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Case Report
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Malignant Struma of the Ovary: Own Clinical Observation

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Abstract

Ovarian teratomas account for 15% to 20% of all ovarian tumors. Ovarian Struma (OS) in most cases (up to 50%) refers to monodermal mature ovarian teratoma and is a fairly rare tumor consisting of thyroid tissue. This type of neoplasm accounts for 1% of all ovarian tumors and 2.7% of all dermoid formations. The diagnosis of "ovarian struma" is made if the thyroid tissue is more than 50% of the tumor tissue. The article describes his own experience in managing a patient with a diagnosis of "Malignant struma of the ovary". Data on the clinical and morphological features of the disease are given.

Introduction

Ovarian teratomas account for 15% to 20% of all ovarian tumors. These formations are of embryonic origin and consist of cells derived from one or more germ layers (meso-, endo- and ectoderm). Ovarian Struma (OS) in most cases (up to 50%) refers to monodermal mature ovarian teratoma and is a fairly rare tumor consisting of thyroid tissue. This type of neoplasm accounts for 1% of all ovarian tumors and 2.7% of all dermoid formations. The diagnosis of "ovarian struma" is made if the thyroid tissue is more than 50% of the tumor tissue [1].

Malignancy of the presented type of tumor is observed in every 10 cases [2]. Earlier in medical articles, some authors noted the inability of the ovarian struma to metastasize, however, to date, metastasis of these tumors is observed in approximately 5% to 23% of cases. Basically, metastasis is intra-abdominal in nature, but despite this, hematogenous spread does not exclude the appearance of distant metastases in the liver, lungs, brain, bones and contralateral ovary.

The clinical picture of the presented nosology is ambiguous. Patients, as a rule, seek medical help complaining of a sharp increase in the volume of the abdomen, nagging pain in the lower abdominal cavity, and dysmenorrhea [3].

The ultrasound picture of the ovarian struma is also not specific. Sonography often reveals a unilateral multi-chamber ovarian tumor of various sizes (on average from 4 cm to 7 cm) of a finely spongy structure, predominantly of medium echogenicity (the spongy component is one of the components of a mature teratoma). Doppler imaging shows an increase in blood flow in the center of the mass, due to the abundant blood supply to the thyroid tissue compared to other components such as fat or skin appendages [4].

On Magnetic Resonance Imaging (MRI) images, the most common manifestation of ovarian struma is a mass with a multilayered surface, thickened septa, multiple cysts with variable signal intensity and increased hard components. On Computed Tomography (CT) images, there are often areas with high X-ray density, which is due to the high content of iodine in the thyroid tissue, as well as foci of calcification [5].

The use of CT and MRI certainly expands the diagnostic possibilities, but scintigraphy helps to establish the diagnosis more accurately. This research method allows you to identify ectopic active tissue of the thyroid gland. When scintigraphy of the whole body with Technetium preparations, the absence or slight accumulation of the radiopharmaceutical in the thyroid gland is noted, also due to the presence of thyroid tissue, active accumulation is noted in the small pelvis in the projection of the struma [6].

Macroscopically, this tumor is usually solid and cystic structures with a red-brown or brown-yellowish color, while the cystic component is a clear green-brown fluid. Microscopic examination

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reveals a small number of thyroid follicles separated by fibrous septa. Tumor cells usually have a moderate amount of eosinophilic cytoplasm, homogeneous oval nuclei without pleomorphism [7].

The histological features described above are the classic picture for making this diagnosis. However, the diagnostic problem often arises in the absence of classical features and is complicated by unusual histological findings.

Due to the rare occurrence and wide morphological spectrum, the diagnosis of ovarian struma is controversial and does not have uniform diagnostic criteria. Malignant struma of the ovary most often has a picture of papillary cancer.

There are a limited number of reports in the literature on various aspects of this disease. Therefore, any information on this pathology, of course, is of clinical and scientific interest.

Case Presentation

We observed a malignant variant of the ovarian struma of a giant size in a patient being treated at the MRRC. A. F. Tsyba - branch of the Federal State Budgetary Institution "NMRCs Radiology" of the Ministry of Health of Russia. From the anamnesis it is known that the patient noted an increase in the volume of the abdomen for three months, and therefore sought medical help at the place of residence. Ultrasound of the pelvic organs and the abdominal cavity revealed a volumetric formation occupying the entire abdominal cavity with indirect signs of malignancy. Tumor markers: Ca-125 was 1009 U/ml, while HE4 was within the reference values.

The patient underwent a CT scan of the pelvis and abdomen (MRI was not performed due to the presence of a pacemaker) (Figure 1): Most of the meso- and hypo-gastrium, as well as part of the epigastrium, are filled with a giant cystic tumor measuring 245 mm × 160 mm × 290 mm, more likely originating from right ovary. Against the background of intravenous contrasting, amorphous exophytic papillary nodes are determined along all walls of the formation, accumulating a contrast agent up to 65 HU (along the left lateral wall of the formation). Also, unevenly thickened internal septa are visualized in the structure of the formation. Data for carcinomatosis, ascites, and lesions of the pelvic and retroperitoneal lymph nodes were not obtained.

Taking into account the data of laboratory and instrumental studies, the members of the multidisciplinary council decided to implement surgical treatment at the first stage.

The patient underwent total hysterectomy with appendages, omentectomy. During intraoperative revision (Figure 2): The right appendages are represented by a giant solid-cystic formation up to 30 cm in the largest dimension with a smooth capsule, no evidence of carcinomatosis was obtained, no effusion was noted in the abdominal cavity.

The formation was removed and sent for an urgent morphological study. Intraoperative histological examination revealed the growth of a malignant tumor in the right ovary. Surgical staging performed.

The postoperative period proceeded smoothly. The patient was discharged from the hospital on the 5th day in a satisfactory condition.

Abdominal swab data: No evidence of tumor cells was obtained.

Postoperative histological examination did not establish the histogenesis of the tumor (Figure 3, 4). Conclusion: In the body of the ovary, invasive growth of a tumor from medium-sized monomorphic cells with hidden cytoplasm, vesicle-shaped nuclei with the presence of a nucleolus and many mitotic figures, including pathological ones. Tumor cells form solid fields, with areas of follicular and microfollicular structure (Coll-Exner bodies), part of the follicles with cystic transformation, lined with partially flattened epithelium. In the struma of the tumor, there are foci of necrosis and psammoma bodies), which is why the material was subjected to immunohistochemical examination.

IHC conclusion (Figure 5, 6): Immunohistochemical study in tumor cells revealed diffuse and focal nuclear expression of TTF1, focal moderate cytoplasmic expression of thyroglobulin, diffuse bright membrane-cytoplasmic expression of cytokeratin 7 and vimentin. No expression of WT1, cytokeratin 20, CD56, inhibin alpha, chromogranin A, synaptophysin and p63 was detected. The morphological and immunohistochemical picture most of all corresponds to malignant ovarian struma (poorly differentiated follicular cancer from A-cells).

Subsequently, the patient was discussed at a multidisciplinary consultation and, taking into account the postoperative morphological conclusion, a decision was made on the need for: thyroidectomy, selective cervical dissection and radioiodine therapy.

The prognosis for the course of OS is generally favorable. In an analysis of 36 cases, the 5-, 10-, and 25-year survival rates were 92%, 85%, and 79%, respectively [8]. According to Goffredo et al. [9] (68 cases), 5-, 10-, and 20-year survival rates were 97%, 94%, and 85%, respectively. Survival of patients depends on the histological type of tumor. According to Roth et al. [10], 14% of patients with follicular OS died from the disease (after 0.4 to 10.5 years, median 5 years), 7%

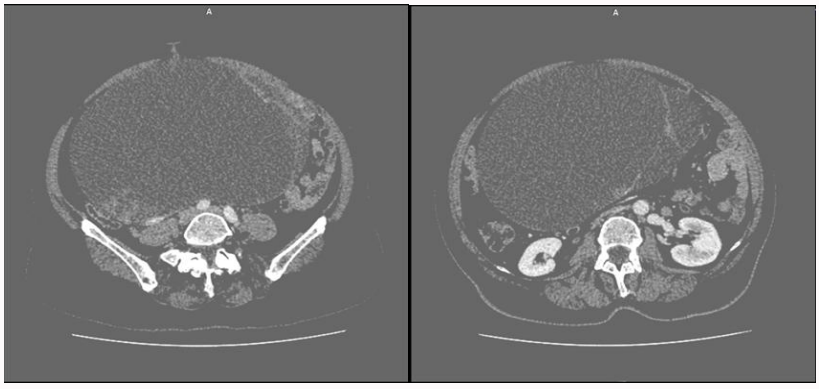

Figure 1: CT images of the patient.

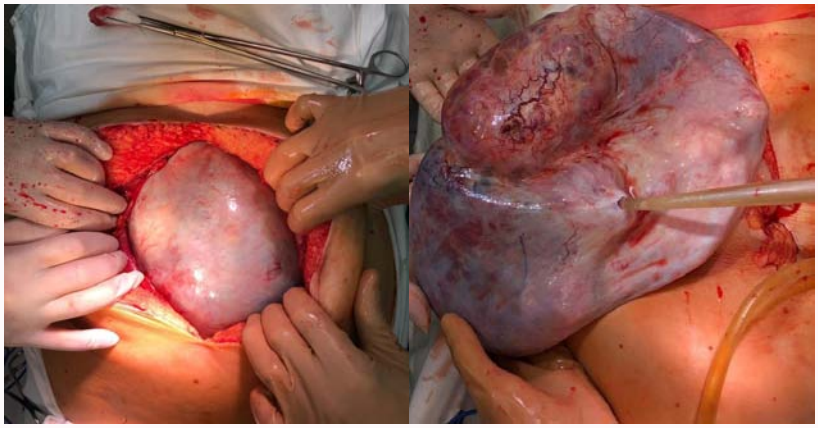

Figure 2: Intraoperative view of the tumor.

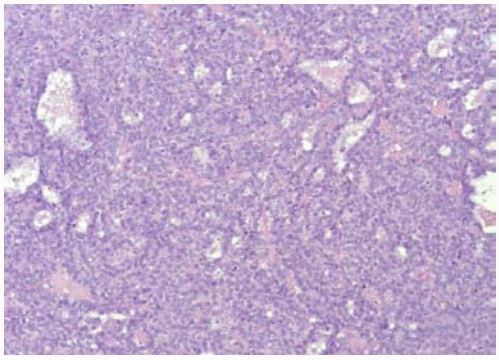

Figure 3: Malignant struma of the ovary. Hematoxylin eosin, x100.

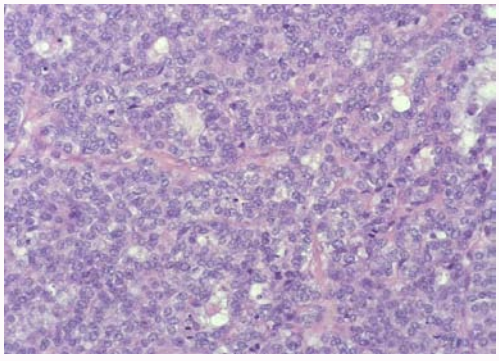

Figure 4: Malignant struma of the ovary. Hematoxylin, eosin, x200.

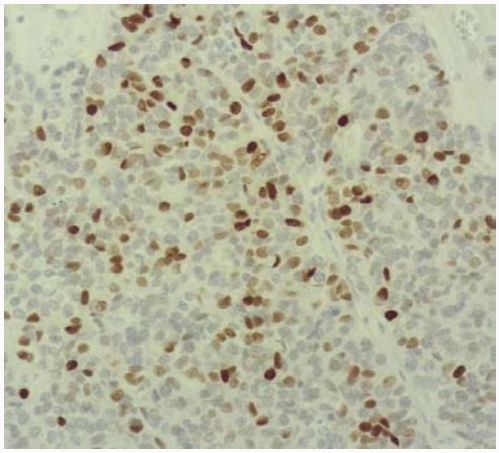

Figure 5: Positive reaction with antibodies to TTF-1 in tumor cells, x200.

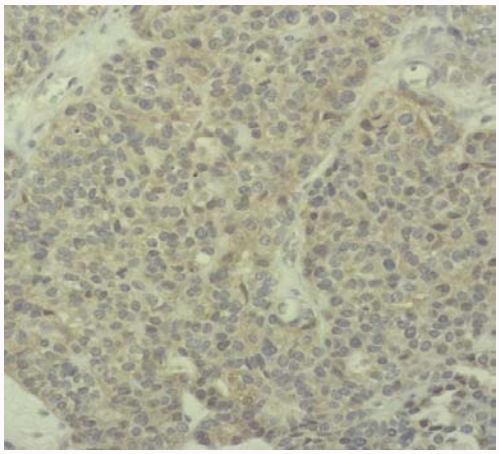

Figure 6: Positive reaction with antibodies to Tg in tumor cells, x200.

of patients with papillary OS (2 weeks- 21.5 years, median 8 years) and none of 15 patients with highly differentiated follicular OS. Anaplastic OS is characterized by an aggressive course. Four patients with anaplastic OS have been described in the literature; the patients died within 1.5 to 3 years after diagnosis and treatment [11]. Thus, the most aggressive and fatal is anaplastic cancer, and the least aggressive is highly differentiated follicular cancer.

Observation

Observation of patients with OS after treatment (surgical and radioiodine therapy) is similar to that in differentiated thyroid cancer. The control examination must necessarily include the determination of the level of TG and antibodies to TG in the blood serum, and in case of an increase in their level, diagnostic scintigraphy is indicated to detect intra-abdominal and distant metastases.

Taking into account the average period of detection of recurrence and metastasis at the level of 4 to 6 years, the recommended duration of follow-up is at least 10 years [12]. Patients with AE should be managed by a multidisciplinary team of specialists, including oncogynecologists, specialists in head and neck tumors, radiologists, and endocrinologists [13].

Discussion

The peculiarity of the structure of malignant ovarian struma, which is thyroid cancer cells in the ovaries, requires a multidisciplinary choice of tactics from the clinician. Treatment of malignant ovarian struma should include a surgical stage, the volume of which depends on the prevalence of the tumor process, the age of the patient and the desire to preserve reproductive function. Unilateral adnexectomy, biopsy of the contralateral ovary in patients of reproductive age is possible if one ovary is affected without extraorganic spread. In all cases, surgical staging is required. In other cases, panhysterectomy is performed. All patients with an established diagnosis of malignant ovarian struma: It is necessary to carry out advantage treatment in the amount of thyroidectomy followed by radioiodine therapy [14-16].

References

1. Rahma A, Mardiyana L, Fauziah D. Malignant struma ovarii: Case report of an unusual ovarian tumor with CT imaging. Radiol Case Rep. 2022;17(5):1705-8.
2. Ognerubov NA, Ulitina ED. Struma of the ovary: Cases from practice. Bulletin of Russian Universities. Maths. 2013;18(5-3):2855-9.
3. Zhang X, Axiotis C. Thyroid-type carcinoma of struma ovarii. Arch Pathol Lab Med. 2010;134(5):786-91.
4. Antonova IB. Malignant struma of the ovary. Literature review and own observation of a rare tumor variant. Difficult Patient. 2018;16(8-9):16-22.
5. Ikeuchi T, Koyama T, Tamai K, Fujimoto K, Mikami Y, Konishi I, et al. CT and MR features of struma ovarii. Abdom Imaging. 2012;37(5):904-10.
6. Damarey B, Farine M, Vinatier D, Collinet P, Lucot J, Kerdraon O, et al. Mature and immature ovarian teratomas: US, CT and MR imaging features. J Radiol. 2010;91(1 Pt 1):27-36.
7. Ning Y, Kong F, Cragun JM, Zheng W. Struma ovarii modeling of ovarian Sertoli cell tumor: A clinical case with a review of the literature. Int J Clin Exp Pathol. 2013;6(3):516-20.
8. Robboy SJ, Shaco-Levy R, Peng RY, Snyder MJ, Donahue J, Bentley RC, et al. Malignant struma ovarii: An analysis of 88 cases, including 27 with extraovarian spread. Int J Gynecol Pathol. 2009;28(5):405-22.
9. Goffredo P, Sawka AM, Pura J, Adam MA, Roman SA, Sosa JA. Malignant struma ovarii: A population-level analysis of a large series of 68 patients. Thyroid. 2015;25(2):211-5.
10. Roth LM, Miller III AW, Talerman A. Typical thyroid-type carcinoma arising in struma ovarii: A report of 4 cases and review of the literature. Int J Gynecol Pathol. 2008;27(4):496-506.
11. Shaco-Levy R, Peng RY, Snyder MJ, Osmond GW, Veras E, Bean SM, et al. Malignant struma ovarii: A blinded study of 86 cases assessing which histologic features correlate with aggressive clinical behavior. Arch Pathol Lab Med. 2012;136(2):172-8.
12. Makani S, Kim W, Gaba AR. Struma ovarii with a focus of papillary thyroid cancer: A case report and review of the literature. Gynecol Oncol. 2004;94(3):835-9.
13. Jean S, Tanyi JL, Montone K, McGrath C, Lage-Alvarez MM, Chu CS. Papillary thyroid cancer arising in struma ovarii. J Obstet Gynaecol. 2012;32(3):222-6.
14. Khokhlova SV. Practical recommendations for the drug treatment of malignant non-epithelial ovarian tumors. Malignant Tumors. 2021;8(3-S2):S156-70.
15. All-Russian National Union "Association of Oncologists of Russia" All-Russian public organization "Russian Society of Clinical Oncology" All-Russian public organization "Russian Society of Specialists in the Prevention and Treatment of Tumors of the Reproductive System "Clinical recommendations. Non-epithelial ovarian tumors". 2021.
16. Kaprin AD, Galkin VN, Zhavoronkov LP, Ivanov VK, Ivanov SA, Romanko YS. Synthesis of basic and applied research is the basis of obtaining high-quality findings and translating them into clinical practice. Radiat Risk. 2017;26(2):26-40.