Journal of Pathology of Nepal (2013) Vol. **3**, 505 - 508

Journal of
PATHOLOGY
of Nepal

www.acpnepal.com

Case Report

Pregnancy with papillary serous cyst neoplasm-series of three cases

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Keywords:

borderline,
papillary serous neoplasm;
pregnancy

ABSTRACT

Papillary serous neoplasm with pregnancy is a rare occurrence. Three such cases are presented here. In each case ovarian cyst was detected on ultrasonography when patients presented with non specific abdominal pain though there was no prior history or complaint on first antenatal visit. One is a papillary serous cystadenocarcinoma with capsular invasion in a twenty five year old woman and the other two are papillary serous tumour of borderline category in twenty and twenty three year old woman respectively. In the former pregnancy was terminated at 22 weeks followed by chemotherapy. In the other two cases pregnancy was continued and outcome was uneventful.

INTRODUCTION

Epithelial tumours comprise 58 % of all ovarian tumours. Benign and borderline tumours occur at all ages but are often detected in premenopausal women while carcinomas occur chiefly in peri-menopausal and post menopausal women.[1] Occurrence of ovarian cancer in pregnancy is not common and reported incidence varies from .0179 to 0.11 per 1000 pregnancies.[2,3] Hence proper diagnosis influences management decision concerning foetal conservation and patient health. We present three such cases and discuss difficulty pertaining to management.

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CASE REPORT

Case # 1

A 25 year-old woman presented with abdominal pain during pregnancy. Ultrasonography of abdomen showed a gestational sac along with a left sided ovarian cyst measuring15x16x17 cm. Mild ascites was noted. Salpingo-oopherectomy and partial omentectomy was done and sent for histopathologic examination (HPE) and ascitic fluid was sent for cytology. HPE of the ovarian tumour showed the features of papillary serous cyst adenocarcinoma (fig.1A&B) with capsular invasion. Omentum was free of deposits and ascitic fluid cytology was normal. Total abdominal hysterectomy and other sided salpingo-oopherectomy was performed with foetus in situ. The specimen was sent for pathological examination after removing the foetus. The

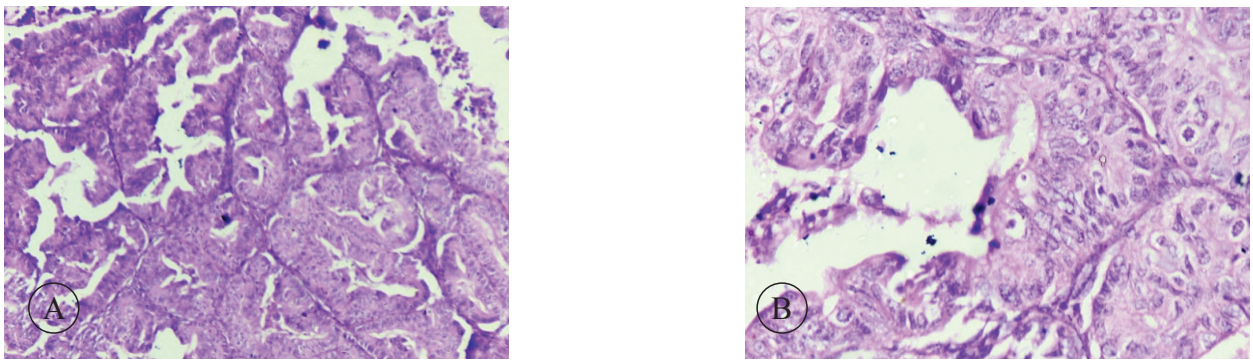

Figure1A: *Case1 showing papillary and glandular architecture, mild nuclear pleomorphism and scanty mitotic figure (HE Stain, X100) and B. In high power view (X400).*

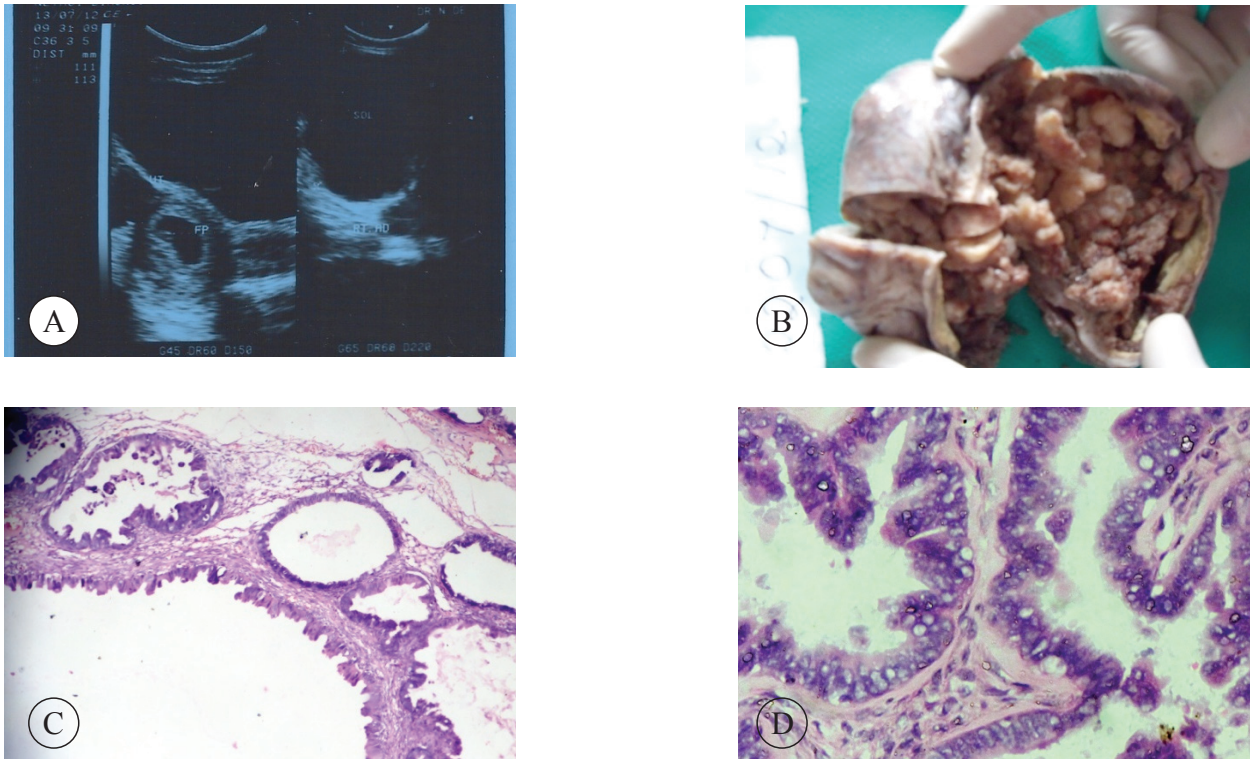

Figure 2A: *USG showing right ovarian tumour, with foetal pole of six weeks maturity; B. Gross specimen showing ovarian cyst with papillary fragments and C,D. Bodrderline papillary serous tumor (HE Stain, X100 and X400)*

previous slides were reviewed for grading and staging. Serum CA-125 level done showed a value of 68µ/ml. On staging with Silverberg Universal grading for ovarian tumours, it was grade 1; stage 1C. Patient was referred to the oncologist for further management.

Case # 2

A 23 year-old female presented with right ovarian tumour, with foetal pole of six weeks maturity(fig.2a). No prior history of dysmenorrhoea or bleeding was elicited. Right sided salpingo-oopherectomy was performed and specimen was sent for histopathological examination. On gross examination 4x4x3cm ovarian tumour with smooth capsule was seen. Cut section showed unilocular cyst with multiple papillary fragments. (fig.2b). Microscopically it was a borderline papillary serous tumour(fig.2C).

Case # 3

An ovarian tumour was operated in a 20 year-old pregnant female and sent for histopathological examination. Its dimension was 9x6.5x2.5 cm. Cut section showed a cystic lesion with small papillary projection. Histopathological examination revealed it as a case of borderline papillary serous tumour with stromal microinvasion (fig.3A &B).

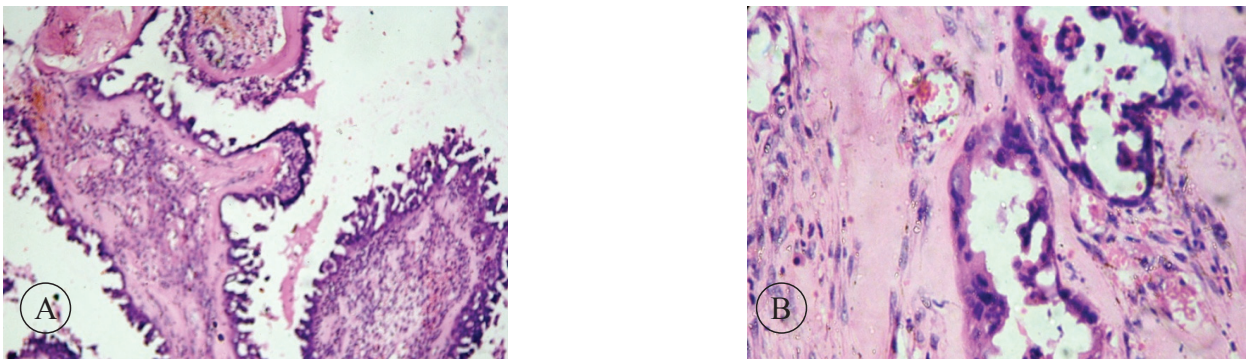

Figure 3A: Borderline papillary serous tumour (HE Stain, X100). Stromal microinvasion by cells with eosinophilic cytoplasm as marked by arrow. (B) Note absence of stromal reaction (HE Stain, X400).

DISCUSSION

The association of ovarian malignancies and pregnancy is rare and there is currently insufficient data of isolated cases. There are currently no definitive guidelines in the literature regarding the management of maternal ovarian cancer, with the exception of summaries of international consensus meetings.[4,5]

Germ cell tumours are reported to be more prevalent than other histological types, a finding consistent with age matched setting. The reported incidence of epithelial tumours is 1:12000 to 1:50,000 pregnancies. However with the widespread use of routine prenatal ultrasonography and also pregnancy occurring in advanced age it is likely that incidence of case detection will increase. Palmer et al reviewed all articles published and found only 41 cases of epithelial ovarian cancers associated with pregnancy in period ranging from 1958 to 2007. Majority were serous type with age range of 23-46 years of which only two with serous type were 25 years or younger.6 One of the case in our study was 25 years of age.

Most of the cases are asymptomatic detected during ultrasound or caesarean section. Most common presenting complaint is pain abdomen. Suspicion of malignancy should arise if a large, complex cystic-solid mass with ascites is found on USG.[6]

Majority are diagnosed in early stage when the disease is still confined to the ovary and usually the tumours are of low malignant potential (LMP) category.[7]

Serum Ca-125 levels may be raised in normal pregnancy and moderate rise of Ca-125 may not help to substantiate a diagnosis.8 Possibly that is the reason Ca-125 was not helpful in case 1. It was not done in case 2 and 3.

The principles of management in ovarian cancer complicating pregnancy include surgery with adequate staging. For advanced disease, the principles of adequate staging and debulking surgery should be similar to those used for the treatment of nonpregnant women.[9]

Histology report must include proper categorization of tumour because borderline tumours differ from invasive epithelial ovarian cancer in their indolent behaviour and good prognosis. Borderline tumours show papillae lined by stratified columnar cells having fibrovascular cores and arranged in hierarchal branching pattern. Some cells show abundant eosinophilic cytoplasm. Such cells tend to be more abundant in BST with stromal microinvasion and in pregnant patients.[1] This finding was seen in both the cases of BST in our study.

The microscopic feature that differentiates a serous borderline tumour from a serous carcinoma is the absence of diffuse stromal invasion in former. However foci of microinvasion can be seen in BST. Microinvasion occurs in two patterns. In the first, eosinophilic cells are haphazardly distributed in fibrous stroma without any stromal reaction. In the second pattern, papillae, small glands, cords or confluent nests of epithelial cells invade the stroma.[10] If the second pattern of invasion is found, a thorough search to exclude larger areas of invasions should be done. Mooney et al have described multiple areas of microinvasion in 8 out of 10 serous tumours diagnosed during pregnancy. However these aggressive features tend to regress after termination of pregnancy and all ten cases got free of disease.[11] Case1 in our report showed first pattern of microinvasion.

Grading of ovarian carcinoma has not been standardized. Silverberg and colleagues developed a "universal" grading system that they thought could be used for all types of ovarian carcinomas.[12] In their system, the grade is determined by the degree of nuclear atypia, the mitotic index, and the extent to which the tumour cells form papillae or glands. Recently, a binary grading system, in which low-grade serous carcinoma almost always falls into grade 1 of the "universal" grading system, has gained greater acceptance than the "universal" grading system. In

the binary system, low-grade serous carcinoma exhibits mild to moderate nuclear atypia and 12 or fewer mitotic figures per 10 high power fields. In high-grade serous carcinoma there is marked nuclear atypia, considerable pleomorphism and often prominent macronucleoli. Also, most low-grade serous carcinomas are associated with a borderline serous tumour, so in a primary ovarian tumour the finding of patterns of a borderline tumour favours low-grade serous carcinoma. Tumours with intermediate nuclear grades ("grade 2 serous carcinoma") are similar in their growth patterns and molecular features to high-grade serous carcinoma and exhibit the same aggressive behaviour, so they are viewed as high-grade tumours.[13,14]

Conservative fertility-saving surgical treatment can be offered to young patients (< 40 years) with early stage (stage I-II) disease who wish to retain their fertility potential.[15]

In early-stage (FIGO stage Ia), staging laparotomy and salpingo-oophorectomy alone, followed by careful observation of both mother and foetus in a multidisciplinary setting may suffice Presentation in advanced stages in early pregnancy warrants discussion and strong consideration of therapeutic termination.[6]

Platinum-containing agents, in combination with Paclitaxel are currently the primary chemotherapy agents used in the treatment of EOC.[6]

CONCLUSION

As borderline tumours differ from invasive epithelial ovarian cancer in their indolent behaviour and good prognosis, accurate histological diagnosis with careful staging is required to aid in proper management of the patient.

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