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ORIGINAL RESEARCH

Cystic Struma Ovarii: A pathological rarity and diagnostic enigma

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ABSTRACT
Struma ovarii is a rare ovarian neoplasm. It is a monophyletic teratoma composed predominantly of thyroid tissue an account for less than 5% of mature teratomas. Struma ovarii has more than 50% of thyroid tissue while thyroid component is minimal in cystic struma ovarii. It is a challenging diagnosis for the pathologist if the Struma ovarii is either cystic or co-exists with any other cystic ovarian tumor. Extensive tissue sampling becomes mandatory in such cases to confirm the diagnosis and its co-existence with another cystic ovarian neoplasm.

Key words: Struma ovari, thyroid, mucinous cyst adenoma

INTRODUCTION

Struma ovarii is a rare tumor which is predominantly (≥50%) composed of thyroid tissue. Mostly it is unilateral and belongs to the category of monodermal or specialized teratoma[1].Itcomprises 1% of all ovarian tumors and 2.7% of all dermoid tumors[2].About 5-10% of these lesions are malignant, but the majority are benign[3].This tumor was first described in 1889 by Boettlin, who observed the presence of thyroid follicular tissue in ovaries. Plaut established in 1933 that the follicular cells of struma ovarii are biochemically and physically identical to those seen in thyroid tissue[4].Most cases are observed around 40-60 years, but there are also reports from 16 to 80 years. Many times the cases are asymptomatic. but may present with pelvic mass, abdominal discomfort, pain, and less frequently with menstrual irregularities and ascites[4].Clinical and biochemical features of hyperthyroidism, occurs in less than 5-8% of cases[5].

There are two types of stroma ovarii: solid and cystic. Cystic type is rare, and due to the presence of minimal quantity of thyroid follicles it is difficult to diagnose, thus resulting in confusion with other cystic ovarian tumors[4].Mostly these are multilocular cysts, but about 10% are unilocular[6].Around 25 cases of cystic struma ovarii has been reported.

CASE REPORT

A 25 year female presented to gynaeOP presented with complaints of pain abdomen in right hypochondrium from last 1 week. Her lab investigations were within normal limits. Tumour markers were also done CA 19.9, CA-125 and CEA. All the markers were within normal limit. USG abdomen was suggestive of right tubo ovarian mass. CT Abdomen was suggestive of? Complex ovarian cyst and? Cystadenoma. Sample was sent for histopathological examination. Grossly received a cyst measuring 10.5x7.5x5cm. External surface was shiny and showed thin blood vessels. Cut section showed it to be a thin walled multiloculated cyst largest measuring 8cm in diameter filled with mucoid

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to thin yellowish fluid. The cyst wall was smooth and showed focal grey white areas. No papillary excrescences were seen.

Microscopically, multiple cystic spaces lined by non-stratified mucinous epithelium-intestinal type with predominant goblet cell type. The cystic spaces shows presence of mucinophages. Walls of the cyst shows areas of fibrosis, oedema and chronic inflammatory cell infiltrate. In addition, foci of thyroid tissue revealing micro and macrofollicles containing colloid is also noted. Adjacent ovarian parenchyma showed graafian and cystic follicles. No evidence of atypia, stratification or necrosis seen.

Features were suggestive of Benign mucinous cystadenoma with cystic struma ovarii. In addition, immunohistochemistry was done which showed positivity for TTF-1.

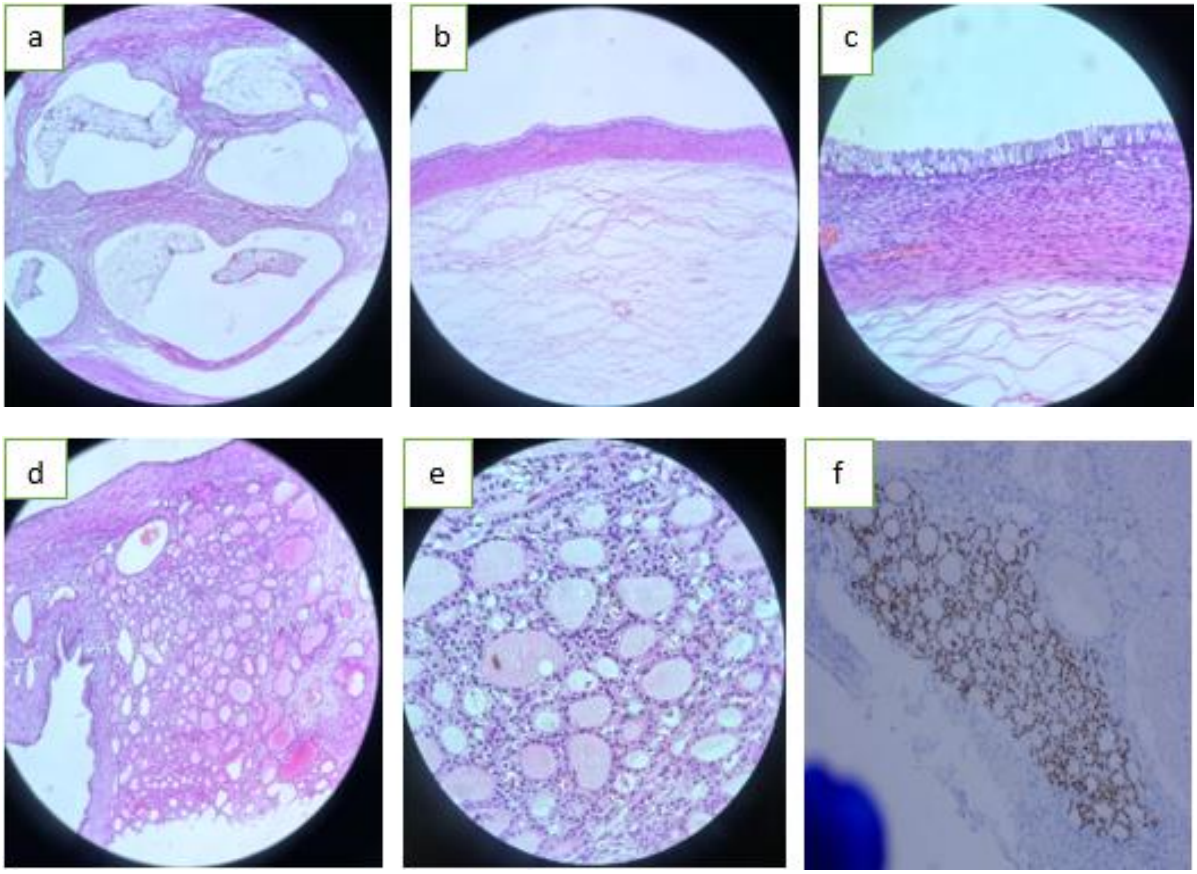

FIGURE: a)-Multiple cystic spaces seen (10x). **(b)**-cystic space lined by non-stratified mucinous epithelium-intestinal type with predominant goblet cell type (10x). **c)**-non-stratified mucinous epithelium-intestinal type with predominant goblet cell type (40x). **d)**-foci of thyroid tissue revealing micro and macrofollicles containing colloid (10x). **e)**-thyroid tissue revealing micro and macrofollicles containing colloid (40x). **f)**-Immunohistochemistry showed positivity for TTF-1

DISCUSSION

Identification of the cystic type of struma ovarii is challenging. On microscopic examination there can be confusion with other cystic ovarian tumors due to less thyroid follicles. Tumours are unilateral, and present as a palpable abdominal mass. It can range in size from tiny lesions to up to 10 cm in diameter.

Preoperative diagnosis is very difficult. The gray-scale ultrasound image shows a solid ovarian tumor with irregular internal echogenicity and cystic spaces containing anechogenic cyst fluid or cyst fluid of low-level echogenicity. The color Doppler image shows the tumor to be abundantly vascularized[7].On CT scan intracystic lesion of ovarii is highly attenuated on precontrast scans and no or moderate cyst wall enhancement indicates the presence of viscid gelatinous colloid material[4].However, these characteristic features are not very easily interpreted on radiologic examination, as they are not specific. There is no definitive biochemical or clinical marker. Hence, histopathological examination is confirmatory. Furthermore, struma ovarii causes more diagnostic dilemma when it is of cystic type, as it is sometimes confusing in histopathology. On microscopic examination it shows a prominent cystic configuration lined by nonspecific flat or cuboidal epithelium and minimal thyroid tissue or follicles, may mislead the diagnosis with other cystic tumors[8].Sometimes immunohistochemical staining for thyroglobulin is required to arrive at a diagnosis[9].In the biopsy report of our patient, an area showed well-defined thyroid follicles, but at other places, mucinous epithelium was reported.

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Therapy for benign struma ovarii is surgical resection (cystectomy and oophorectomy) especially in reproductive age group. Inmalignant cases radical surgery is done. Laparoscopic approach is preferred[10].When laparoscopy is performed and malignant struma ovarii is confirmed postoperatively, a second staging procedure should be performed either via laparotomy or laparoscopically[11].The literature lacks clarity regarding follow-up procedures, particularly in cases that are benign.

CONCLUSION

Cystic struma ovarii being a rare tumour with minimal thyroid tissue may be easily missed unless extensive tissue sampling is done to quantify it. It is recommend that cystic struma ovarii should be considered in the differential diagnosis of all ovarian cystic lesions. This report highlights the importance of histopathological examination which is the gold standard in the diagnosis of cystic struma ovarii with minimal thyroid tissue.

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CONFLICT OF INTEREST

The authors declare that they have no conflict of interest.

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