

An Ovarian Tumour

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Introduction

A 46 year old lady with history of hypertension, hyperlipidemia, Type 2 diabetes, cardiovascular accidents, asthma, polycystic ovaries and seizures presented with nine weeks history of constipation which failed to resolve with standard laxatives. She had an ultrasound scan which revealed a huge (30 cm) complex cyst occupying the pelvis and abdomen. She was then referred to the gynaecologist and MRI scan was requested at that point. A week after, she was admitted via accident and emergency department with vomiting, shortness of breath, urinary frequency and difficulty in lying flat with a large palpable abdominopelvic mass.

The MRI report stated that there was a complex multiseptated cystic mass measuring 30 x 23 x 16 cm arising from the left ovary with free fluid in peritoneal cavity. The septations were apparently thicker towards the superior aspect of the mass with some solid components.

Clinical impression: The tumor markers were done which showed raised CA125 of (182 kU/L) and normal CA15-3 (9kU/L) and CEA (1ug/L) respectively. The clinical suspicion was of an epithelial tumour and she underwent total hysterectomy with biltateralsalpingopherectomy with appendectomy.

Frozen section: The left ovarian cyst was sent to our histopathology department for frozen section which revealed sheets of spindle cells and ap-

peared to be a stromal tumour. No epithelial lining was seen. The case was deferred to paraffin sections.

Gross Examination: It was a 280mm x 230x 70mm and 3788 grams partly cystic ovary. Slicing revealed a mutliloculated partly cystic tumour with some solid areas and was filled with haemorrhagic and mucinous secretions.

The uterus was within normal limits. The right ovary measured 33x28x22mm and showed multiple small cysts measuring 3 to 5mm in maximum dimensions.

Microscopy: Histopathological figures 1-3

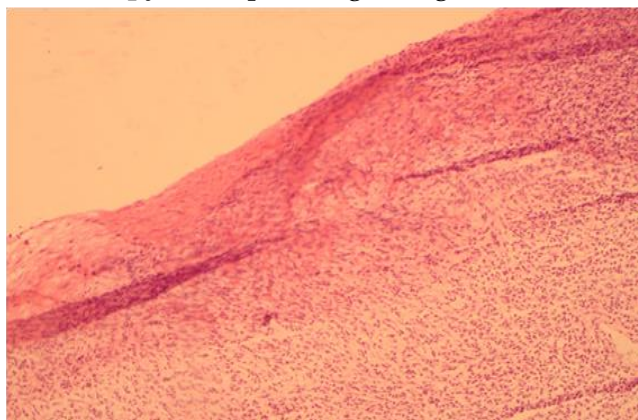


Figure 1. Frozen Section

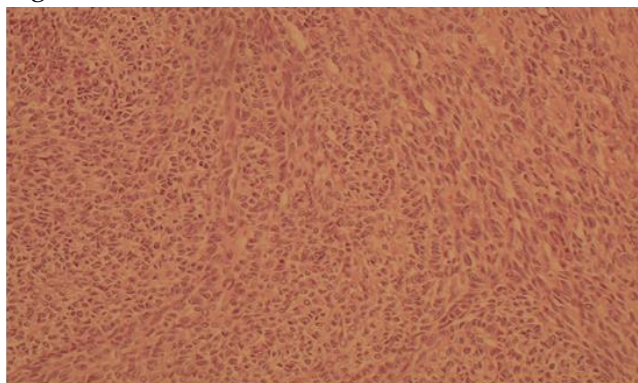


Figure 2: Paraffin section (H&E)

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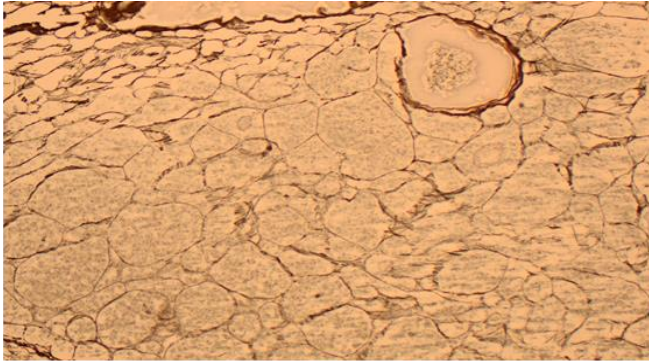


Figure 3: Reticulin stain. The reticulin in the tumour with polygonal areas showed positivity around the nests of the tumour cells rather than around single cells.

Immunohistochemistry: The tumour showed weak to moderate positivity for Inhibin and diffuse positivity with CD56 and WT1. The tumour was negative for CD99 and CD10.

Questions:

1. What's your diagnosis?
2. What's your differential diagnosis?
3. How will you confirm your diagnosis?
4. What's its clinical course?
5. What would be the take home messages?

Answers:

1. Malignant Granulosa Cell tumor with a prominent fibrothecomatous background.¹
2. On frozen sections, in this case, the differentials are fibroma, fibrosarcoma (as this depends on mitotic count in all the blocks), granulosa cell tumour with fibrothecomatous background and adenocarcinoma with a predominant spindle cell pattern. However, on some paraffin blocks with characteristic polygonal cells showing nuclear grooves along with nested pattern on Reticulin and positivity for inhibin and calretinin clinches the diagnosis.
3. Special stains, immunohistochemistry.

4. Due to large size, necrosis, high mitotic count, the tumor appears to be malignant and prognosis is not favourable. The high estrogen level may cause other tumors such as endometrial carcinoma. There is distinct subtype of granulosa cell tumor seen in children and young adults called juvenile granulosa cell tumor.² The findings were concluded as those of a granulosa cell tumour with a prominent fibrothecomatous background and poor prognostic factors, which included the tumour size of 28cm and mitotic rate of 6 per 10 high power fields.^{3,4}
5. Take home messages:
 - a. Frozen section on ovarian tumours can be very helpful to a certain extent i.e. to be able to tell that whether it is epithelial or some other tumour type, as in this case it was a sex cord stromal tumour.⁵
 - b. At the same time, frozen sections can be very dubious as it is very difficult to definitely say whether it is benign or malignant, especially in stromal tumours.⁶
 - c. Sampling is a major issue in the ovarian tumours especially on frozen sections. This could even have turned out to be a carcinoma.
 - d. The immunohistochemistry plays a very important role in such ovarian tumours.⁷
 - e. Reticulin is a very good special stain to differentiate between granulosa cell tumours and fibrothecomas/ fibrosarcomas.⁸

Discussion

Granulosa cell tumours are the most frequent among the sex cord stromal tumours. These are the most common ovarian tumours associated with estrogenic manifestations. They can also present as abdominal pain or mass, intraperitoneal rupture and haemorrhage and less common-

ly with androgenic features. Majority of the tumours are unilateral. The frozen section can be helpful to some extent in providing the information regarding whether the tumour is of epithelial or some other type. However there is a chance that all representative elements may not be present and thus correct diagnosis may be missed. Hence extensive sampling, special stains and immunohistochemistry may be useful in clinching correct diagnosis. As these tumors have variable spindle shaped theca and fibroblast component and if on frozen sections these elements predominant as was the case here; the frozen section suggested a stromal tumor! Multiple permanent paraffin sections and immunohistochemistry led to correct diagnosis of granulosa cell tumour with a prominent fibrothecomatous background.

This case reflects the limitations of frozen section in the ovarian tumours, importance of adequacy of sampling and the role of special stains and immunohistochemistry in the diagnosis of ovarian tumours.

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