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The Worrisome Nodule That Wasn't: MRI Characterization of a Mature Cystic Teratoma with Rokitansky Nodule

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ABSTRACT

Mature cystic teratoma is the most common benign ovarian germ-cell tumor and typically exhibits characteristic imaging features that allow confident diagnosis. However, the presence of a Rokitansky nodule may occasionally raise concern for malignant transformation. We report the case of a 42-year-old woman in whom pelvic ultrasound revealed a left adnexal cystic mass. Pelvic MRI demonstrated a fat-containing ovarian lesion with a mural Rokitansky nodule showing enhancement and diffusion restriction but without imaging features suggestive of malignancy. The lesion was classified as O-RADS MRI 2 and diagnosed as a mature cystic teratoma. This case highlights the value of multiparametric MRI in distinguishing benign dermoid cysts from lesions requiring more aggressive management.

KEYWORDS :

Mature cystic teratoma, Dermoid cyst, Rokitansky nodule, O-RADS MRI, Magnetic resonance imaging.

MAIN ARTICLE

INTRODUCTION

Mature cystic teratomas, also known as dermoid cysts, are the most common benign ovarian germ-cell tumors and account for approximately 10–20% of all ovarian neoplasms. They are composed of tissues derived from one or more embryonic germ layers and typically contain fat, sebaceous material, hair, and calcifications [1,2].

Magnetic resonance imaging (MRI) plays an important role in characterizing these lesions, particularly when atypical features are present. The identification of fat within an ovarian mass is highly suggestive of a mature cystic teratoma, whereas mural nodules may occasionally raise concern for malignant transformation [2,3].

CLINICAL PRESENTATION

A 42-year-old woman underwent pelvic ultrasonography for evaluation of a left adnexal cystic mass discovered during routine gynecological assessment.

The patient reported no significant pelvic pain, abnormal uterine bleeding, or constitutional symptoms.

Pelvic MRI was requested for further characterization of the lesion.

MRI Findings

MRI demonstrated an enlarged left ovary. It contained a well-circumscribed multiloculated cystic lesion with hyperintense signal on both T1- and T2-weighted images, complete signal suppression on fat-saturated T1-weighted sequences, confirming the presence of macroscopic fat, presence of enhancing internal septations.

A mural nodule (Rokitansky protuberance) was identified within the lesion. This nodule was restrictive on diffusion-weighted imaging and enhancing after gadolinium administration.

Based on the combination of macroscopic fat, characteristic morphology, and absence of suspicious invasive features, the lesion was classified as **O-RADS MRI 2**, consistent with a mature cystic teratoma without imaging evidence of malignant transformation.

DISCUSSION

Mature cystic teratomas are benign germ-cell tumors that most commonly affect women during the reproductive years [1]. Their diagnosis is usually straightforward when intralesional fat is identified.

MRI is particularly useful because of its superior sensitivity for detecting fat using fat-suppression techniques. Signal loss on fat-saturated T1-weighted sequences is considered one of the most specific imaging findings for mature cystic teratoma [2,4].

A Rokitansky nodule, also known as a dermoid plug, is a protuberance projecting into the cyst cavity and represents a common component of dermoid cysts. It may contain hair follicles, sebaceous glands, adipose tissue, cartilage, or other mature tissues [3].

The presence of a mural nodule can occasionally create diagnostic uncertainty because malignant transformation, although rare, usually arises from the Rokitansky protuberance. Suspicious findings include irregular margins, invasive growth, large enhancing solid components, extracapsular extension, and associated lymphadenopathy [3,5].

In the present case, despite enhancement and diffusion restriction within the Rokitansky nodule, the absence of aggressive imaging features and the typical appearance of the lesion favored a benign mature cystic teratoma. Multiparametric MRI allowed confident characterization and appropriate O-RADS MRI classification.

CONCLUSION

This case illustrates the pivotal role of MRI in the evaluation of ovarian dermoid cysts presenting with potentially concerning mural nodules. Recognition of the characteristic fat-containing nature of the lesion and careful assessment of the Rokitansky nodule allowed accurate diagnosis of a benign mature cystic teratoma and avoided unnecessary concern for malignant transformation.

FIGURES:

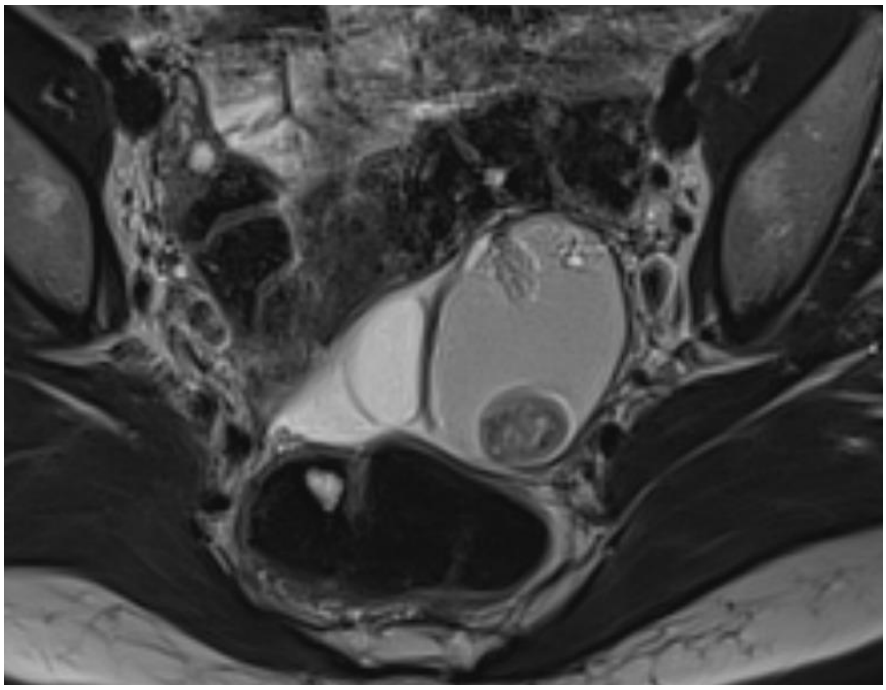

Figure 1: Axial T2-weighted MRI demonstrating a multiloculated cystic ovarian mass with internal septations.

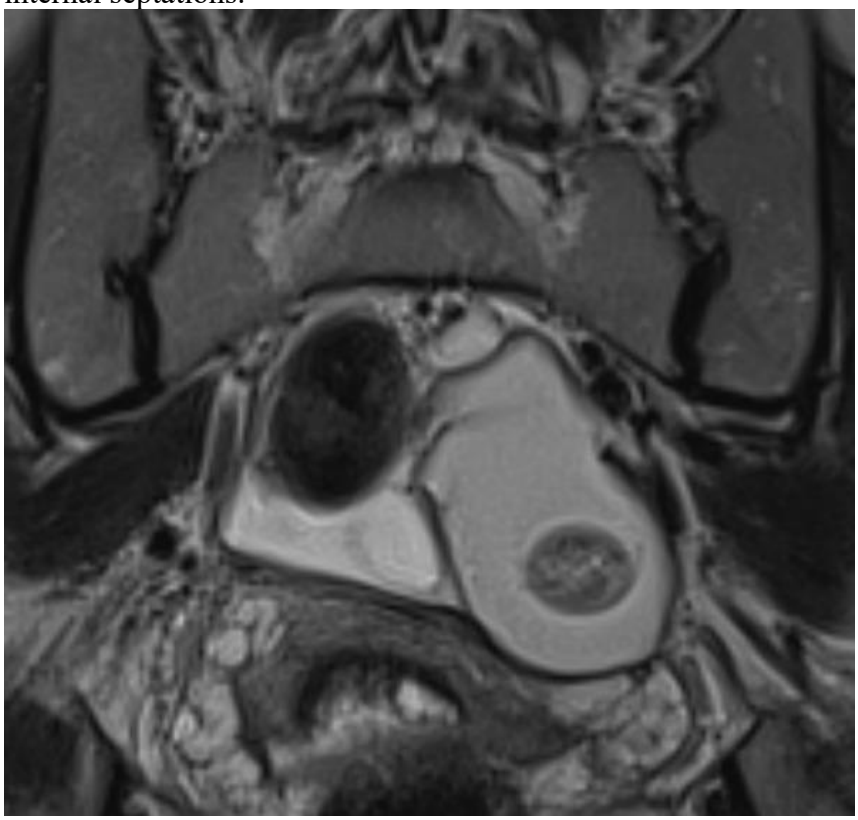

Figure 2: Coronal T2-weighted MRI demonstrating a multiloculated cystic ovarian mass with internal septations.

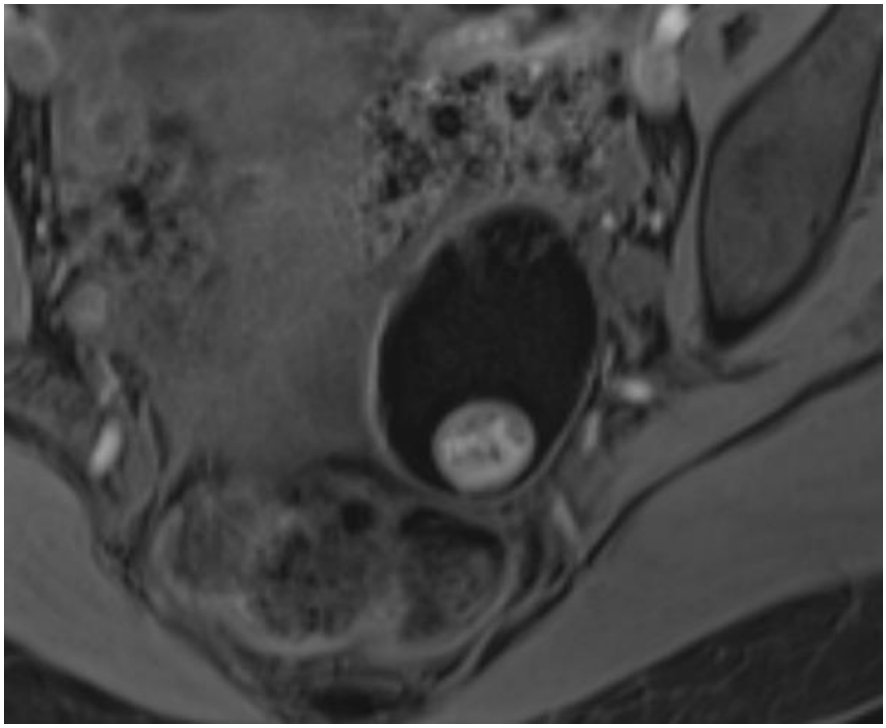

Figure 3: Fat-suppressed T1-weighted MRI showing complete signal suppression of the lesion, confirming fatty content.

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REFERENCES

[1] Murayama S, Katabuchi H. Mature cystic teratomas of the ovary: imaging findings and management. Obstet Gynecol Sci. 2022;65(1):1-10.

[2] Thomassin-Naggara I, Poncelet E, Jalaguier-Coudray A, et al. O-RADS MRI risk stratification system: updated concepts and clinical applications. Eur Radiol. 2023;33(11):7682-7694.

[3] Kido A, Togashi K. Mature cystic teratoma of the ovary: characteristic MRI findings and complications. Insights Imaging. 2021;12:155.

[4] Forstner R, Sala E, Cunha TM, et al. ESUR recommendations for MR imaging of the sonographically indeterminate adnexal mass: an update. Eur Radiol. 2024;34(3):1779-1792.

[5] Andreotti RF, Timmerman D, Strachowski LM, et al. O-RADS US and MRI: current evidence and future directions. Radiographics. 2023;43(5).