



Case 10646

Fibrothecoma of the ovary

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Section: Genital (Female) Imaging

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Patient: 70 year(s), female

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Clinical History

A 68-year-old woman was referred to our hospital to characterize a pelvic mass, an incidental finding on a routine ultrasound. A computed tomography (CT) and a magnetic resonance imaging (MRI) were performed. She was asymptomatic and laboratorial analysis was unremarkable.

Imaging Findings

Contrast enhanced CT (CECT) shows a well-defined, predominantly solid and heterogeneous pelvic mass, with mild contrast enhancement (Fig. 1).

Following the left ovarian vein to the level of the suspensory ligament, as it approaches the mass, has shown "the ovarian suspensory ligament sign", confirming the left ovarian origin (Fig. 1a). There is no attachment between the lesion and uterus (Fig. 1c), and subphrenic ascites coexists (Figs. 1d).

Pelvic MRI shows a predominantly solid tumor of the left ovary with smooth contours, demonstrating low-signal intensity on T1-weighted images (WI) (Fig. 2a) and heterogeneous, predominantly low-signal intensity on T2WI (Figs. 2b-2d). The remnant high signal intensity areas seen on T2WI are consistent with cystic areas, that are isointense to a small amount of peritoneal fluid that is depicted in the pelvic cavity (Figs. 2c-2d).

After paramagnetic contrast administration it has only mild, diffuse and slight heterogeneous enhancement (less than myometrium) (Figs. 2e-2f).

Discussion

Ovarian fibrothecomas are benign tumors arising from the stromal component of the ovary [1-3]. According to the World Health Organization classification they represent a subgroup of the granulosa-theca cell tumors, belonging to the thecoma-fibroma group.

Histologically, fibrothecomas differ slightly from fibromas, demonstrating theca-like cells [1, 4]. These tumors usually are asymptomatic. They are often an unexpected finding on imaging performed for other reason. Symptoms related to pleural effusion or peritoneal fluid (Meigs' syndrome) may occur [1, 3].

In all cases, it is fundamental to differentiate fibrothecoma from a malignant tumor and imaging plays an important role.

On ultrasound, fibrothecoma appears as a primarily hypoechoic ovarian mass with posterior wall attenuation [2]. Most tumors are solid, with smooth contours, but some of them demonstrate cystic areas [1, 2]. Color Doppler findings are variable, although most of fibrothecomas show minimal to moderate vascularization.

A fibrothecoma with atypical appearance may be mistaken for a malignancy, particularly if associated with high color content on Doppler evaluation, with ascites or raised CA 125 levels, and further evaluation is needed [2-4].

On sectional imaging, knowledge of the morphologic features and ligamentous attachments of the ovaries (particularly the suspensory ligament), the relationship of the ovary to the ureter, and the course of the ovarian vein and artery is fundamental not only for confident identification of the laterality of the lesion, but also to differentiate ovarian from non-ovarian masses [3, 5].

On CECT fibrothecomas are described as well-defined, solid, homogeneous or slightly heterogeneous lesions, with delayed contrast enhancement [2, 5].

On MRI, because of their high content in collagen, fibrothecomas have low-signal intensity on T1WI and very low-signal on T2WI, characteristics that display a relatively specific appearance [3-4].

Therefore, after analyse the relationship of the mass with ovaries and other anatomic pelvic structures, if an ovarian origin is proven and the lesion demonstrates the described signal intensity, a fibrothecoma is likely.

Nevertheless, when the diagnosis of a fibrothecoma is likely, it is important to know that the prognosis is extremely good. They are almost always benign and elective surgical resection is sufficient. Even in cases associated with ascites (Meigs' syndrome), fluid collections usually regress following surgical removal of the tumor [3, 4].

Knowledge of the anatomic relationships and of the key features of ovarian tumors, particularly of fibrothecomas, will provide the criteria for making a specific diagnosis or substantially narrowing the differential diagnosis, preventing unnecessary therapies.

Final Diagnosis

Fibrothecoma of the ovary

Differential Diagnosis List

Fibroma of the ovary, Pedunculated leiomyoma, Broad ligament leiomyoma

Figures

Figure 1 CECT images



Axial CECT image shows the left fan-shaped suspensory ligament (white arrow) joining to a large left ovarian mass, a finding known as "ovarian suspensory ligament sign".

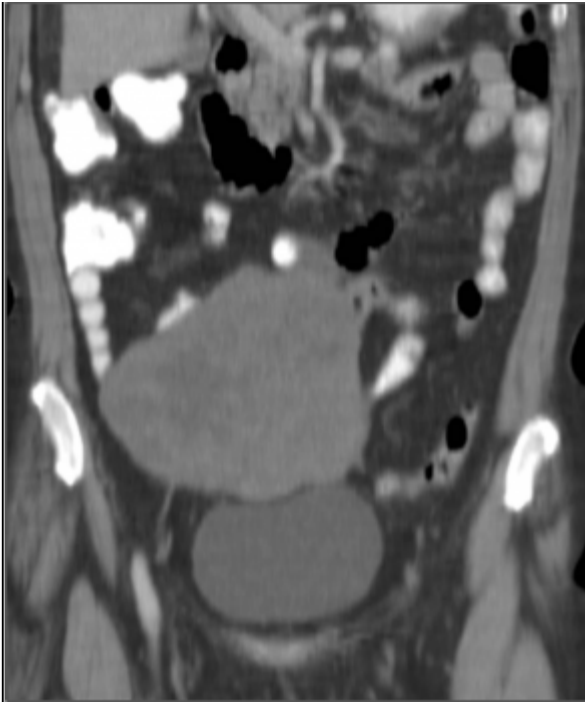
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Area of Interest: Genital / Reproductive system female;

Imaging Technique: CT;

Procedure: Diagnostic procedure;

Special Focus: Neoplasia;



Coronal CECT image shows the left ovarian large mass, predominantly solid and heterogeneous, with small areas of fluid-attenuation. Note that the mass shows mild enhancement.

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Area of Interest: Abdomen;

Imaging Technique: Absorptiometry / Bone densiometry;

Procedure: Abscess delineation;

Special Focus: Abscess;



Sagittal CECT image shows the left ovarian mass extending cranially until the level of L4 vertebra. Note that there is no attachment between the lesion and the uterine fundus (white arrow).

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Imaging Technique: CT;
Procedure: Diagnostic procedure;
Special Focus: Neoplasia;

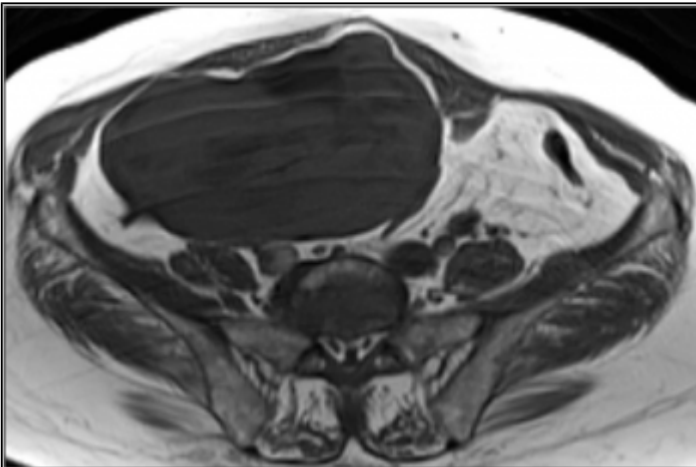


Axial CECT image demonstrates the coexistence of ascites in the upper abdomen, particularly in peri-hepatic and peri-splenic locations (white arrows).

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Imaging Technique: CT;
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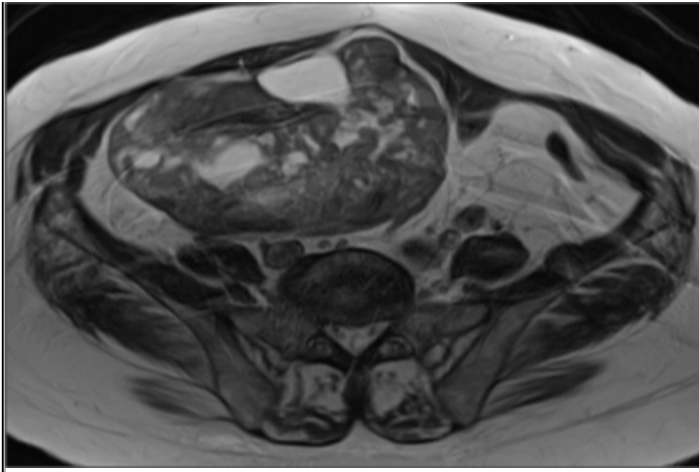
Figure 2 Pelvic MRI



Axial T1WI shows a hypointense left ovarian mass with smooth contours.

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Area of Interest: Genital / Reproductive system female;
Imaging Technique: MR;
Procedure: Diagnostic procedure;
Special Focus: Neoplasia;



Axial T2WI shows a heterogeneous, predominantly hypointense left ovarian mass. The remnant high signal intensity areas are consistent with cystic areas.

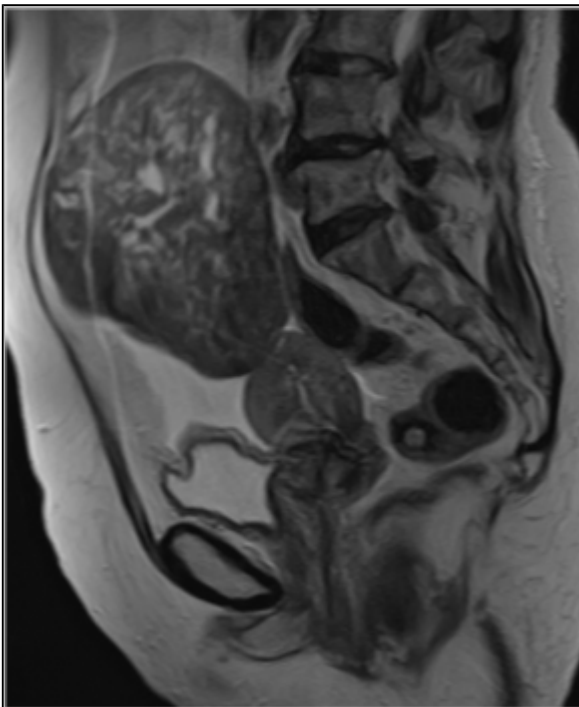
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Area of Interest: Genital / Reproductive system female;

Imaging Technique: MR;

Procedure: Diagnostic procedure;

Special Focus: Neoplasia;



Sagittal T2WI shows a heterogeneous, predominantly hypointense left ovarian mass, that extends until the level of L4 vertebra. Note the small amount of peritoneal fluid seen in the pelvic cavity.

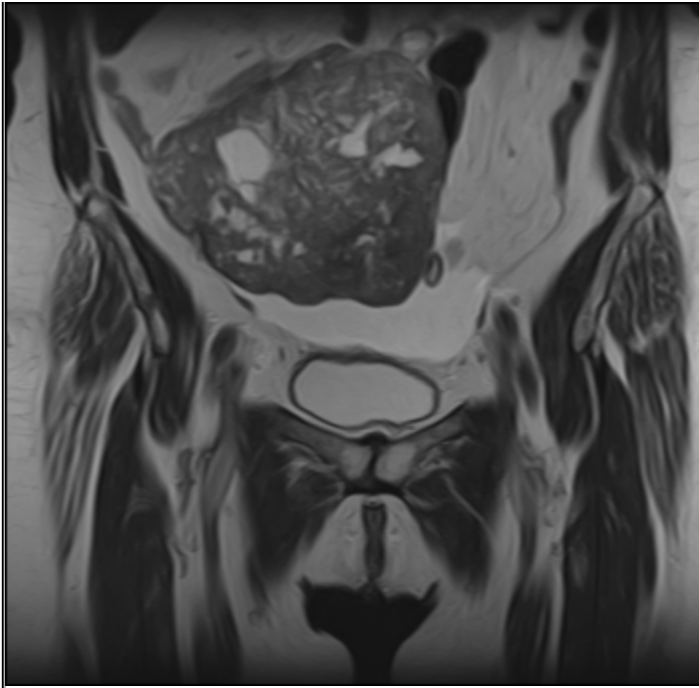
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Area of Interest: Genital / Reproductive system female;

Imaging Technique: CT;

Procedure: Diagnostic procedure;

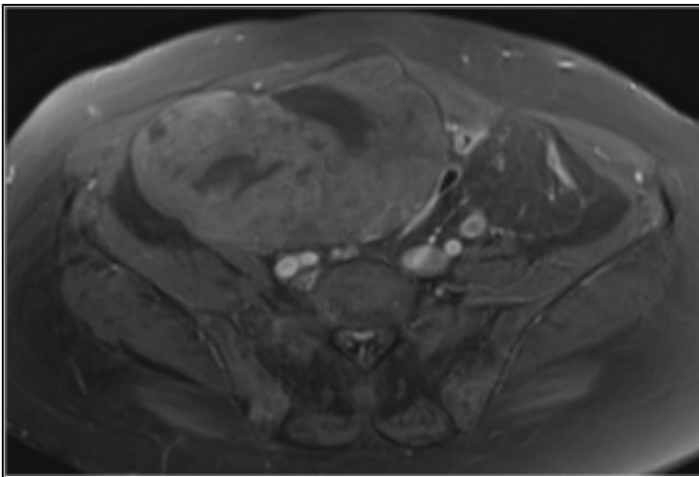
Special Focus: Neoplasia;



Coronal T2WI shows a heterogeneous, predominantly hypointense left ovarian mass. The hyperintense components are consistent with cystic areas, that are isointense to peritoneal fluid seen in the pelvic cavity.

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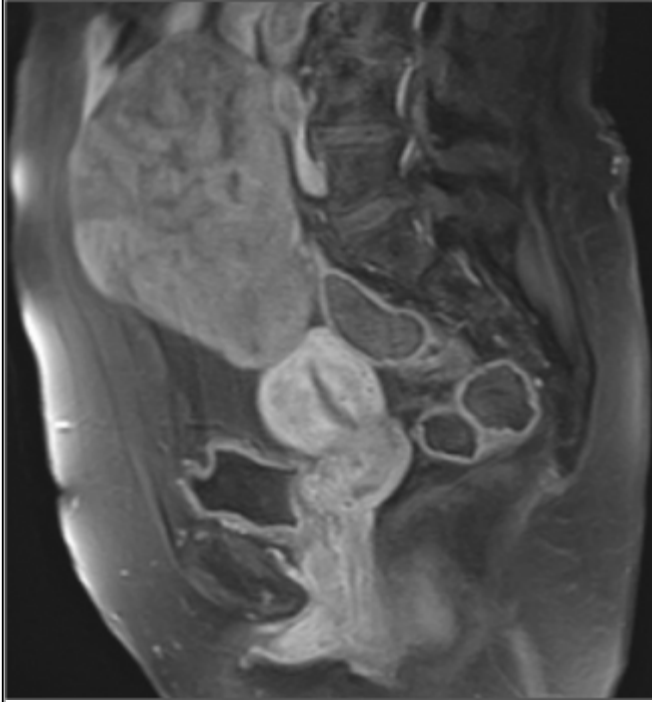
Area of Interest: Genital / Reproductive system female;
Imaging Technique: MR;
Procedure: Diagnostic procedure;
Special Focus: Neoplasia;



Axial fat-suppressed gadolinium-enhanced T1WI shows mild enhancement of the left ovarian heterogeneous mass.

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Area of Interest: Genital / Reproductive system female;
Imaging Technique: MR;
Procedure: Diagnostic procedure;
Special Focus: Neoplasia;



Sagittal fat-suppressed gadolinium-enhanced T1WI shows mild enhancement of the left ovarian mass (less than myometrium). Note there is no attachment between the lesion and the uterine fundus.

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Area of Interest: Genital / Reproductive system female;
Imaging Technique: MR;
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MeSH

Ovary [A05.360.576.497]

The reproductive organ (GONADS) in female animals. In vertebrates, the ovary contains two functional parts: the OVARIAN FOLLICLE for the production of female germ cells (OOGENESIS); and the endocrine cells (GRANULOSA CELLS, THECA CELLS, and LUTEAL CELLS) for the production of ESTROGENS and PROGESTERONE.

Ovarian Neoplasms [C13.371.056.630.705]

Tumors or cancer of the OVARY. These neoplasms can be benign or malignant. They are classified according to the tissue of origin, such as the surface epithelium, the stromal endocrine cells, and the totipotent germ cells.

References

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Citation

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