Abstract:
Malignant ovarian tumor in pregnancy is reported to occur in 1 in 20000 deliveries. 5 percent of adnexal masses detected in pregnancy are malignant. 24 years G2P1L1 was referred at 36 weeks of gestation as pregnancy with ovarian cyst. Ultrasound done revealed features of ovarian tumor. She delivered an alive term female baby by labour natural. Postnatally Ultrasound was repeated which showed features of ovarian tumor with mural nodule, possibility of malignancy following which left ovariotomy was done. Histopathology revealed papillary mucinous cystadenocarcinoma after which staging laparotomy was done and the surgical staging was stage IC and she is presently on chemotherapy.

Keyword: Malignant ovarian tumor, pregnancy

INTRODUCTION:
Pregnancies associated with persistent ovarian mass average 1 in 800, of which 5% are malignant compared to 15-20% in non-pregnant state. Incidence of ovarian malignancy is 1 in 20000 deliveries. The types of malignancy in order of prevalence diagnosed during pregnancy are germ cell tumors (45%), epithelial tumors (37.5%), sex cord stromal tumors (10%) and other pathologies. Signs and symptoms are basically same as in non-pregnant state. Most ovarian tumors are diagnosed at an early stage in pregnancy and management is same as in nonpregnant state.

CASE REPORT:
24 years G2P1L1 was referred at 36 weeks of gestation with ultrasound report of ovarian cyst from a primary health centre. She had overdistension of abdomen for past 1 month and no other specific complaints. She had regular menstrual cycles. LMP: 1.2.12 EDD: 8.11.12., married for 3 years non consanguinous. Her first child is 1½ years old, boy, full term vaginal delivery. She is booked at a nearby PHC for this pregnancy. She had no significant medical or surgical illness. There was no family history of...
malignancies in her first or second degree relatives. She was moderately built and nourished, not anemic, not icteric, afebrile, no lymphadenopathy. Her vitals were stable. CVS, RS — clinically normal. Breast thyroid, spine, gait — normal. Clinical examination revealed overdistended abdomen with single live fetus of 36 weeks gestation, in longitudinal lie, cephalic presentation, displaced to right by a mass of 30 x 25 cm, non tender, firm in consistency, smooth surface with restricted mobility occupying upper left side of abdomen.

Basic investigations, renal function tests, liver function tests were within normal limits.

3 mm fig (2,3) possibility of malignant ovarian tumor, with no evidence of ascites or metastases in abdominal viscera. CT Abdomen and pelvis revealed similar finding. Her CA 125 level was 55.2 IU/ml. Her chest x ray showed no evidence of metastases.

Fig1 Ultrasound showing fetus with ovarian cyst
Ultrasound done revealed features of benign ovarian tumor of 20 x 25 cm with thin septations (fig. 1) and she was discharged and advised to report after a week.
She delivered an alive term female baby weighing 3 kg by labour natural in a nearby primary health centre (23.10.12) and she came for review. Clinical examination revealed ovarian mass of 30 x 25 cm occupying all quadrants of abdomen, non-tender, smooth surface, firm in consistency with well defined borders and mobility, no evidence of ascites.
Postnatally, Ultrasound was done which showed large abdominopelvic cystic mass 26 x 30 cm with mural nodule, thin septations of thickness 2-

Fig2 Ultrasound showing septations with fluid collection
Fig 3 Ultrasound showing ovarian cyst with septation, mural nodule

Fig 4 Intra operative picture showing left ovarian tumor, uterus, right tube, ovary
She was planned for laparotomy (8.11.12) which revealed. No ascites, Hence peritoneal washings were taken for cytology. Systematic palpation of intestines, abdominal viscera was done in a clockwise manner, no evidence of metastases noted.
No para aortic lymphadenopathy. Left ovary was the seat of tumor, which measured 33 x 38 cm with flimsy adhesions between omentum and peritoneum with torsion twice around the pedicle. Capsule was intact, no tumor on external surface. (fig. 4) Uterus was 10 weeks size. Right ovary and tube normal. Left ovariectomy was done in view of non availability of frozen section in our hospital and young age of the patient.

GROSS: Left ovarian tumor 33 x 38 cm, weighing 9.1 kg. (fig. 5) with cut section (fig. 6) showing solid area 2x3 cm and multiple loculi filled with mucinous fluid. (fig. 6).

**Fig 5** Ovarian tumor removed during surgery
**Fig 6** Cut section of ovarian tumor removed during surgery

**Fig 7** Histopathology of Papillary mucinous cystadenocarcinoma of ovary
Histopathology revealed glands lined by tall columnar cells containing intracytoplasmic mucin, hyperchromatic nuclei, marked cellular stratification and mitotic activity with infiltrating margins - papillary mucinous cystadenocarcinoma (fig. 7). Peritoneal washings were positive for malignant cells.

**Fig 7** Right ovary, tube, omentum removed in staging laparotomy
Hence proceeded with staging laparotomy (21.11.12) and total abdominal hysterectomy with right salpingo oophorectomy, infracolic omentectomy (fig. 8) Histopathology of these organs revealed no evidence of metastasis and the surgical staging was stage IC-Papillary mucinous cystadenocarcinoma. Medical oncologist opinion was obtained and chemotherapy is started for her.

**DISCUSSION**
As most women undergo ultrasound during pregnancy, detection of adnexal mass has increased concomitantly. The signs and symptoms of neoplasm in pregnant women which include abdominal distension, dysuria, frequency of micturition are not basically different from non pregnant state (3).
Presenting symptom may be complication of tumor such as torsion, rupture, hemorrhage. Rupture of malignant ovarian tumor presenting as acute abdomen has been reported\(^6\).

Ultrasound examination should determine origin of mass, location, size, internal structure. If ultrasound examination is not sufficient, MRI can be performed for assessment of ovarian tumor\(^4\). Pathologic pattern of epithelial ovarian tumor may be serous, mucinous, endometrioid, clear cell, transitional, others. Pathologically invasive tumor appear cystic and will show complex growth pattern.

Treatment of epithelial cancer varies by stage and gestational age. Expert frozen section pathology is useful in critical decision making. If there is doubt regarding frozen section pathologic diagnosis, it is best to defer definitive surgical treatment until final pathological report, especially if tumor is limited to single ovary. Treatment of ovarian cancer in pregnancy is similar to that in non pregnant state, total abdominal hysterecctomy, bilateral salpingo oophorectomy, omentectomy followed by chemotherapy. Malhotra et al reported a case of rupture of malignant ovarian tumor in pregnancy at 32 weeks, caesarean section with left ovariectomy was done, histopathology revealed mucinous cystadenocarcinoma and was followed by staging laparotomy, a month later\(^6\). Few case reports managed with oophorectomy followed by carboplatin during pregnancy has been reported. After delivery, surgery is followed by multiagent chemotherapy.

Tumors with stage IA disease and those with low malignant potential are most often seen in pregnant than in non pregnant women, because of relatively young age of this population.

**CONCLUSION**

Ovarian cancer is the second most frequent gynaecological cancer complicating pregnancy next to cervical cancer. Routine use of ultrasound during pregnancy has resulted in frequent detection of adnexal masses. Most of these tumors are asymptomatic though some of them may present with exaggeration of pregnancy symptoms or complications such as torsion, rupture. Management of pregnant women with malignant ovarian tumor is same as that of non pregnant patient. Prognosis, survival rate depends on stage and histologic type of tumor.

**REFERENCES**

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