Case Report

ROLE OF GROSS PATHOLOGY IN OVARIAN CYSTIC LESIONS: GROSS AND MICROSCOPIC PATHOLOGY OF THREE OVARIAN CYSTIC LESIONS

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ABSTRACT

Gross pathology helps in framing a presumptive diagnosis in the mind of surgical pathologist. Sometimes, microscopic examination differs from the presumptive diagnosis framed during gross pathology examination. Three ovarian cystic lesions which were given a presumptive diagnosis of serous cystadenocarcinoma, borderline serous cystadenoma, mucinous cystadenoma in gross pathology examination were reported as well differentiated endometrioid carcinoma, juvenile granulosa cell tumour and atypical proliferative sero-mucinous cystadenoma.

Keywords*- gross examination, endometrioid carcinoma, sero-mucinous tumour, granulosa cell tumour*

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INTRODUCTION

Gross pathology is the recognition, description of abnormalities and pathologies at the clinical level. Gross pathology aids in suggesting a pathogenesis, mechanism of clinical disease, and establishing a presumptive diagnosis. In addition gross pathology, aids in selection of relevant portions for microscopic examination and special studies. Diagnosis on the basis of gross pathology can be made in around 90% of specimens. In the remaining 10% of specimens, a differential diagnosis can be arrived at before microscopic examination(1, 2). On that accord, we present our experience in correlation of gross examination with histopathological diagnosis in ovarian cystic lesions. Three ovarian cystic lesions wherein the histopathological diagnosis differed from presumptive diagnosis established at gross examination are also highlighted.

MATERIALS AND METHODS

A retrospective analysis was done by reviewing the surgical gross and microscopic examination reports of patients who underwent surgical management for ovarian cystic lesions from June 2015 until June 2016. The presumptive diagnosis was classified into non-neoplastic and neoplastic ovarian cystic lesion. The presumptive diagnosis obtained from gross examination was compared with the final histopathological diagnosis. The histopathological diagnosis was categorized into non-neoplastic and neoplastic ovarian cysts. The neoplastic ovarian cysts were further categorized according to WHO classification. Descriptive statistics were used to determine between gross diagnosis and histopathological diagnosis.

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RESULTS

Forty eight ovarian cystic lesions were surgically managed. On gross examination, 26 were classified as non-neoplastic ovarian cysts and 22 were classified as neoplastic cystic lesions. On histopathological diagnosis, all the non-neoplastic presumptive gross diagnosis correlated with the final microscopic examination. Out of 22 neoplastic cystic lesions, good gross-histopathological correlation was observed in 19 cases and 3 cases (13.63%) were not correlated. All the three cases though were termed neoplastic in gross examination; the presumptive diagnosis and histopatholgical categorization of ovarian cystic lesion were not correlated. The non-correlated cases are described below;

CASE-1

A cystic mass measuring 9 x 6 x 3.5 cms was received in formalin. Cut section the cyst appears multi-locular, with cystic and solid friable areas with papillary excrescences (Fig 1). A presumptive diagnosis of serous carcinoma was made. On microscopy, infiltrating back to back glands, with few areas showing papillary configuration and characterized by stratified columnar epithelial cells with focal squamous differentiation was identified (Fig 2 a, b). A diagnosis of well differentiated endometrioid carcinoma was made.

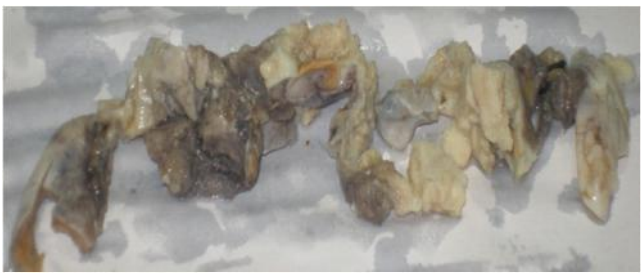

Fig 1: Multi-locular cyst with solid friable areas and papillary excrescences

CASE-2

A cystic mass measuring 20 x 16 x 9 cms was received in formalin. Cut section the cyst appears multi-

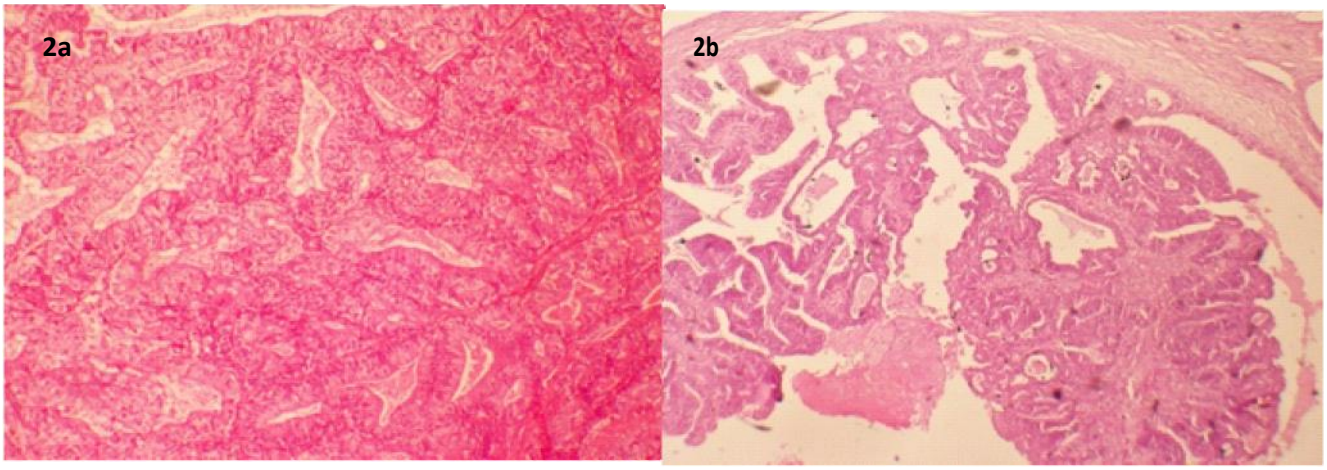

Fig 2a: Infiltrating confluent glandular pattern lined by stratified columnar cells (Haematoxylin and eosin, 10x)(H&Ex100);

2b: Cyst wall with papillary excrescences lined by glands with stratified columnar cells (Haematoxylin and eosin, 10x) (H&Ex100).

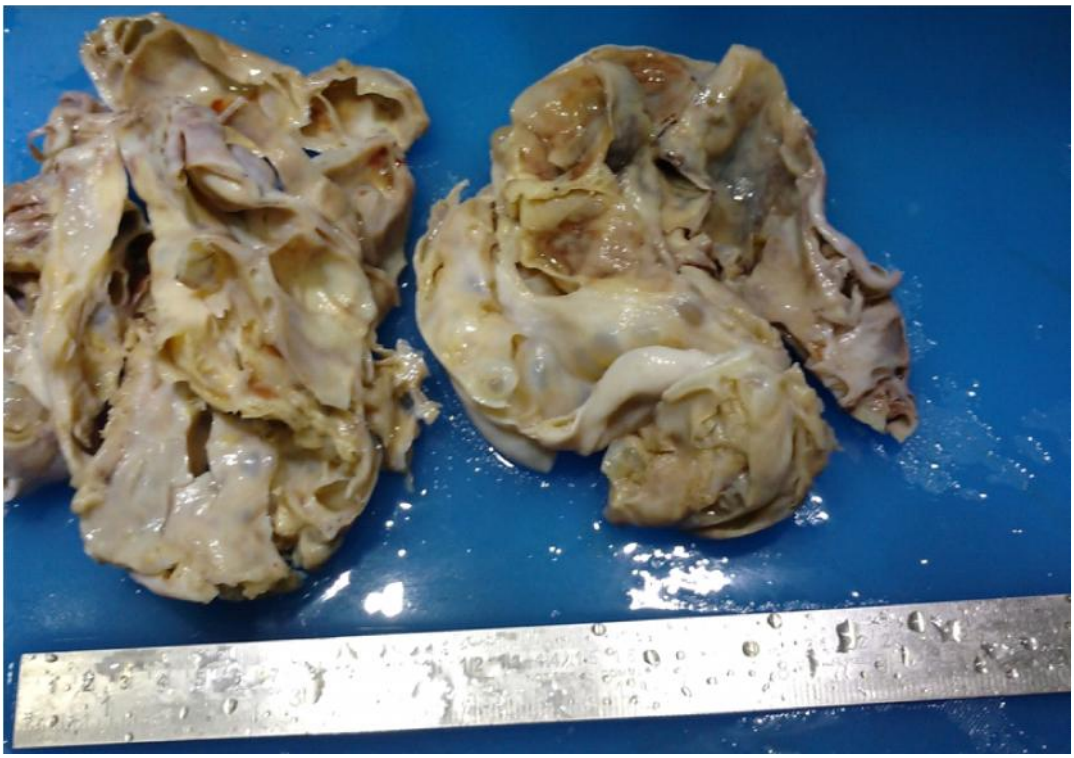

Fig 3: Multi-locular cyst with thickened cyst wall (H&Ex100).

locular, filled with clear straw coloured fluid with thickened cyst walls (Fig 3). No solid areas were identified. A presumptive diagnosis of borderline serous cystadenoma was made. On microscopy, cyst wall lined by stratified nests and macro-follicles of round cells were seen. The cells were characterized by hyperchromatic nuclei with rare nuclear grooves and increased mitosis (Fig 4 a,b). Immunohistochemistry of Epithelial Membrane Antigen (EMA) revealed a negative staining. A diagnosis of juvenile granulosa cell tumour was made.

CASE-3

A cystic mass measuring 26 x 23 x 16 cms was received in formalin. On cut section, a multi-loculated cyst filled with sero-mucinous fluid was expressed. No solid areas were identified (Fig 5). A presumptive diagnosis of mucinous cystadenoma was made. On microscopy, cyst wall lined partly by columnar mucinous cells and partly by cuboidal cells with focal stratification and atypia in approximately 10 to 12% of tumour was identified (Fig 6 a, b). A diagnosis of atypical proliferative mucinous tumour of sero-mucinous or mullerian type was made.

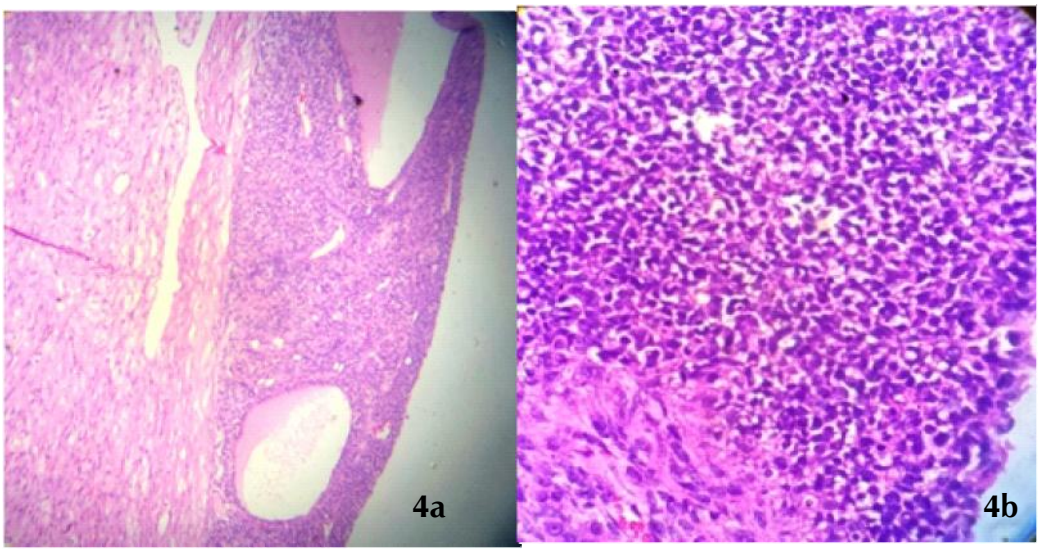

Fig 4a: Cyst wall lined by multi-layered round cells with hyperchromatic nuclei with focal follicle formation (Haematoxylin and eosin, 10x) (H&Ex100);

4b: Hyperchromatic cells with increased mitosis (Haematoxylin and eosin, 40x) (H&Ex100)

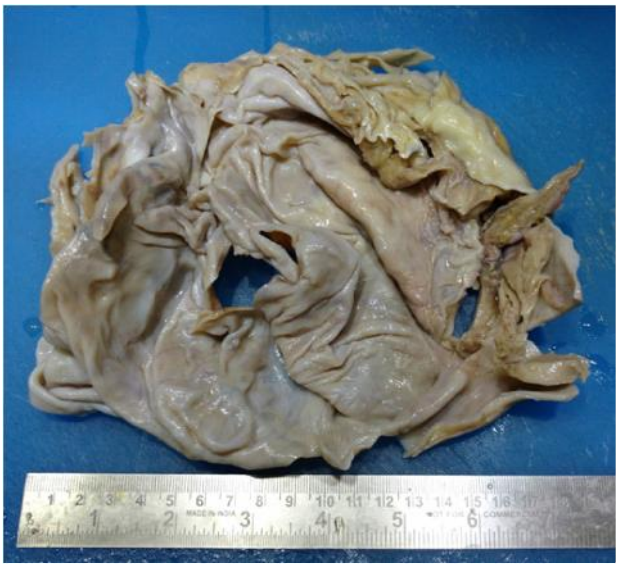

Fig 5: Multi-locular cyst with smooth walls

DISCUSSION

The attributes of gross pathology includes distribution, contour, shape, colour, size, consistency, special features and extent .[2] The gross lesions of some pathology entities are sufficiently distinct in their pattern to be presumptively diagnostic. For other entities, a differential diagnosis can be made before confirmation with microscopic examination. Sometimes, there is discordance in the presumptive diagnosis established by gross examination and microscopic examination.[1-3] In case-1, the solid friable areas and papillary excrescences made us think of serous carcinoma. However, the solid areas and papillary areas were made of confluent back to back arrangement of glands lined by stratified columnar cells. Though papillary excrescences are most commonly seen in serous cystadenocarcinoma, it is also less commonly seen in endometrioid carcinoma.[4] Clinical knowledge and background information of ovarian cysts which can have papillary architecture is instrumental in constructing the differential diagnosis. In case-2, multi-locular cyst with smooth lining and occasional thickened wall is indistinguishable from various other cystic masses. Due to increased prevalence of surface epithelial lesions, and mild thickening of wall, a presumptive diagnosis of borderline serous cystadenoma was considered. The clinical background knowledge of normal levels of CA-125 which was not considered at the time of gross examination would have helped in considering other cystic non surface epithelial tumours.[4,5] In case-3, though the gross examination resembled that of a typical mucinous cystadenoma, sectioning and microscopic examination from various areas as per institutional protocol revealed dual lining of cyst wall. This case demonstrates the importance of sectioning from different areas from a large tumour.[1]

Although gross examination is not a diagnostic test on its own, it plays a crucial role in providing a correct histopathological diagnosis.[6] There are no studies regarding the correlation of gross-histopathology examination. In our study, there was 100% correlation in non-neoplastic ovarian cysts and 86.37% correlation in neoplastic ovarian cystic lesions. Since gross examination is not a diagnostic test on its own, the accuracy, sensitivity and specificity were not determined.

With the advent of molecular pathology, the traditional pathology skill of gross examination is rapidly declining amongst young pathologists. There is combined loss in quality of gross examination, accuracy, elegance

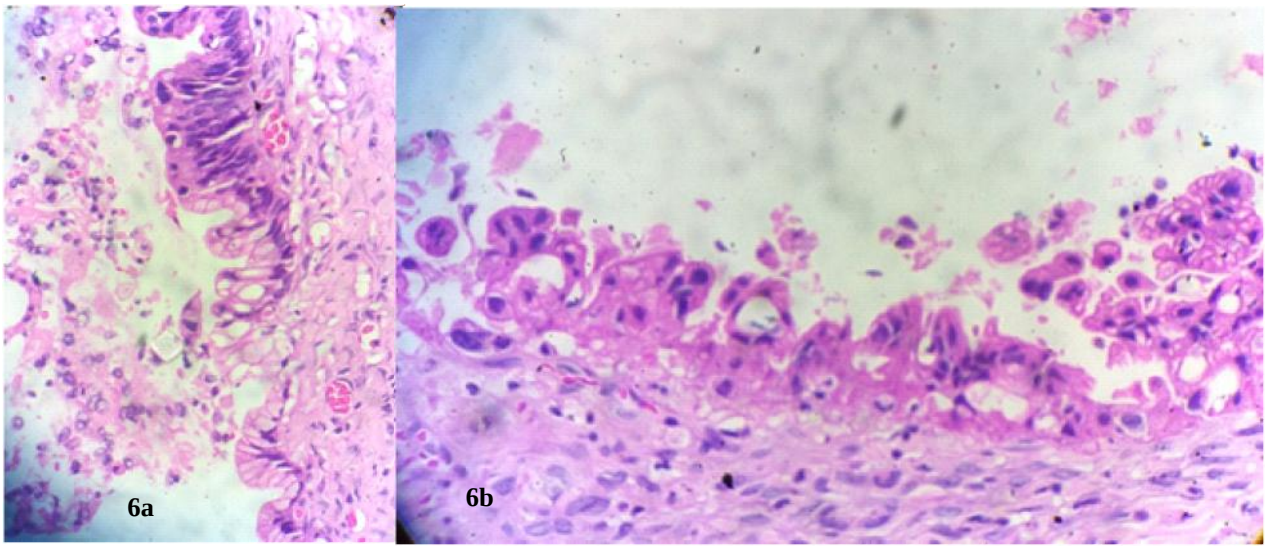

Fig 6a: Cyst wall lined by bland mucinous cells and stratified columnar cells with hyperchromatic nucleus (Haematoxylin and eosin, 10x) (H&Ex100);

6b: Cyst wall lined by stratified columnar cells, few with hyperchromatic nuclei and atypia (H&Ex400)

of specimen description and lack of specificity in sample selection for microscopic, immunohistochemical examination, molecular studies.[1] With this article, we would like to emphasize the importance and principles of gross examination. The two principles of gross examination are knowledge of clinical history and knowledge of organ or region examined. Also, another prerequisite for gross pathology is consistency in sections taken according to standard manuals or institutional protocols.[1] A microscopic examination from a poorly selected site of specimen can be catastrophic if leads to a wrong diagnosis. Similarly, a special study from improperly selected site will be meaningless.[1,2] As pathology residents are the personnel mostly responsible for gross examination, importance and protocols of gross examination of pathology specimens must be taught as part of pathology education programme.

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