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(CASE REPORT)

Ovarian goiter or struma ovarii: Case study and literature review

Yassine BELHAJ, Nidae GUIRI *, Sofia JAYI, Fatima Zahra FDILI, Moulay Abdelilah MELHOUF

Hassan II university hospital Fez; Sidi Mohamed Ben Abdellah University of Fes, Morocco.

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Abstract

Struma ovarii tumor is a subtype of an ovarian teratoma and is composed entirely or predominantly of thyroid tissue and containing variable-sized follicles with colloid material. To qualify as a struma ovarii tumors more than 50% of the tumor should be composed of thyroid tissue. (1) Approximately 5-8% of cases can show symptoms or signs of thyrotoxicosis. (2)

We report the case of a single 42-year-old woman admitted with pelvic pain associated with a mass. Radiologic examination revealed an adnexal tumor with great abundance ascites and no signs of metastasis. The patient underwent surgical treatment, which confirmed the presence of thyroid tissue in the left ovary, suggestive of Struma ovari tumor. The clinical and radiologic data are nonspecific. Histological examination is required for the diagnosis and is based on a biopsy or surgical specimen. (3)

During the review period, a number of papers were published reporting series of patients with malignant ovarian germ cell tumors and describing the increasingly successful worldwide trend observed in treatment of such patients. Publications dealing solely with the successful management of patients with pure dysgerminoma, using surgery followed by chemotherapy which is less likely to affect fertility compared with radiation therapy. (4)

The aim of this case is to highlight this exceptional histological type, which first requires an appropriate diagnostic strategy to rule out metastatic involvement from a primary thyroid tumor before confirming the diagnosis of struma ovarii.

Keywords: Ovarian Tumors; Rare Case; Struma Ovarii; Ovarian goiter, Annexectomy.

1. Introduction

Ovarian goiter, referred to as struma ovari in the Anglo-Saxon literature, is a mature ovarian teratoma formed predominantly (>50%) or entirely of thyroid tissue (pure struma ovari), it was first documented by von Kalden in 1895. (4) This tumor represents less than 3% of mature teratomas. (5)(6) It includes an ectopic intra-ovarian thyroid tissue with a wide spectrum of histological changes, ranging from diffuse hyperplasia to thyroid carcinoma.

In such cases, the condition is termed thyroid carcinoma arising in struma ovari, most commonly papillary carcinoma. This entity represents approximately 5–10% of ovarian goiters and about 0.01% of all ovarian tumors. (7)

Thus biopsy has to be done very keenly to diagnose it. Also in cystic tumors, this differential diagnosis needs to be kept in mind and discussed with the pathologist. It is a benign condition and usually does not need long-term follow-up. (8)

* Corresponding author: N. GUIRI

2. Patient and observation

This is a 42-year-old nulliparous patient, with regular menstrual cycles, admitted to our department for the management of a suspicious left ovarian mass complicated by bilateral pulmonary embolism. Clinical examination revealed an enlarged abdomen, significant ascites, with positive iceberg sign , but no clear mass was identified. A gynecological examination was not performed; since she was a virgin. The remainder of the examination was unremarkable.

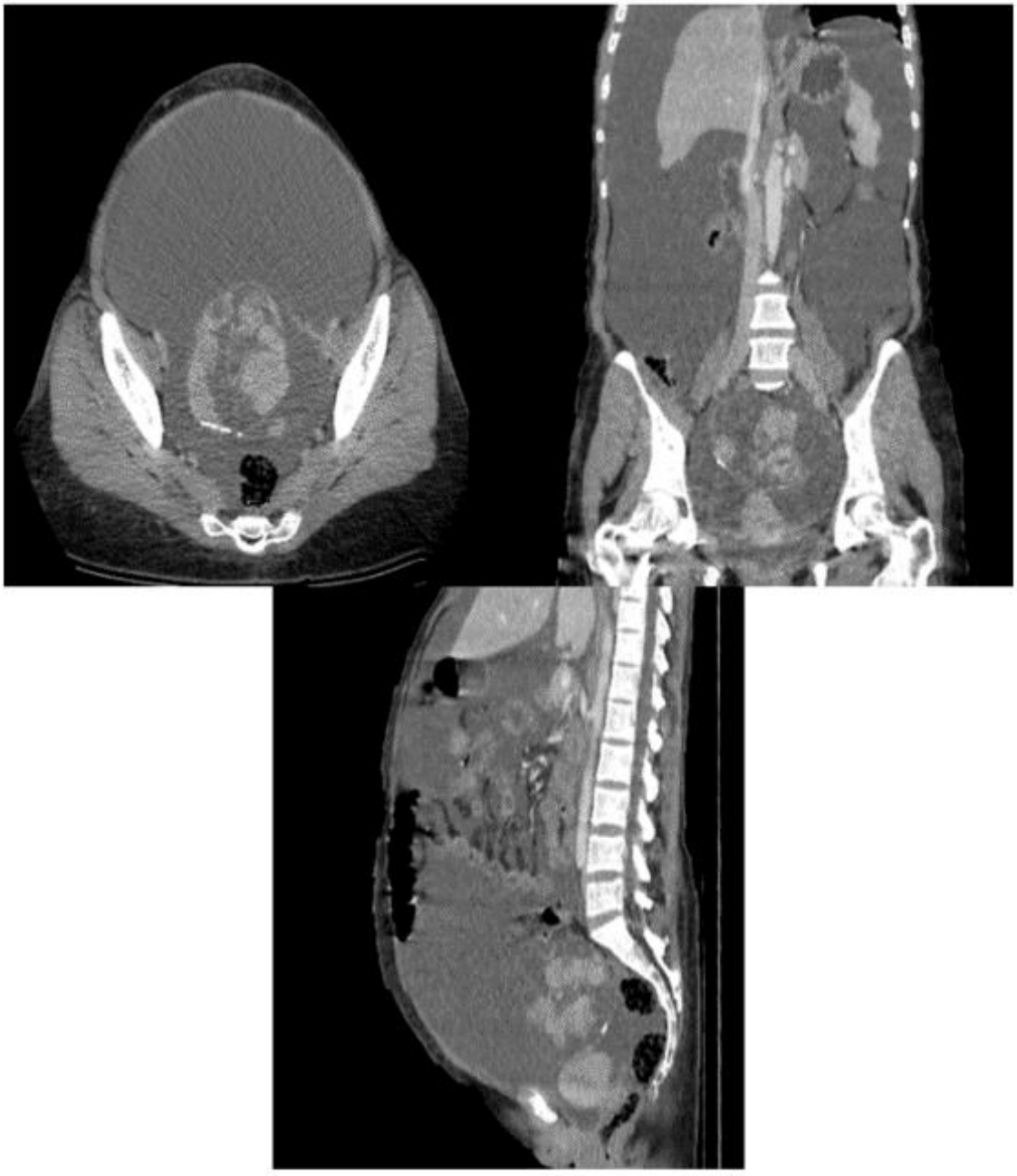

Figure 1 Abdominal CT scan in axial, coronal, and sagittal planes after intravenous contrast administration

The CT scan and MRI showed a suspicious-looking left ovarian tumor mass with a triple component (cystic, tissular, and hemorrhagic) measuring 108 x 82 x 87 mm. This mass was in contact with the sigmoid colon. It is also in contact with the ipsilateral iliac vessels, which remain patent. All was associated with significant ascites and bilateral pleural effusion. Right ureteropelvic junction obstruction without ipsilateral renal morphological involvement; No other abnormalities were seen. CA 125 was the only positive tumor marker.

The patient underwent a laparotomy with left adnexectomy and multiple biopsies. We noted the presence of large-volume ascites, citrine yellow color, approximately 13 L aspirated. On exploration: on left adnexa: Presence of an ovarian mass measuring approximately 10 cm, with a bosselated surface and pearly white appearance. With Mucin , sampled for histopathological examination; the right ovary was normal in size and appearance. The uterus was in a normal size with a posterior fibroid measuring 2 cm (FIGO type 5). A left adnexectomy was performed, biopsies of the left and right paracolic gutters were obtained, with an infracolic omentectomy and appendectomy. Histologically, the ovarian parenchyma shows a multivesicular lesion corresponding to thyroid tissue composed of variably sized thyroid follicles, lined by uniform thyrocytes and containing colloid within their lumina. The biopsies, omentectomy, and appendectomy were negative. The multidisciplinary team decision is clinical, radiological, and biological surveillance.

3. Discussion

Malignant struma ovarii (ovarian goiter) is a rare and poorly understood disease, with an incidence of approximately 0.01% among ovarian tumors. (9) Most of the SO cases were benign, but still 0.3%–5% of them were malignant. (10)

It typically occurs in premenopausal women, with an average age at diagnosis of 43 years (3). Unilateral involvement is common, while less than 6% of cases exhibit bilateral involvement. Clinical presentation is variable and nonspecific, most often including lower abdominal pain, pelvic pain, or menstrual cycle abnormalities. (11) In some studies, incidental discovery was reported as the most common mode of detection of struma ovarii.

The gross pathologic appearance of struma ovarii differs from that of mature cystic teratomas where struma ovarii consist of amber-colored thyroid tissue, with hemorrhage, necrosis, and fibrosis.

Concerning ultrasound, no specific feature from other teratomas. They may appear solid, cystic or of mixed echogenicity. A characteristic feature that has been described is the presence of a solid echogenic component with a smooth surface and internal vascularity called “struma pearls” (12)

While imaging features can be non-specific and overlap with other ovarian neoplasms, ultrasound and CT usually demonstrate a complex adnexal lesion with multiple cystic and solid areas, reflecting the gross pathologic appearance of the tumor 1. Ascites may be present in up to a third of cases. (13)

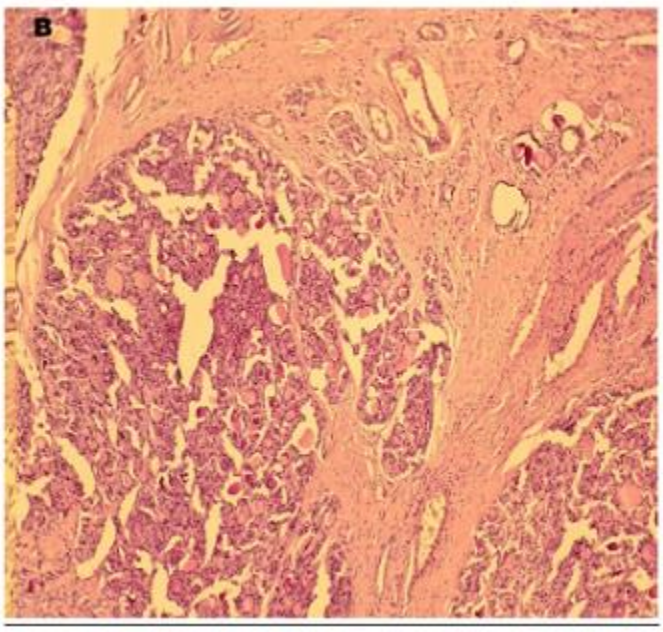

Figure 2 Proliferation of thyroid-type follicles of variable size filled with eosinophilic colloid, lined by atypical cuboidal cells. The follicles are densely packed, with areas of architectural crowding and invasion, consistent with a follicular carcinoma arising in struma ovarii (ovarian goiter)

Microscopic examination of the ovarian lesion revealed a proliferation of thyroid-type follicles of varying sizes, lined by cuboidal epithelial cells exhibiting mild to moderate nuclear atypia and containing abundant eosinophilic colloid. The

follicles were densely packed, resulting in effacement of the normal ovarian architecture. Definite capsular and vascular invasion was identified. No nuclear features suggestive of papillary thyroid carcinoma were observed (Figure 2). Overall, these histopathological findings were consistent with a follicular carcinoma arising in struma ovarii.

However, most studies concerning SO, OSC, or MSO were either case reports or small-scale cohort studies, and the exact incidence of SO and the probability of malignant transformation to OSC or MSO remains unclear. Moreover, the clinical characteristics and prognoses of OSC and MSO have not been well-defined. Besides, accumulated evidence from case reports may bias a comprehensive understanding of this disease due to the significant heterogenicity. Recently, Wei et al. investigated the pathological characteristics in 96 cases, and Savelli et al. evaluated ultrasonic features in 31 SO cases, which were the two largest cohorts to date but without reporting any surgical options. Several cohort studies of OSC were either conducted decades earlier or restricted to pathologic research, or lacking long-term follow-up. Moreover, none of these studies compared the clinical characteristics among patients with SO, OSC, and MSO in large cohorts. The gold standard treatment is surgery and prognosis is excellent. (14)

4. Conclusion

Struma ovarii is an uncommon and still poorly characterized ovarian tumor. 2.14% of ovarian teratoma could be classified as SO. The diagnosis relies on histopathological findings and on ruling out metastasis from a primary thyroid carcinoma. Given its rarity, both diagnostic evaluation and treatment strategy should be discussed within a multidisciplinary team. Surgery remains the mainstay of treatment, particularly in cases limited to the ovary, while the role of more aggressive therapeutic approaches remains unclear. Overall, prognosis is favorable, especially when the disease is confined to the ovary.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

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