (16 %), malignant degeneration (2 %), rupture (1–2 %) and infection (1 %) [1,2,10,11].

Spontaneous rupture of an ovarian dermoid cyst is rare due to the usually thick capsule [12]. In this case two clinical presentation may occur: the first is acute peritonitis and a sudden release of tumor contents. The second, more frequent [13], is chronic granulomatous peritonitis, like in our case, resulting from chronically leaking contents. That causes adhesions, multiple peritoneal implants and ascites [12].

In young women, the rupture is often associated to a torsion or in conjunction to pregnancy, potentially from changes of position of the ovaries. In the other hand, in post-menopausal period, a malignant transformation can cause the rupture of the cyst [10]. In literature, 16 %

of cases of ruptured dermoid cysts in post-menopausal period are due to malignant transformation.

The size of the dermoid cysts can also a main factor for rupture. The average size in literature is 11 cm ranging from 6 to 30 cm [7,10,12,14]. In our case the cyst measured 9 cm.

Dermoid cyst has a wide spectrum of radiological presentation. The most common ultrasound finding is a cystic mass with a densely echogenic nodule (known as Rokitansky nodule) projecting into the cystic lumen; this nodule often contains tooth, hair, bony structures or sebaceous components. Other common US manifestations include a diffusely or partially echogenic mass demonstrating sebaceous material and multiple thin echogenic bands caused by the presence of hair in the cyst cavity [15]. Typically CT images demonstrate fat, fat fluid level, calcification, rokitansky protuberance, and tufts of hair. At MR imaging, both fat suppression techniques and chemical shift artifact can be used to confirm the presence of fat. Medical imaging has sometimes difficulty in detecting a ruptured dermoid cyst, particularly when it is a small cyst wall discontinuity [16,17]. It can be suggested when demonstrating discontinuity of the cyst wall, when a flattened or distorted tumor shape are noted in the presence of ascites and extratumoral fatty nodules [15]. CT scan is the most requested modality imaging especially in acute abdominal pains. MRI can be performed for further characterization. Acute or chronic peritonitis can manifest as ascites, diffuse or focal omental infiltration, perilesional fat stranding, fatty fluid in the peritoneal cavity and intra-peritoneal fat implants [10,18,19]. These findings mimic peritoneal carcinomatosis and tuberculous peritonitis. Therefore, when these imaging findings are accompanied by an ovarian teratoma, the possibility of rupture should be kept in mind and the integrity of the tumor wall should be carefully evaluated.

The majority of cases can be managed with laparoscopy or

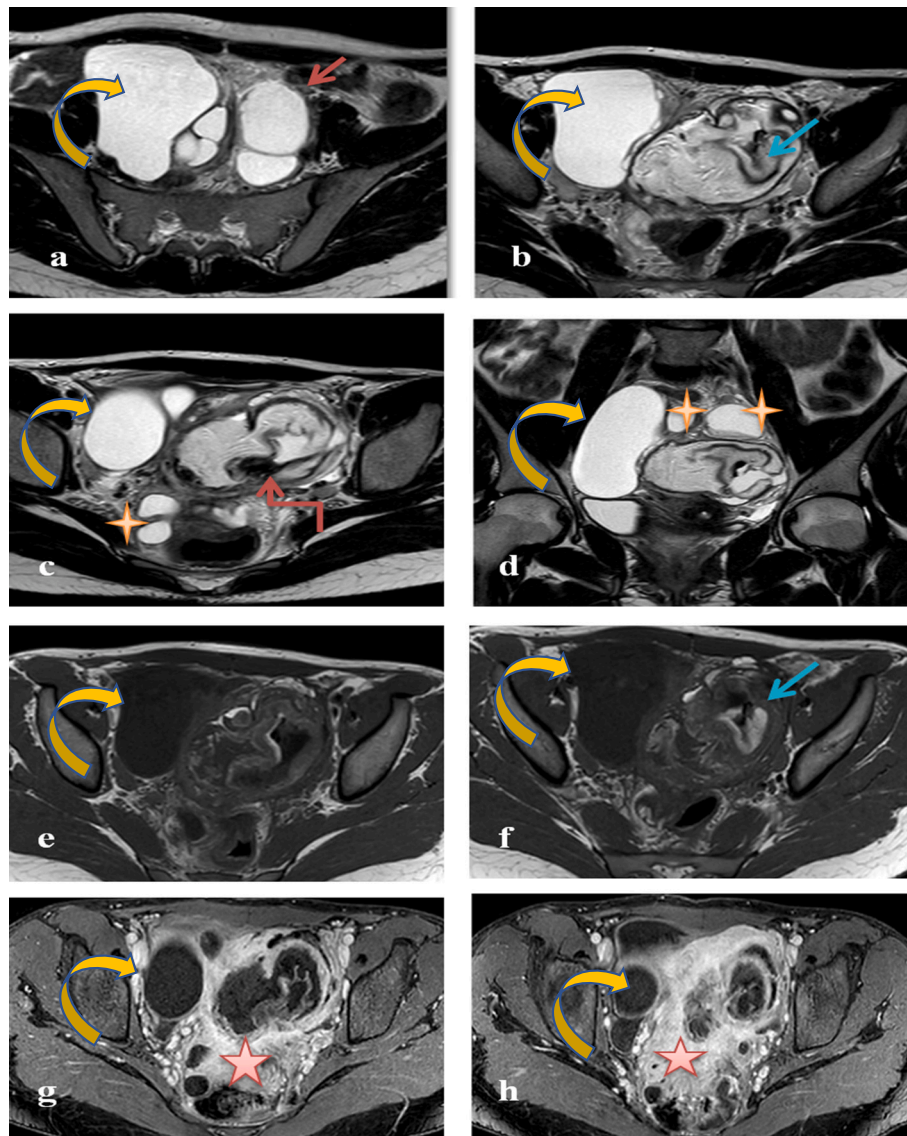


Fig. 3. Pelvic MRI: axial T2W (a,b,c) and coronal T2W (d), T1W (e–f) and T1 with fat saturation and gado: left sided mass with fat areas (blue arrow) and calcification (angled arrow) associated to diffuse fat stranding with intense enhancement (red star) and multiple collections (orange star). Note the cystic mass of the right ovary, classified O-RADS 2(curved yellow arrows).



Fig. 4. Macroscopic finding of left ovarian dermoid cyst.

laparotomy with often no particular complication. In literature, only one case had residual dermoid fat implants in post-surgery [20]. Kuo et al. [21] report an asymptomatic case of ruptured dermoid cyst, 4 years post-surgery, there was still residual dermoid implants seen on a CT scan. There was also a case of recurrence of dermoid mass up to 17 years post-surgery with abdominal pain and fever requiring further surgical intervention [22]. A rare case has reported the resolution of symptoms of a ruptured dermoid cyst without surgery; instead, it was treated with a nonsteroidal anti-inflammatory for pain [23].

4. Conclusion

Dermoid cysts rupture remains a very rare complication. It occurs often idiopathically due to a large size but pregnancy, torsion and malignant transformation can also lead to the cyst rupture. They can be detected with imaging especially CT scan that makes in one hand the diagnosis of dermoid cyst and can track, in the other hand, the signs of its rupture. Laparotomy is still the corner stone of surgical management of ruptured dermoid cysts. Laparoscopy can be preferred when complications are still in early stages.

Source of finding

None.

Ethical approval

I declare on my honor that the ethical approval has been exempted by my establishment.

Consent

Written informed consent was obtained from patients to publish this report in accordance with the journal's patient consent policy.

Guarantor

Not applicable.

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Ines MAZHOU resources, collecting the data
Wissal SKHIRI writing original draft
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Declaration of competing interest

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