



## ATYPICAL MRI FINDINGS OF A TYPICAL OVARIAN DERMOID CYST-A RARE CASE REPORT

### Radiology

**Dr. Yash Narendra Jain**

Junior Resident, Department Of Radiodiagnosis

**Dr. Gowtham Gowda A. G**

Professor And Hod, Department Of Radiodiagnosis

**Dr Aishwarya K. C**

Department Of Radiodiagnosis

**Dr Shantkumar Sajjan\***

Senior Resident, Department Of Radiodiagnosis \*Corresponding Author

**Dr. Harshashree U**

Junior Resident, Department Of Radiodiagnosis

### ABSTRACT

Ovarian dermoid cysts, also known as mature teratomas are most common benign ovarian tumours, with a slow growth rate commonly seen in adults and adolescent female. They are mostly asymptomatic, incidentally detected and may present with associated complications such as torsion, rupture, malignant transformation, and infection. These cysts are often evaluated using one of the following imaging techniques: computed tomography, magnetic resonance imaging, pelvic ultrasonography, or transvaginal ultrasound. Although they generally have a typical radiological appearance, sometimes there can be atypical presentations and cause a diagnostic dilemma. In this case report one such atypical radiological appearance of dermoid cyst is discussed.

### KEYWORDS

Dermoid cyst, mature teratoma, ovarian tumour.

### INTRODUCTION:

Ovarian diseases and problems cause concern and apprehension in patients because these problems may affect their fertility. One of the most common ovarian problems is the presence of ovarian cysts. Ovarian cysts are diverse and dermoid cyst is one of the ovarian cysts.<sup>1</sup> Ovarian dermoid cysts, or mature cystic teratomas (MCT), are the most common benign ovarian tumour in adults and adolescents. They make up 70% of benign masses before menopause and 20% post-menopause.<sup>2</sup> They are characterized by adult ectodermal, mesodermal, and endodermal tissue and can contain skin, hair, teeth, fat and muscle, and even thyroid and brain tissue. When an MCT contains primarily ectodermal tissue, it is described as a dermoid cyst. Usually, they are benign looking ovarian lesions which are diagnosed on USG, CT and MRI of which MRI is superior and more specific modality of investigation.

We present a rare case of an atypical appearance of dermoid cysts, which was a diagnostic dilemma until surgically operated.

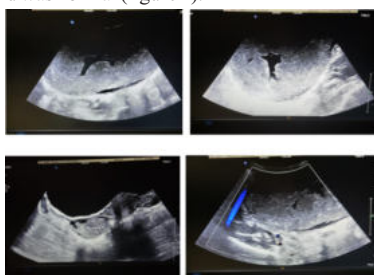
### MATERIALS AND METHODS:

#### Case presentation:

A 25-year-old, pre-menopausal woman presented with complaints of dull aching pain abdomen and abdominal distention for 6 months. On examination – Patient was moderately built and nourished. A large pelvic mass was palpable which was soft in consistency. No other significant relevant clinical history. Patient was referred to department of radiology for further evaluation.

#### Usg:

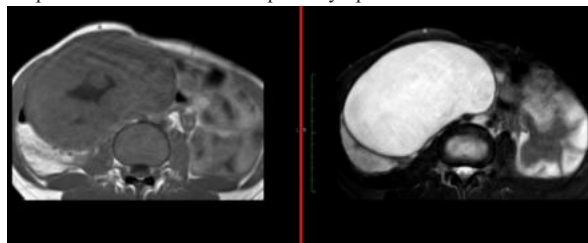
A large, thin walled, predominantly echogenic, solid - cystic mass lesion noted in the left adnexa with central hypoechoic area. It showed mild peripheral vascularity and no internal vascularity. The lesion was likely arising from the left ovary as it could not be visualized separately. Mild free fluid seen in the POD. Right ovary was visualized separately and was normal (figure 1).



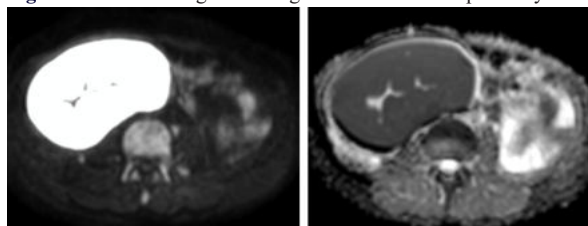
**Figure 1:** Ultrasound of the patient.

#### Mri:

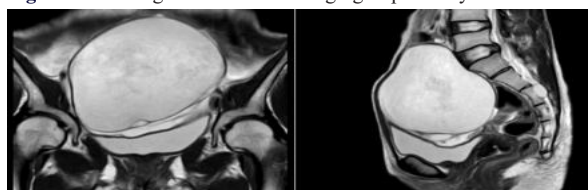
A large well defined, thin walled, solid- cystic pelvic mass lesion, likely arising from the left ovary. The lesion appears iso to hypointense on T1WI with central hypointense area and homogeneously hyperintense on T2WI and STIR images (figure 2). On DWI, the lesion showed intense restriction of diffusion with corresponding drop on ADC (figure 3). Lesion showed no drop in signal intensity on T1 fat suppressed images. Lesion showed only mild peripheral enhancement (figure 5). Inferiorly, the lesion was related to the superior wall of the bladder and posteriorly to the sigmoid colon. Fat planes with the surrounding structures were well maintained. Part of the left ovary was visualized at the inferior aspect of the lesion. Mild free fluid noted in the pelvis. Few sub centimetric pelvic lymph nodes were noted.

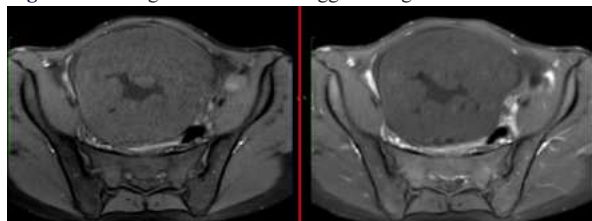


**Figure 2:** A and B images showing T1WI and T2WI respectively.

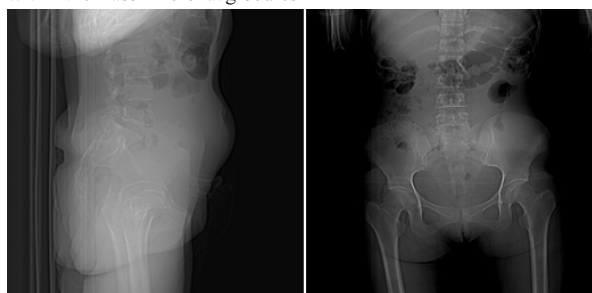
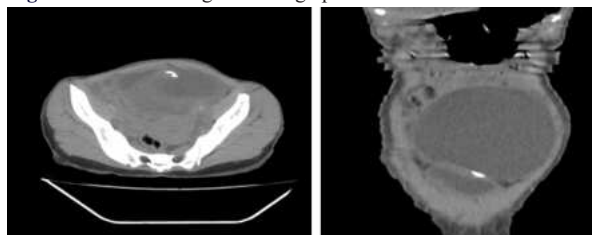


**Figure 3:** showing DWI and ADC imaging respectively.

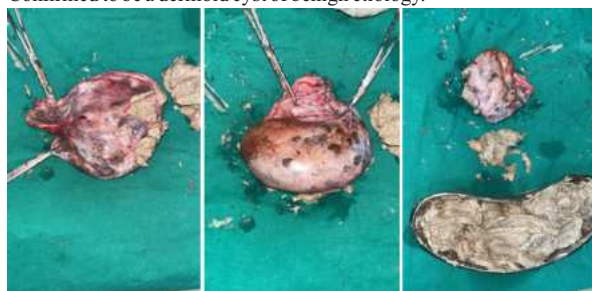


**Figure 4:** T2 weighted coronal and sagittal images**Figure 5:** showing T1fs PRE and T1fs POST images respectively.**Ct:**

On scout images, a pelvic mass could be appreciated, displacing the bowel loops superiorly. On axial and coronal reformatted CT images, there was a large well defined hypodense lesion with evidence of a calcific focus (HU 1200 to 1400) in the inferior aspect of the lesion. There were also few tiny areas of fat attenuation (HU -10 to -40) seen within the mass-Micro fat globules

**Figure 6:** CT scout images showing a pelvic mass**Figure 7:** Non enhanced CT axial and coronal reformatted images showing calcific focus.**Intra operative:**

Large ovarian cyst with sebaceous material, hair and calcifications was found arising from the left ovary. Cystectomy was performed. HPE – Confirmed to be a dermoid cyst of benign etiology.

**Figure 8:** Intra operative specimen – Cyst filled with fluid and mucinous material.**DISCUSSION:**

Mature cystic teratomas are composed of adult ecto-, endo-, and mesodermal tissue, which includes a variety of components such as the teeth, skin, muscle, fat, hair, and even thyroid and brain tissues. The term "dermoid cyst" is used to characterize MCTs when the main tissue is ectodermal in origin. Imaging is crucial to the detection of an ovarian cyst because of the high chance that it will remain undiscovered.<sup>2</sup> 10%–25% of all ovarian tumours are dermoid cysts, which are classified as benign germ cell tumours. Bilateral involvement is seen in 10%–15% of cases. Conversely, struma ovarii is a kind of dermoid cyst that is characterized as a monodermal teratoma that is mostly formed of either macroscopically identifiable MCT components or thyroid tissue (over 50%). Approximately 2.7% of all ovarian teratomas are of

this type, and approximately 0.3% to 10% of all struma ovarii tumours undergo malignant development.<sup>3</sup> Malignant Transformation (MT) is uncommon and challenging to identify before surgery. Postoperative diagnoses are typically determined following a histological analysis.<sup>4</sup> The typical growth rate of dermoid cysts in premenopausal women is estimated to be 1.8 mm/year, which is a very modest growth rate. As a matter of fact, ovarian teratomas have been ruled out as a diagnostic possibility if an ovarian tumour grows more quickly than 2 cm annually.<sup>5</sup> Torsion, distension or pain in the abdomen, infection, vaginal bleeding, nausea, vomiting, rupture, and, in rare cases, active hormone production are some of the complications associated. The risk of torsion increases with the size of the cyst.<sup>6</sup>

Typically, dermoid cyst on USG, CT and MRI has a characteristic appearance however, in the present case the findings are atypical.

**CONCLUSION:**

Ovarian dermoid cysts, while mostly benign, do have the potential to cause serious health issues if untreated in the early phases. However, as demonstrated in this case, they can have atypical imaging features and may mimic a malignant lesion. The earlier a dermoid cyst is found, the lower the morbidity for the patient. While a definitive diagnosis may not be possible with a single modality, correlating the appearance on different modalities with clinical and biochemical correlation can help as arrive at a diagnosis.

**REFERENCES**

1. Mansouri, A., Sadeghi, M., Kianifar, F., Momeni, K., & Zafarghandi, M. (2024). Reporting a Rare Case of an Ovarian Dermoid Cyst Containing Intestine. *Journal of Babol University of Medical Sciences*, 26.
2. St. Louis, M., Mangal, R., Stead, T. S., Sosa, M., & Ganti, L. (2022). Ovarian dermoid tumor. *Cureus*.
3. Park, C.-H., Jung, M.-H., & Ji, Y.-I. (2015). Risk factors for malignant transformation of mature cystic teratoma. *Obstetrics & Gynecology Science*, 58(6), 475.
4. Kaur, N., Sehgal, A., Rani, S., & Pandher, D. K. (2021). Predicting malignancy in dermoid cyst: A case report and literature review. *Indian Journal of Obstetrics and Gynecology Research*, 8(3), 424–427.
5. Deguchy, Q., Jr, Fananapazir, G., Corwin, M., Lamba, R., Gerscovich, E., & McGahan, J. (2017). Benign rapidly growing ovarian dermoid cysts: A case series. *Journal of Diagnostic Medical Sonography: JDMS*, 33(1), 71–74.
6. Deeksha, H. S., Pajai, S., Patel, D. J., Navalihiremath, V. U., & Jyotsna, G. (2024). Unraveling the enigma: A case report on unilateral ovarian dermoid cyst. *Cureus*.