



## Case Report

# The struma with a twist: an uncommon case report

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### ABSTRACT

**Background:** Strumaovarii, monodermal ovarian teratoma with incidence of 0.3%. Complications of struma ovarii includes torsion, rupture, infection and malignant transformation.

**Case:** We present you a unusual case of struma ovarii undergoing torsion without any clinical features of thyrotoxicosis in a 45year old postmenopausal women presented with lower abdominal pain and vomiting. Imaging study showed Right ovarian cyst and her thyroid function test, tumor markers(Ca-125, Ca 19-9) are within normal limits. It was histopathologically proven as Torsion struma ovarii.

**Results:** A solid cystic ovarian tumour diagnosed as Struma ovarii undergoing torsion as a complication.

**Conclusion:** Even though struma ovarii is a rare ovarian tumor, we should keep in mind the complications which can happen with this type of tumor including the malignant transformations.

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## 1. Introduction

Mature cystic teratoma constitutes around 40-50% of all ovarian neoplasms in which struma ovarii is a monodermal teratoma.<sup>1</sup> The incidence of struma ovarii is about 0.3%.<sup>1,2</sup> Struma ovarii is a most common monodermal teratoma which shows predominance of thyroid tissue>50%.<sup>3,4</sup> It can present with varying complications which includes torsion in about 16% of all ovarian teratomas.<sup>5</sup> Other complications like rupture, infection and malignant transformation constituting about 1%.<sup>5</sup> Whenever a struma ovarii is undergoing torsion, it can cause features of thyrotoxicosis. Here we present you an unusual case of Struma ovarii underwent torsion without any features of thyrotoxicosis.

Forty-five-year-old nulliparous women presented to Gynecology outpatient department with complaints of lower

abdominal pain and vomiting for the duration of two days. She attained menopause two years ago. There was history of postmenopausal bleeding, for which she did not seek medical attention. On examination, her vitals were stable and per abdomen examination showed a single palpable mass of size approximately 8X7cm, firm in consistency felt over right lumbar region and hypogastric region. Tenderness felt over right hypogastric region as well as right and left lumbar region. No rebound tenderness, rigidity or guarding of abdomen. She was admitted for further evaluation and management.

On the day of admission, her vitals were stable with heart rate of 92bpm, blood pressure – 138/90 mm of Hg and Spo2 of 95% in room air. General examination showed no pallor, icterus, clubbing, cyanosis and edema. She was also febrile with no other complaints. Her hemogram showed mild anemia with 11g% and all other parameters were within normal limits.

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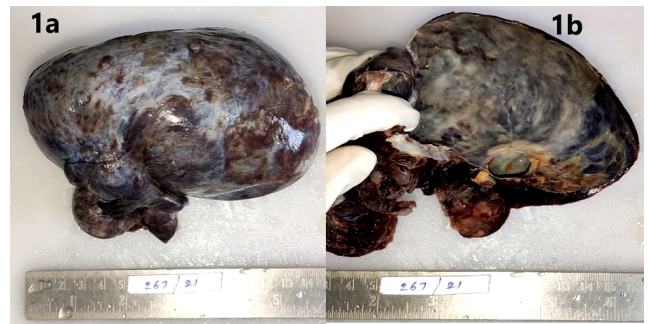
An ultrasonography scan of abdomen and pelvis was done outside and it showed a complex cyst measuring 10.8cmX7.5cm in the right adnexa. Echogenic focus and multiple septations are noted in the cyst. Right sided ovary could not be made out separately from the lesion. No evidence of vascularity noted. A computed tomography scan of abdomen and pelvis was done on the day of admission and it showed a Right ovarian cyst of size 10.5X10.5cm with suspicion of torsion. No free fluid seen in abdomen and pelvis. A repeat ultrasonography scan of abdomen and pelvis was done and this showed right ovarian cyst of size 9.6X9.5cm which has both solid and cystic areas. No free fluid seen. With the diagnosis of Torsion right ovarian cyst, Laparotomy was planned. Preoperative investigations was done and all the investigations were found to be within normal limits.

Along with other investigations, thyroid function test was done which showed high normal range of TSH and free T3, T4 are in normal range. Tumor markers like Ca-125 and Ca 19-9 were also done and found to be within normal limits. She was shifted to operation theatre after 3 days of admission and proceeded with laparotomy under spinal anesthesia. On opening peritoneum, a large bluish congested ovarian cyst of size 15x10cm was noted in right side with 2 turns of torsion across the axis. Left ovary was seen adherent to uterosacral ligament. The procedure done was Total abdominal hysterectomy with bilateral salpingo-oophorectomy. The specimen was sent for histopathological examination.

We have received uterus with cervix along with left ovary and right ovarian cyst separately. Uterus with cervix weighing 32g, measuring 3.5x4.5x3cm. Ectocervix was pearly white. Cut surface showed endocervical canal measuring 2cm in length with multiple small cysts measuring 0.5cm in greatest dimension filled with clear fluid. Endometrial canal was 2cm in length. Endometrial thickness was 0.3cm. Average endomyometrial thickness was 1.5cm.

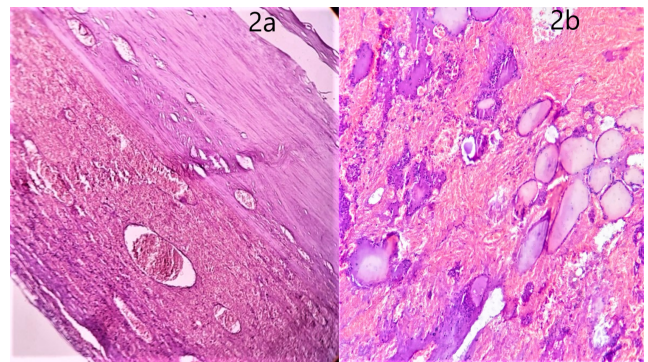
Right ovarian cyst measuring 15x10x8cm. Outer surface was congested, nodular and showed fallopian tube running over the surface. (Figure 1 a) A nick was made and drained blood mixed serous fluid. Cut surface showed partly cystic area measuring 10x8x9cm and partly solid area measuring 8x4cm. Serial sectioning of solid area showed multiloculated cysts. (Figure 1 b) Left fallopian tube with ovary measuring 3x1.5x1.5cm and was unremarkable.

Microscopically, multiple sections from cystic areas showed thick fibrous capsule with underlying hemorrhage. (Figure 2 a) Solid areas showed thick fibrous capsule dividing thyroid follicles into nodules. Nodules showed varying sized follicles filled with colloid and surrounded by large areas of hemorrhage, fibrosis, foamy macrophages and calcification. (Figure 2 b, Figure 3 ab) More than 90% of the solid area was composed of thyroid tissue with only

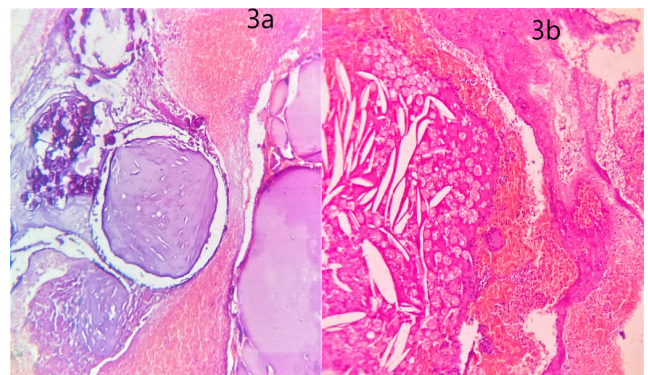


**Fig. 1: a:** Right oophorectomy specimen measuring 15x10x18cm showing congestion and bosselated on the outer surface; **b:** Cut surface of right ovarian cyst showing partly cystic and partly solid areas

a small foci of adipose tissue within the fibrous capsule. These features were consistent with Right struma ovarii with features of torsion.



**Fig. 2: a:** Microphotograph (H&E stain, 10X) show cyst wall with thick fibrous capsule and underlying hemorrhage; **b:** Microphotograph (H&E stain, 10X) showing nodules of thyroid follicles surrounded by haemorrhage in solid area



**Fig. 3: a:** Microphotograph (H&E stain, 4X) showing areas of calcification, fibrosis and haemorrhage within the solid area; **b:** Microphotograph (H&E stain, 10X) show area of ischemic necrosis surrounded by foamy macrophages and cholesterol clefts

## 2. Discussion

Mature cystic teratoma is the most common germ cell tumor which contains tissue from all the three germ cell layer.<sup>6</sup> Struma ovarii is the most common monodermal teratoma composed of >50% of thyroid tissue.<sup>3,4,6</sup> This type of tumor was first described by Boettlin in 1899. It is benign, usually unilateral, nonfunctional seen at the age of fifth decade.<sup>3</sup> Ovarian teratoma are associated with various complications like torsion, rupture, infection, malignant transformation. The most common complication seen is torsion in about 16% of teratoma.<sup>5</sup> Twist of suspensory ligament connecting ovary and the pelvic wall leading to torsion which progressively causing edema, ischemia and hemorrhagic infarction.<sup>7</sup> Histologically, struma ovarii usually showing normal thyroid follicles of varying sizes but occasionally there can be adenomatous nodule or even thyroid carcinoma.<sup>8</sup> As said, we have also encountered a unilateral struma ovarii but in fourth decade.

Adam Osman A et.al studies told that imaging studies plays an important role since the clinical picture of lower abdominal pain can be seen with acute appendicitis, pelvic inflammatory disease, endometriosis, renal colic.<sup>8</sup> Our patient also presented with similar complaints for which imaging was first diagnostic modality performed. Tirnovanu MC et.al studied 25 cases of struma ovarii which showed tumor size was ranging between 1cm to 20cm but most predominantly <6cm.<sup>9</sup> But our patient's tumor size is around 15cm which is correlating with this study. And such large tumors should be extensively grossed in order to find hidden malignancies. Lara C et.al and Robboy SJ et.al studies showed that there can be hyperactivity of thyroid tissue producing thyrotoxicosis which is seen rarely in about < 8%.<sup>6,10</sup> Our case doesn't show any features of thyrotoxicosis. Struma ovarii can also be associated with carcinoid, Brenner tumor and mucinous cystadenoma.<sup>7</sup>

However, we need to remember that one of the differentials for lower abdominal pain can be torsion ovary and there can be interesting histological variations like struma ovarii in a teratoma. And this can be seen in association with benign and malignant entities of other tumors of ovary.

## 3. Source of Funding

None.

## 4. Conflict of Interest


The authors declare no conflict of interest.

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