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Case Report

A Case Report of Struma Ovarii: A Rare Ovarian Teratoma

Flora TA[1], Tapu TT[2]

Abstract

Background: Struma ovarii is a rare monodermal variant of ovarian teratoma, characterized by the presence of mature thyroid tissue comprising more than 50% of the Tumor. Struma ovarii is a rare ovarian tumor, accounting for 1% of all ovarian tumors and 2-5% of ovarian teratomas. It consists predominantly or entirely of thyroid tissue and can occasionally exhibit functional thyroid activity.

Case Presentation: This case report discusses a 41-year-old female who presented with nonspecific abdominal discomfort and a gradually enlarging pelvic mass. Pelvic ultrasonography revealed a complex, predominantly cystic ovarian mass. The patient underwent a laparoscopic salpingo-oophorectomy, and histopathological examination confirmed the diagnosis of struma ovarii. Thyroid function tests were within normal limits, and no evidence of malignancy or metastatic disease was observed. The patient's postoperative course was uneventful, with complete resolution of symptoms. Struma ovarii can present diagnostic challenges due to its nonspecific clinical and radiological features, often mimicking other ovarian neoplasms. Although typically benign, it can occasionally undergo malignant transformation or cause thyrotoxicosis. This case emphasizes the importance of considering struma ovarii in the differential diagnosis of ovarian masses and highlights the role of histopathology in definitive diagnosis. Early recognition and appropriate surgical management are crucial for favorable outcomes in patients with this rare ovarian tumor.

Conclusion: Struma ovarii is often asymptomatic or presents with nonspecific symptoms, making preoperative diagnosis challenging. Surgical excision remains the mainstay of treatment, with a favorable prognosis in most benign cases.

Keywords: Struma ovarii, monodermal teratoma, ovarian tumor, thyroid tissue, case report.

1. Dr. Thanadar Ajmiree Flora
MBBS, MD, Assistant Professor, Department of Pathology
Ibrahim Medical College. Email: ajmiree.flora2020@gmial.com
ORCID: 0000-0002-6633-720X

2. Dr. Thanadar Tamjeeda Tapu
Assistant Professor (Medical Education, CC),
Centre for Medical Education (CME), Mohakhali, Dhaka-1213
E-mail: Dr.tamjeeda44mmc@gmail.com
ORCID: 0000-0003-3706-5126

Introduction

Struma ovarii is a rare form of monodermal, highly specialized ovarian teratoma predominantly made up of mature thyroid tissue. It accounts for approximately 1% of all ovarian tumors and 2-5% of ovarian teratomas.[1] Despite its rarity, struma ovarii is clinically significant due to its potential to cause thyrotoxicosis and, in rare cases, undergo malignant transformation.[1,2] Struma ovarii was first described in 1899 by Gottschalk. It's a rare ovarian tumor that's made up of thyroid tissue in the ovary remains an intriguing entity due to its varied clinical presentation and diagnostic complexity with nonspecific abdominal symptoms. Although mostly benign, malignant transformation can occur in a small percentage of cases.[2,4]

Most patients present with nonspecific symptoms such as abdominal pain, pelvic discomfort, or a palpable mass, which often leads to misdiagnosis as more common ovarian cysts or tumors. Rarely, patients may exhibit signs of hyperthyroidism due to functional thyroid tissue within the tumor.[4,5] Imaging studies often reveal complex cystic-solid adnexal masses, but these findings are not specific to struma ovarii.(5) Definitive diagnosis is usually established through histopathological examination after surgical excision.

This case report presents a 41-year-old woman with an adnexal mass that was diagnosed as struma ovarii following surgery. The case highlights the diagnostic challenges and the importance of considering struma ovarii in the evaluation of ovarian masses.

Case Presentation

A 41-year-old premenopausal female presented to the gynecology outpatient department with complaints of persistent lower abdominal discomfort and bloating for the past six months. She described the pain as dull and

non-radiating, accompanied by a sensation of fullness but no acute pain episodes. There were no reports of weight loss, fever, changes in bowel or bladder habits, or menstrual irregularities.
She had no history of thyroid disorders, hypertension, diabetes mellitus, or other chronic illnesses. There was no history of prior abdominal or pelvic surgeries and history of ovarian, thyroid or other malignancies.

On Abdominal Examination there was a palpable, non-tender mass in the left lower quadrant. On the other hand in pelvic examination there was adnexal fullness without tenderness. Other vital signs were normal. Pelvic Ultrasound revealed a well-circumscribed, complex cystic mass measuring (7x6x3) cm in the left adnexal region with both solid and cystic components.

No evidence of ascites or contralateral ovarian involvement. Serum CA-125 was 18U/ml (Normal <35 U/ml) within normal limits. Thyroid function tests were unremarkable. Thyroid Scintigraphy showed no abnormal uptake in the thyroid gland, indicating the absence of autonomous thyroid tissue activity. The CEA, beta hCG and AFP were within normal limits.

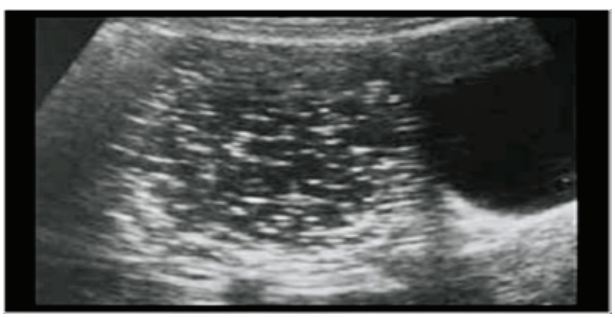

Figure 1: USG showing a heterogenic ovarian mass (struma ovarii).

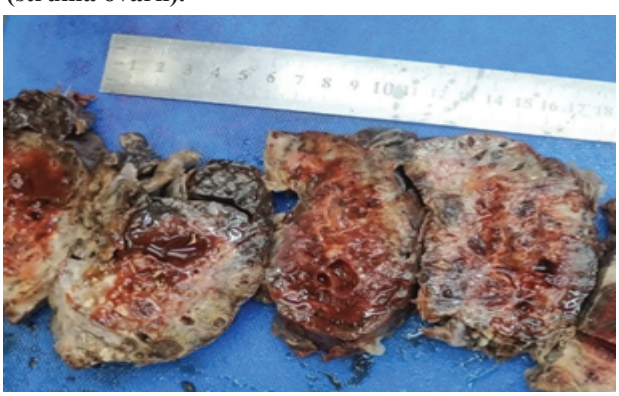

Figure 2: Gross examination of the ovarian tumor which shows solid and cystic part.

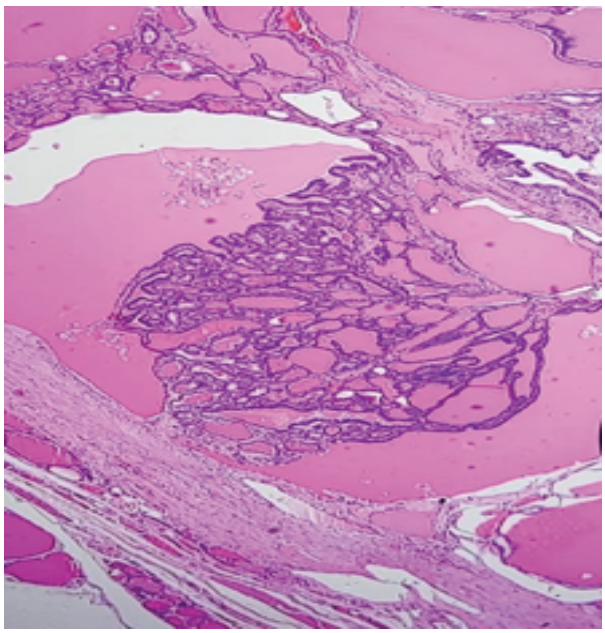

Figure 3: Photomicrograph shows histopathological finding of struma ovarii (H&E, 10X).

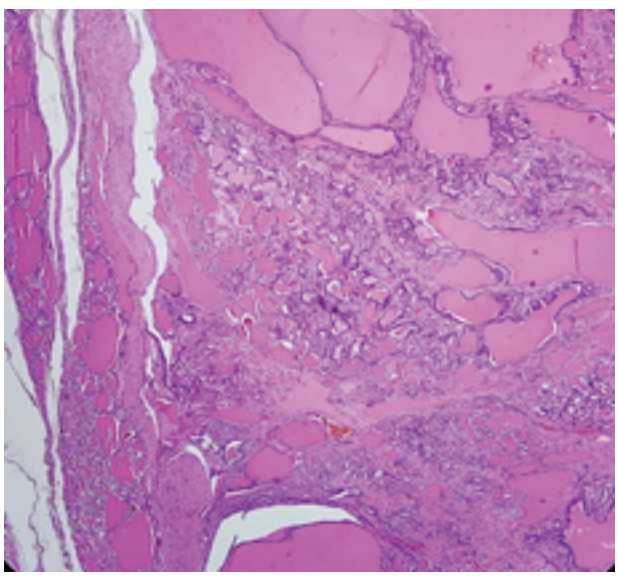

Figure 4: Photomicrograph shows histopathological finding of struma ovarii-multicystic, macrofollicular pattern (H&E, 10X).

Preoperative Diagnosis

Based on the clinical presentation and imaging findings, a mature cystic teratoma was suspected, with differential diagnoses including cystadenoma and endometrioma. Struma ovarii was not initially considered due to the absence of thyroid symptoms and nonspecific imaging features. (5)

Surgical treatment:

Left sided salpingo-oophorectomy was performed under general anesthesia. Intraoperative findings revealed a 7 cm multiloculated cystic mass arising from the left ovary. The mass had smooth surfaces with no evidence of capsular breach or peritoneal deposits. The right ovary and uterus appeared normal. No ascitic fluid was present, and the omentum was unremarkable. Then the specimen was sent for histopathological examination.

Histopathology

Microscopic examination in this case revealed well-formed thyroid follicles filled with colloid material, confirming the diagnosis of benign struma ovarii. No features of malignancy was seen.

Discussion:

Struma ovarii is a rare monodermal variant of mature ovarian teratoma composed predominantly of thyroid tissue. It represents approximately 1% of all ovarian tumors and 2-5% of ovarian teratomas.[2,5] The presented case of a 41-year-old woman with a 7 cm left ovarian struma ovarii highlights the diagnostic challenges and management considerations associated with this uncommon tumor.

Clinically, struma ovarii often presents with nonspecific symptoms such as lower abdominal discomfort, bloating, or a palpable mass.[3,5] In rare cases, patients may exhibit signs of hyperthyroidism due to hormonally active ectopic thyroid tissue.(4) However, in this case, the absence of hyperthyroid symptoms and normal thyroid function tests contributed to the diagnostic difficulty. Imaging studies, including ultrasound revealed a complex cystic and solid ovarian mass, but these findings were nonspecific and could not conclusively differentiate struma ovarii from other ovarian pathologies, such as cystadenomas or other teratomas.(5)

Definitive diagnosis relies on histopathological examination. In this patient, left salpingo-oophorectomy was performed and histological analysis revealed mature thyroid follicles filled with colloid material, confirming the diagnosis of benign struma ovarii.[1,2] No malignant features were identified. Surgical excision is the standard treatment for benign struma ovarii, and the patient's postoperative recovery was uneventful. Malignant transformation, although rare, necessitates more aggressive surgical management and possibly adjuvant therapy.[2,3]

Prognosis in benign cases is excellent, with a low risk of recurrence following complete removal.[2,4] This case emphasizes the importance of considering struma ovarii in the differential diagnosis of complex ovarian masses and highlights the essential role of histopathology in guiding appropriate management.(5) Regular follow-up is advised to monitor for recurrence or rare malignant transformation.

Conclusion

Struma ovarii is a rare and often overlooked ovarian tumor due to its nonspecific clinical presentation. This case highlights the importance of considering struma ovarii in the differential diagnosis of complex ovarian masses. Histopathological examination remains essential for definitive diagnosis.

Surgical excision typically results in favorable outcomes, but long-term follow-up is crucial to monitor for recurrence, particularly in cases with malignant potential.

Author Contribution :

- Conception and design : Flora T A1
- Acquisition, analysis and interpretation of data : Flora T A1, Tapu TT2
- Manuscript drafting and revising it critically: Flora T A1, Tapu TT2
- Approval of the final version of the manuscript: Flora T A1, Tapu TT2
- Guarantor accuracy an and integrity of the work: Flora Tapu TT2

Conflict of Interest:

None

Ethical Approval :

The research was approved by institutional review board (IRB), BSMMU (BSMMU/2022/6457, DATE: 28/6/22)

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