

# Struma Ovarii with Ascites and Elevated CA-125

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## Abstract

Struma ovarii is a rare form of ovarian neoplasm with thyroid tissue. Though they frequently present with features suggestive of malignancy, this tumor is benign in nature and it is usually diagnosed and confirmed only postoperatively. It is prudent to diagnose it preoperatively especially in young patients to avoid radical surgery and menopausal complications at an early age. We report a case of benign struma ovarii diagnosed as a malignant tumor preoperatively due to lack of suspicion of this entity, ending up with radical surgery at an early age. We therefore suggest that review of ultrasound and MRI images in detail with radiologists is important for those with a suspicion of the possibility of this tumor, in cases of unilateral ovarian mass and ascites with elevated CA-125. We also suggest frozen section biopsy during the procedure if facility is available.

## INTRODUCTION

The clinico-radiological diagnosis of adnexal mass with elevated CA -125 and ascites may be suggestive of malignancy. Struma ovarii is a rare monodermal teratoma and accounts for 3% of all mature teratomas. Many of them are asymptomatic and difficult to diagnose preoperatively.

If we could diagnose preoperatively, we can avoid radical operation for these benign tumors especially in young patients. Although struma ovarii contains thyroid tissue, only 5% of the cases have features of hyperthyroidism.

## CASE REPORT

A 38 year-old sterilised parous lady was admitted with history of abdominal distension, difficulty in breathing and dyspepsia for the past one week. Her menstrual cycles were regular with average flow. She underwent appendicectomy 4 years ago. Clinical evaluation revealed ascites with normal uterus and left adnexal mass.

Ultrasound confirmed left adnexal mass measuring 9.3 X 6.3 cm. The mass was predominantly solid with small cystic areas. No calcification was present. Right ovary and other abdominal organs were normal. Her pre-operative investigations were normal. CA-125 corresponded to 709 units/ml (normal < 35units/ml).

MRI revealed large well defined heterogeneously enhancing solid mass with few cystic areas seen in left side of pelvic cavity implicating an ovarian mass with gross ascites (Figs 1 & 2). With this clinical work up, she was prepared for

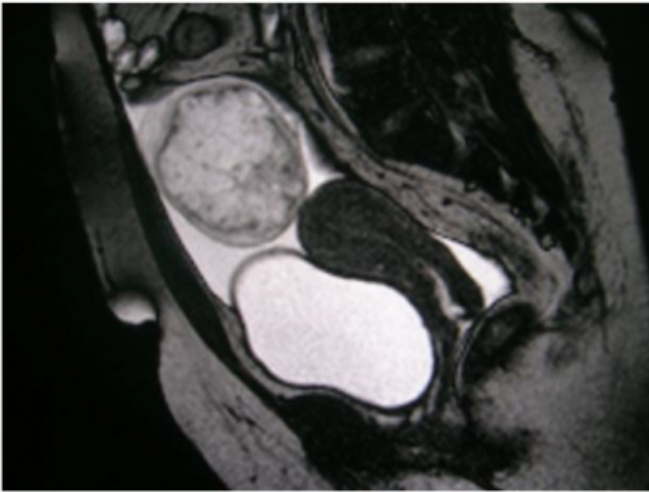
exploratory laparotomy.

Intraoperatively, uterus was normal in size. Left ovary was enlarged measuring 9 x 9 cm. The capsule was intact with no adhesions. The outer surface was smooth and glistening and the cut surface was predominantly cystic comprising of multiple cystic spaces (Fig 3). Right adnexa was normal. Two liters of ascitic fluid was tapped. Liver, bowel, omentum and lymph nodes were normal. Total abdominal hysterectomy with bilateral salpingo-oophorectomy and infracolic omentectomy were done.

Post operative period was uneventful. There was no re-accumulation of ascitic fluid. Sutures were removed on the 8th post-operative day and she was discharged in satisfactory condition. Ascitic fluid cytological examination confirmed no malignant cells. Histopathology report confirmed struma ovarii in left ovary. Microscopy revealed multiple variable sized thyroid follicles filled by amorphous eosinophilic material (Fig 4). Uterus, right adnexa and the left tube were unremarkable. Post operative thyroid profile was normal. She was advised for hormone replacement therapy. She was followed up for one and half years but later she was lost for the follow up.

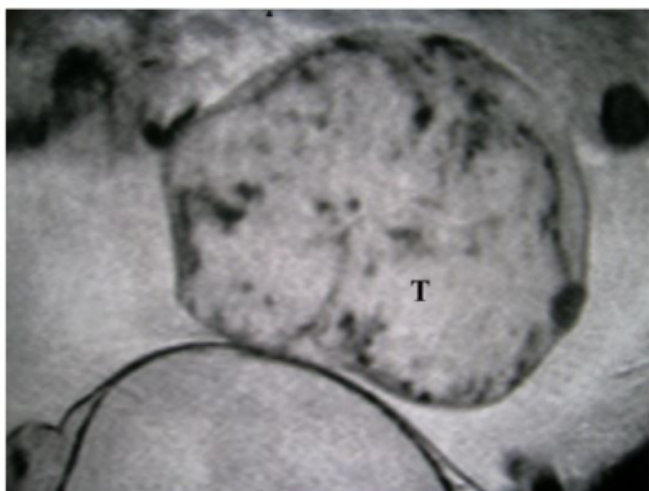
**Figure 1**

MRI- well defined heterogenous solid mass lesion, being isodense to hyperdense with ascitic fluid



**Figure 2**

MRI- well defined heterogenous solid mass lesion, being isodense to hyperdense with ascitic fluid



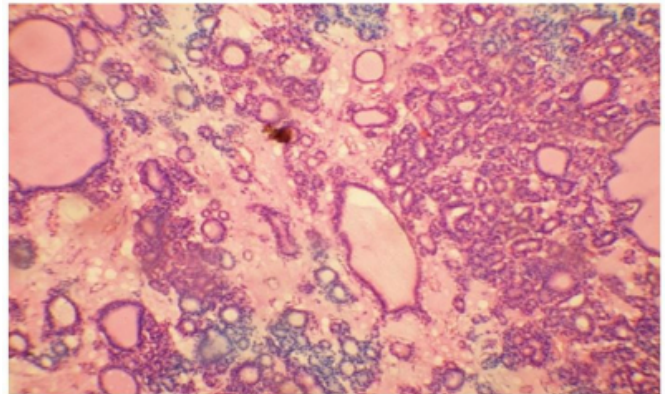
**Figure 3**

Cut surface was predominantly cystic comprising of multiple cystic spaces



**Figure 4**

Microphotograph showing multiple variable sized thyroid follicles filled by amorphous eosinophilic material



## DISCUSSION

Struma ovarii occurs in patients of older age group than that of those with common mature teratomas. They usually present as palpable abdominal mass and they are unilateral. Their sizes range from very small to lesions as large as 10 cm in diameter. Despite the presence of thyroid tissue, no specific symptoms are present in the majority of patients, and only 5% of patients with this tumor have features of hyperthyroidism or enlargement of the thyroid gland.<sup>1,2</sup> Less than 5% of struma ovarii tumors are malignant, and even when malignant; they rarely metastasize.<sup>3</sup> Rare cases of elevated CA-125 levels have been described in the

presence of struma ovarii, but all had ascites, with or without pleural effusion (mimicking pseudo-Meigs syndrome).<sup>4,5</sup>

Our patient presented with unilateral ovarian mass with ascites and elevated CA-125 levels.

Mui<sup>6</sup> in a review mentioned that in English language literature, there were eight case reports of Struma Ovarii in association with ascites and elevated CA-125 level and all the cases were initially suspected to be malignant. She also found eight case reports of struma ovarii with pseudo Meigs and elevated CA-125. Subsequently two more cases were added to the literature.<sup>7</sup>

Preoperative diagnosis and awareness of these entities is essential; particularly in young patients, who wish to preserve their fertility, menstrual function and prevention of adverse effects of surgical menopause. The clinical and sonographic pictures are nonspecific but heterogeneous, predominantly solid mass may be seen. Eric et al described that ultrasound examination demonstrated a complex appearance with multiple cystic and solid areas, findings of which reflect the gross pathologic appearance of struma ovarii.<sup>8</sup>

In our case, sonography revealed a mass that is predominantly solid with small cystic areas and no calcification. Several groups have reviewed the Magnetic Resonance Images (MRI) of struma ovarii<sup>9,10</sup>. They examined the images of histologically proven struma ovarii retrospectively and found that a complex mass composed of multiple cysts and solid components, along with signal intensities, was indicative of the presence of large and small thyroid follicles. On T1- and T2- weighted images, the cystic spaces demonstrate both high and low signal intensities. Kim et al. showed that struma ovarii has some characteristic MRI appearance of a multilobulated complex mass with thickened septa, multiple cysts of variable signal intensities, and enhancing solid components<sup>11</sup>. The MRI done at our institution, revealed a well-defined heterogeneous solid mass lesion, being isodense to hyperdense on T2 weighted and hypodense on T1 weighted images seen on the left side of the pelvic cavity measuring 10.7 cm in the greatest dimension. Few cystic areas were seen within the mass lesion.

In our observation, both ultrasound and MRI description

were in concordance with reported studies in literature. A general lack of clinical awareness of this entity can result in this entity usually mistaken for ovarian malignancy. Lack of facilities to perform frozen section biopsy also compounds to the management of this condition.

## CONCLUSION

Struma ovarii with ascitis and CA-125 elevation is a diagnostic dilemma in the absence of thyrotoxicosis. Unilateral solid lesions with cystic areas with low signal intensity on all MR sequences should merit a diagnosis of struma ovarii. In doubtful cases, a frozen section biopsy may be of benefit in avoiding radical surgery especially in young patients as mentioned in this report.

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