Abstract:
Struma ovarii is a rare ovarian tumour. It is a monodermal variant of teratoma which is characterized by presence of more than 50 thyroid tissue. It constitutes about 1 percent of ovarian tumours and 2.7 percent of teratomas. It usually occurs in pure form and rarely in association with Brenner and dermoid cyst. Most of struma is benign. Only 5 to 10 percent are malignant. Herein presented is a report of 65 year old female with benign struma ovarii with Brenner tumour.

Keyword : Struma ovarii, Brenner, cystic struma, monodermal teratoma

Introduction:
Struma ovarii is a germ cell tumour. It is a monodermal variant of teratoma which usually occurs in pure form and in association with dermoid, very rarely with Brenner and mucinous tumour. Struma ovarii is usually seen in fourth to sixth decade of life. There is risk of malignancy and thyroid hyperactivity. Hyperthyroidism is seen in 8% of cases.

Preoperative diagnosis is very difficult. Histopathological examination is the confirmatory.

Case report: 65 year old female presented with abdominal distension. Gynaecological examination and imaging techniques revealed a complex right ovarian cyst. Ultrasonogram diagnosis was a malignant ovarian cyst possibly serous cystadenocarcinoma. Patient underwent hysterectomy with removal of right ovarian mass and left salpingo oophorectomy.

Gross findings:
Ovarian cyst measured 16 x 9 x 9 cm with smooth external surface (Figure 1). Ovarian cyst was unilocular filled with solidified light brown material (Figure 2). Few solid areas and few cystic spaces were seen. The solid areas were firm and yellow (Figure 3). Uterus, fallopian tubes and the left sided ovary were grossly normal.
Figure 1 gross picture of ovarian cyst
Figure 2 unilocular cyst with light brown material

Figure 3 showing solid yellow areas

Figure 4 HPE showing thyroid follicles filled with colloid (10X)
Figure 5 HPE showing thyroid follicles filled with colloid (10X)

Histopathological examination:
The cyst wall was composed of normo-follicular and macrofollicular thyroid follicles filled with colloid representing struma ovarii (Figure 4 & 5). Few areas of transitional epithelial nests representing Brenner component were also noted (Figure 6). Solid areas revealed features of mature teratoma. No atypia was seen in any of the components. No malignant transformation was noted. These components were present separately present and there was no merge among them. The left ovary and uterus showed no remarkable pathology.
Figure 6: HPE showing transitional cell nests in a fibrous stroma (40 X)

Discussion:
We hereby had presented a rare coexistence of Struma Ovarii & Brenner tumour. Struma ovarii was first recognized by Ludwig Pick to be composed of thyroid tissue and was labeled as ovarian goiter, which was actually teratoma with predominance of thyroid tissue. Later, Plaut showed that the thyroid tissue in Struma ovarii was morphologically, biochemically, and pharmacologically identical to that of the normal thyroid gland. In the World Health Organization classification, Struma ovarii and malignant thyroid tumours arising within Struma ovarii are included in the thyroid tumour group under the category of monodermal teratomas (ICD 9090/ 0) and somatic-type tumours associated with dermoid cysts. As per the existing literature, Struma ovarii is generally a unilateral tumour, usually occurring in pure form, less commonly with other germ cell tumours like dermoid, carcinoid and very rarely with epithelial tumours like Brenner, mucinous and serous neoplasms. The tumour is usually solid, some may be cystic. Cut surface of the tumour is composed entirely of light tan, glistening thyroid tissue. Hemorrhage, necrosis, and foci of fibrosis may be present.

In our case, struma ovarii was associated with Brenner component and was predominantly cystic. Struma ovarii usually shows normal thyroid tissue, but may represent thyroid adenoma and carcinomas. In the present case, neither thyroid adenoma nor carcinoma were seen, rather thyroid tissue was normal. Brenner is an epithelial tumour accounting less than 5% of ovarian neoplasms. They are small and mostly incidentally discovered and are 90% unilateral. Brenner may be associated with mucinous tumour or dermoid cyst. Most tumors are well circumscribed, firm and rubbery with a grey white to yellow cut surface. In the present case, the Brenner component exhibited the above typical morphological features. The pathogenesis of this type of ovarian tumor composed of Brenner's tumor and struma ovarii is uncertain. Brenner tumor is generally thought to be derived from surface epithelial cells while struma ovarii is a monodermal teratoma (germ cell tumor). In most cases where there is coexistence of Brenner and struma, both the components express thyroglobulin. While there is strong evidence that pure Brenner tumors originate mostly from the ovarian surface, at least Brenner tumors associated with teratomatous elements may have a germ cell origin which could be confirmed by immunophenotyping.

Conclusion:
Coexistence of struma ovarii with Brenner is a rare entity which is highly unlikely to be diagnosed preoperatively. Struma ovarii has an overall better survival. Histopathology is the confirmatory. Histogenesis of Brenner associated with struma ovarii could be confirmed by further studies like immunophenotyping.
and molecular studies.

References:
3 World health organization classification of tumours, tumors of breast and female genital organs, 163 – 171.