Acta Biomed 2024; Vol. 95, N. 2: e2024013 DOI: 10.23750/abm.v95i2.14403

Case report

Imaging of a rare case of an ovarian collision tumor between a giant cystadenoma and a fibroma in a postmenopausal woman

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Abstract. Ovarian collision tumors are rare and poorly documented in the scientific literature. Usually, the diagnosis is based on post-operative histopathological examination; hence the pre-operative radiological appearance is rarely documented. We report the first case of an ovarian collision tumor, well documented radiologically and histologically diagnosed after bilateral ovariectomy in a postmenopausal woman. Abdomen X-rays, a pelvic and transvaginal ultrasound, and a contrast abdomen CT were performed. Histological results diagnosed a bilateral cystadenoma, with the coexistence of fibroma on the left ovary. On the left side, the cystadenoma was giant. (www.actabiomedica.it)

Key words: ovarian collision tumor, cystadenoma, fibroma, giant ovarian cyst

Introduction

Collision tumors are rare neoplasms characterized by the presence in the same organ of histologically distinct tumors growing from two divergent lineages, located in close proximity. Collision tumors are most commonly noted in the esophagus, stomach, and thyroid. They are extremely rare in the ovaries, where the more described histologic combination consists of teratoma and mucinous tumors (1).

We report the first case of an ovarian collision tumor characterized by a fibroma and a giant serous cystadenoma, a collision between two benign variants not documented before.

Case presentation

A 60-year-old Caucasian, multiparous (Gravida 7, Para 5) woman came to our clinic complaining of progressive abdominal distension for the last eight months. She complained of exertional dyspnea, an early sense of satiety, altered bowel habits, edema of the left leg, and weight gain. She led a proper lifestyle and had no significant medical or surgical history.

Physical examination revealed abdominal distension. Laboratory findings, including tumor markers, were unremarkable.

A plain abdomen radiograph showed the presence of a voluminous round well-limited radiopaque mass extended in the center of the abdomen and the pelvis.

Abdominal and transvaginal ultrasound revealed a multiloculated anechoic abdominopelvic cyst measuring ~ 20 x 14.5 x 22.6 cm. There was also a small solid, hypoechoic component measuring ~ 3 cm x 1 cm x 3 cm. A small anechoic cyst was noted in the right ovary. There was no fluid in Douglas's recess (Figure 1).

Contrast enhancement abdominal CT showed a huge well-defined cystic lesion from the left ovary, partially septate, measuring ~20 x 30 cm. No evidence

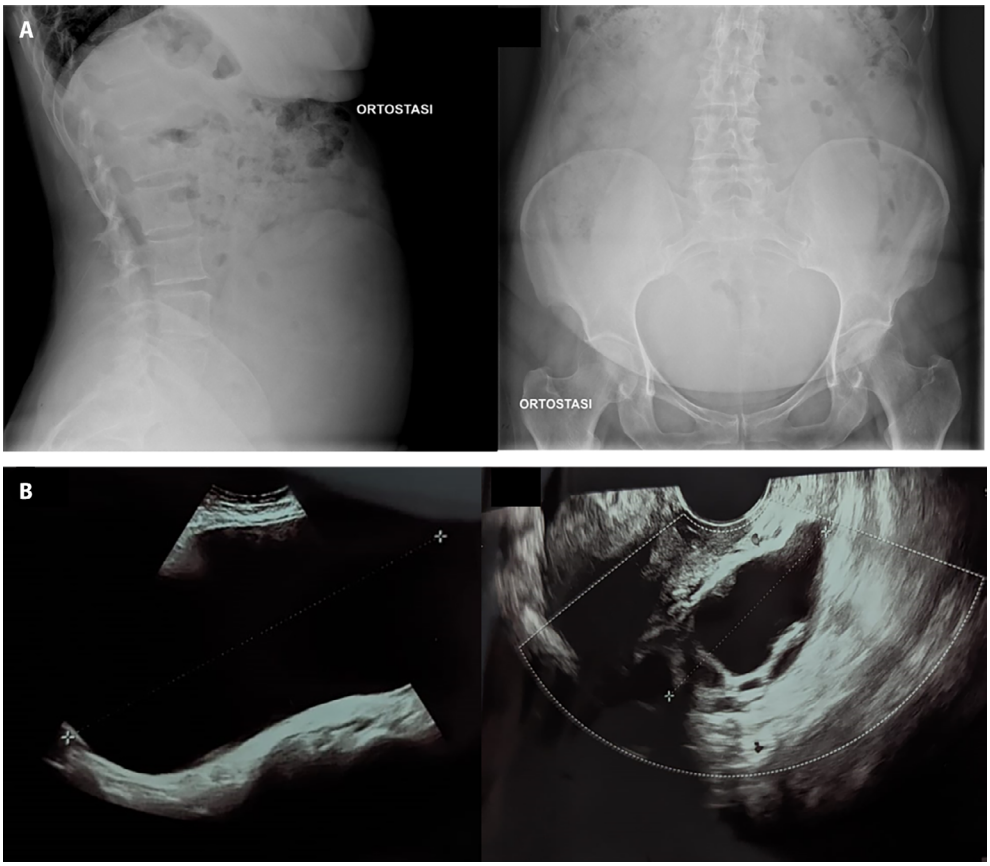

Figure 1. First imaging approach with plain X-ray of the abdomen (A) and Ultrasound (B). In (A) both in the lateral and anteroposterior film, there was evidence of a voluminous radio-opacity with well-defined margins in the mid-abdomen and the pelvis. In (B) the pelvic ultrasound showed an anechoic formation with a cystic appearance of considerable size, to be better evaluated with further diagnostic exams; the transvaginal ultrasound showed a cystic lesion of the left ovary, multiloculated due to the presence of septs, with a solid hypoechoic, non-vascularized tank.

of fat density or calcification within the cyst. A solid part was located on the left, in the upper portion of the cyst, originating from the cyst's wall itself, with a maximum thickness of about 45 mm. A speck of calcification was noted in the periphery of the lesion. The lesion has compressed the bladder. A small cyst was noted in the right ovary. No significant pelvic or retroperitoneal lymphadenopathy. No ascites. (Figures 2, 3 and 4).

According to ESMO-ESGO 2018 ovarian cancer guidelines, the patient was not appropriate for neoadjuvant chemotherapy and underwent a bilateral salpingo-oophorectomy through an open trans umbilical laparoscopy (2). There were no postsurgical complications.

The frozen section from the left ovary revealed a stromal tumor/sexual cord oriented for a Sertoli-Leydig tumor. Definitive histological examination detected the coexistence of a serous cystadenoma with papillary excrescences and a fibroma with hypercellular areas in the left ovary. Cystadenoma was detected in the right ovary.

Discussion

Ovarian cysts are very common, often asymptomatic and incidentally diagnosed (3–5). Occasionally, ovarian cysts grow and reach a size to determine

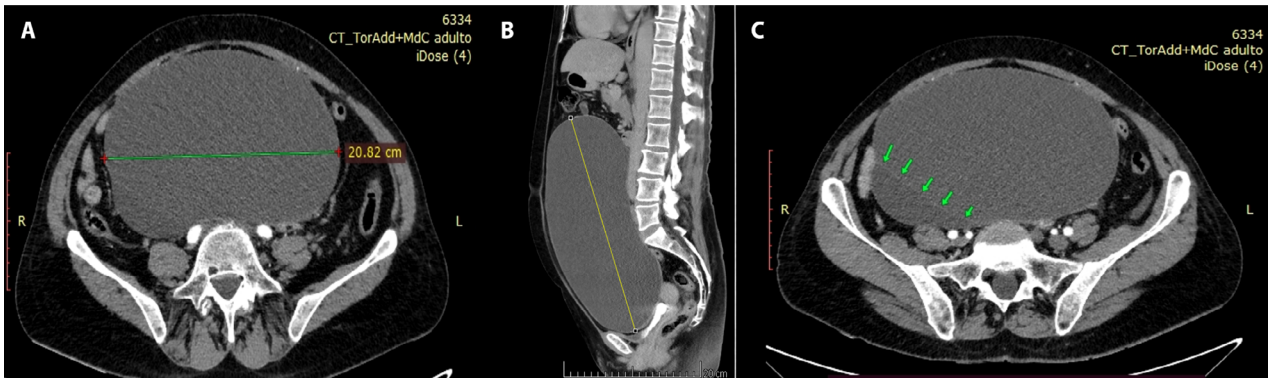

Figure 2. A and B) CECT showed a large cyst in the left ovary. C) Thin septation is noted within the cyst.

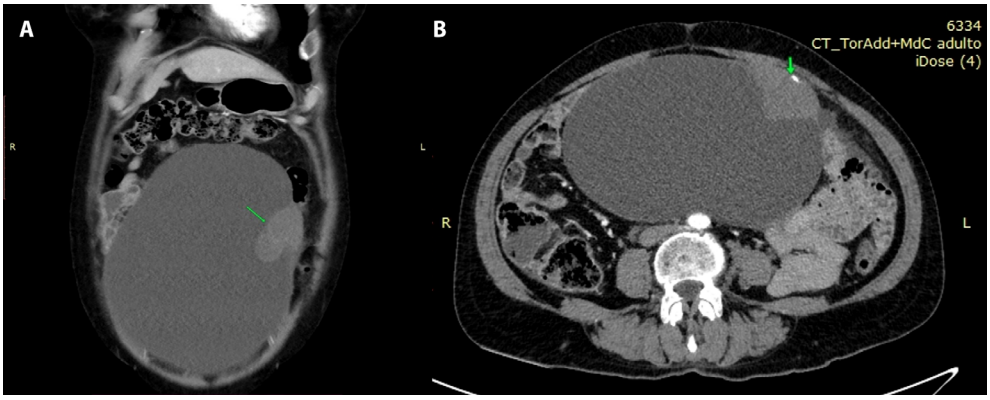

Figure 3. A) Solid component is noted in the left upper portion of the left ovarian cyst on coronal CT. B) Speck of calcification is noted in the periphery of the lesion.

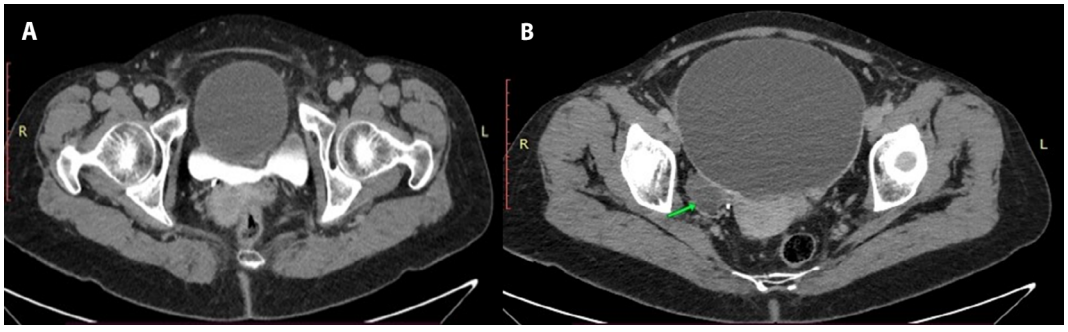

Figure 4. CECT abdomen. (A) In the excretory phase the bladder is compressed by the cyst. (B) showed a small cyst in the right ovary (green arrow).

progressive abdominal distension and nonspecific diffuse abdominal pain associated with symptoms caused by organ compressions like altered bowel and bladder habits, that can severely impact the Quality of Life (QoL) (6,7). In literature, these kinds of large ovarian cysts that grow above the umbilicus or have a diameter larger than 10 cm are defined as Giant Ovarian Cysts (GOCs) (8–11).

The term "collision tumor" refers to the concurrent presence of two tumors, that differ from histological features, that occur in the same organ and that are not admixed. Each type of tumor arises from a different type of cell, and the two components may be benign or malignant and can occur simultaneously or at different times. Moreover, a necessary feature of an ovarian collision tumor is that the ovarian tumor is not a metastasis but a primary tumor. For example, an ovarian tumor secondary to lymphoma would not be considered an ovarian collision tumor (1,3).

Our case has all the characteristics to be defined as a collision ovarian tumor:

- thse fibroma and the cystadenoma are two histologically different tumors.
- there was not an admixture of the two lesions.
- the tumors were primary tumors from the ovary, not metastasis.

Collision tumors can develop in a variety of organs, including the esophagus, stomach, and thyroid, although they are relatively uncommon in the ovaries. The most common histologic combination of ovarian collision tumors consists of teratoma and mucinous tumors. It is unusual for an epithelial tumor to coexist with a stromal tumor or for two benign ovarian tumors to collide (12). It is unusual for a fibroma and a cystadenoma to coexist, as in our case.

The most common ovarian epithelial tumor is cystadenoma, with a peak incidence in the fourth and fifth decades of life. It can present with papillary excrescences, as in this case. In most cases, cystadenoma is unilateral. However, our patient had a bilateral cystadenoma, an infrequent finding seen only in the 15% of cases (13,14). On the other hand, ovarian fibromas have an incidence of 1 to 5% of all ovarian tumors, representing the most common stromal ovarian tumor. They are most frequently seen in middle-aged women, but the patient is an elderly female in our case.

Case reports of ovarian collision tumor with a focus on their radiological appearance is rare. Particularly, stromal cell tumors are challenging to identify through only imaging, and they require histology examination to confirm the diagnosis (15). Even though there is a variant called cystadenofibroma that also has a fibrous component, there will not be a clear separation between the solid and the cystic parts on histology. However, in a collision tumor, the fibroma and cystadenoma will be well separated. In our case, there was a clear distinction between the fibrous and the cystic part, histologically and also radiologically.

Ultrasonography represents the method of choice in diagnosing ovarian cysts, but cysts of enormous volume limit the application of this technique (11). CT and MRI are more appropriate diagnostic tools for huge ovarian masses. Fibromas typically appear on ultrasound as solid, hypoechoic structures and on CT as hyperattenuating lesions, with a poor and slow contrast enhancement. Calcification and bilaterality are both uncommon (9). The definite final diagnosis is made with histological examination.

To our knowledge, this is the first case of an ovarian collision tumor consisting of a cystadenoma and a fibroma, with a focus on its imaging appearance.

Funding: No funding was received for conducting this study.

Conflict of Interest: Each author declares that he or she has no commercial associations (e.g. consultancies, stock ownership, equity interest, patent/licensing arrangement etc.) that might pose a conflict of interest in connection with the submitted article.

Ethics and Patient's Informed Consent: Written informed consent for publication was obtained from the patient.

Authors Contribution: The Authors confirm contribution to the paper as follows: study conception and design: FM. Author, GG. Author; data collection: FM. Author, RG. Author; analysis and interpretation of results: AR. Author, GG. Author; draft manuscript preparation: FM. Author, RG Author, DSAS Author. All Authors reviewed the results and approved the final version of the manuscript.

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Received: 6 March 2023
Accepted: 18 October 2023
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