A large ovarian mucinous cystadenoma in pregnancy: A case report

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ABSTRACT
We report a case of large rare ovarian mucinous cystadenoma complicating pregnancy. Mucinous cystadenomas tend to be hormonally responsive during pregnancy and reach huge sizes. A 31-year-old woman gravida one, para zero, was found to have a right sided ovarian cyst at her first scan on seven weeks gestation measuring 12.1 x 7.8cm. Serial scans throughout pregnancy showed an increase in the size of the cyst. The last scan done prior to elective cesarean showed a large complicated right ovarian cyst with multiple septation measuring 20.5x13.8x16cm extending to lower border of liver. Emergency cesarean section was undertaken at 38 weeks gestation due to fetal distress. After delivery of the baby, right salpingo- oophorectomy was performed. Histopathologically, a multi loculated benign mucinous cystadenoma was found. This case is the fifth reported case of large ovarian cystadenoma complicating pregnancy in the literature. All ovarian cysts during pregnancy should be followed up by ultrasonography due to the possibility of adverse effects of the cysts on pregnancy.

Key words: mucinous cystadenoma, pregnancy, ovarian mass

INTRODUCTION
Ovarian mucinous cystadenoma is a benign tumour that arises from the surface epithelium of the ovary and the second most common type of epithelial ovarian tumors. It is characterized by multilocularity, smooth outer and inner surfaces, and tends to be large reaching 20 to 30cm in size, and unilateral containing mucinous fluid. Benign mucinous tumors are the most common in the third to fifth decades. It is rare in adolescents or in association with pregnancy. Only 10% of primary mucinous cyst adenomas are bilateral.

Of all ovarian tumours, mucinous tumours comprise 15%-6. About 80% of mucinous tumours are benign, 10% are borderline and 10% are malignant. The most frequent complications of benign ovarian cysts, in general, are torsion(5%), hemorrhage and rupture. As it contains mucinous fluid, its rupture leads to mucinous deposits on the peritoneum (pseudo-myxomaperitonei). Ovarian cysts are estimated to occur in 4.1% of second-trimester and third-trimester obstetric ultrasonographic examinations. The frequency of ovarian tumours is about 1 in 1,000 pregnancies and those which are malignant occur in 1 out 15,000-32,000 pregnancies. Ovarian cancer is the second most common gynecological cancer diagnosed during pregnancy, after cervical cancer. The antenatal diagnosis of ovarian cysts poses a therapeutic dilemma because the natural history of these lesions is not well understood. In this report we present a case of a large right ovarian mucinous cystadenoma, which was diagnosed as early as 8 weeks of pregnancy, gradually increased in size during pregnancy and which did not have any adverse effect on the mother or fetus.

CASE REPORT
A 31-year old female Indian, presented with a history of two months amenorrhea. The patient had been married for two years, with no relevant past medical, surgical or personal history. She was first seen on 21/9/2010 in a private hospital and had been diagnosed asprimigravida, early pregnancy with large ovarian cyst.
weeks with ovarian cyst measuring 12cm). The patient had no complaints and was relatively asymptomatic. She was on Folic acid and multi-vitamins. She had regular antenatal check up with serial ultrasound scan until 38 weeks of pregnancy. The patient was normotensive with a weight gain of 13kgs (first visit weight 66.6kg and last visit was 79.6kg). She remained asymptomatic throughout pregnancy with normal growth of fetus and with no complications. The following table shows the gradual increase of the right ovarian cyst up to 32 weeks pregnancy and the fetal growth. Details of serial ultrasound scan is given in figures 1-8.

<table>
<thead>
<tr>
<th>Date</th>
<th>Age of gestation</th>
<th>S/D Ratio</th>
<th>Percentile</th>
<th>Cyst measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>23/10/2010</td>
<td>13 weeks</td>
<td>--</td>
<td>--</td>
<td>10.9x7.6x11.9 cm</td>
</tr>
<tr>
<td>13/12/2010</td>
<td>20 weeks and 4 days</td>
<td>--</td>
<td>Growth 51</td>
<td>13.3x9.74x14.6 cm</td>
</tr>
<tr>
<td>07/02/2011</td>
<td>27 weeks and 4 days</td>
<td>2.0</td>
<td>Growth 37</td>
<td>15.5x16.5x12 cm</td>
</tr>
<tr>
<td>19/03/2011</td>
<td>32 weeks and 6 days</td>
<td>2.0</td>
<td>Growth 51</td>
<td>12x18x13cm</td>
</tr>
</tbody>
</table>

The last scan done showed a single viable fetus, with cephalic presentation and gestational age of 36 weeks and 6 days. The pelvic abdominal cyst on the right side showed multiple septations extending up to the lower border of the liver and measuring 22x13.8x16cm. The patient underwent emergency cesarean section indication being fetal distress and delivered a live healthy male baby weighing 2.8kg with a good Apgar score. Right salpingo-oophorectomy was performed as the whole ovary was involved in the cyst and the right fallopian tube was abnormally dilated and adherent to the mass. The cyst measured approximately 20x16x14cm. The outer surface of the mass was smooth and intact all around with no external growth or adhesions.
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Complete blood count (CBC), Routine urine analysis Fasting blood sugar and Post Prandial blood sugar, Liver function test (LFT), Renal function test (RFT), (serum) electrolytes, Blood group were all within the normal limits. HBsAG, HCV, HIV, VDRL were all negative.
There was no ascites or enlarged para-aortic lymph nodes.

Microscopic examination revealed a wall of cyst lined by a single layer of tall columnar epithelial cells with apical mucin and bland basal nuclei with no atypia. The wall showed congestion. Sections from the fallopian tube revealed no significant pathological changes (Figures 12).

Post-operative recovery was uneventful. The patient was discharged on the third post-operative day with advice for follow-up after 10 days.

**DISCUSSION**

The average incidence of adnexal masses is 1 in 200 pregnancies. Several cases of ovarian mucinous cystadenoma have been reported in the literature. Qublan et al. described a 6300g multiloculated right ovarian mucinous cystadenoma measuring 33x24x20cm at 38 weeks of pregnancy. In our case the cyst had almost reached 22x18x15cm at 38 weeks of pregnancy with no complications throughout the entire pregnancy neither for the mother or the fetus. Simple ovarian cysts ≤5cm tend to enlarge up to seven weeks of gestation and thereafter resolve Kobayashi et al. Only 6% of masses ≤6cm persisted during serial examinations, but 39% of masses > 6cm persisted. Due to the above and the high extent of spontaneous resolution of cysts before 16 weeks of gestation, the Danish National Guidelines recommended that these surgical interventions should be planned as elective procedures between 16-23 weeks, avoiding surgery before 7 and after 23 weeks of gestation. Puncture of these cysts cannot be used reliably for diagnostic purposes. Furthermore, the risk of spillage of malignant cells, if any, during puncture may upgrade the stage of an ovarian cancer.

In our case the cyst measuring 12.1x7.8cm was detected as early as 8 weeks of pregnancy, grew gradually and measured 14.6x13.3x9.7cm by 21 weeks of gestation. The cyst showed 2-3 septation with blood flow seen in the cystic wall and septae, the contents of the cyst were clear.

The patient was counseled regarding the pros and cons of the surgical intervention versus expectant management.

The decision to pursue surgical intervention should be on the basis of the symptoms, physical examination, and most importantly, the ultrasound findings in the context of an experienced sonologist. The expectant management or a “wait and watch” approach was opted as patient was asymptomatic, with normal growth of the fetus. An emergent intervention was not needed because of the lack of torsion of the cyst or unbearable abdominal symptoms. Two reviews about adnexal masses during pregnancy emphasize that surgical intervention should be avoided due to adverse fetal outcomes as a result of spontaneous miscarriage, pre-term delivery or premature rupture of membranes and intra uterine fetal death. With regard to the risk of torsion, which is said to occur in 10-15% of ovarian tumors in pregnancy, commonly between 8-16 weeks' gestation, the increasing size of the uterus should reduce the mobility of the adnexa, and therefore reduce the risk of such an occurrence in the second and third trimesters. Rupture of persistent cysts is uncommon (rupture...
ultrasound examinations, ovarian cysts are now more commonly diagnosed during pregnancy and their management remains a challenging and debatable issue among obstetricians.

Expectant management or a “watch and wait” approach is the benchmark standard of care for a woman with an ovarian mass diagnosed during pregnancy. And follow-up by an experienced ultrasonography at regular intervals is all that is required in the majority of the cases as was done in our case. In the absence of significant symptoms, i.e. ovarian torsion, or a high ultrasonographic index of suspicion for malignancy, we believe that all ovarian cysts in pregnancy should be left well alone. From our case following are the observations made:

(a) Right ovarian cyst measuring 12.1x7.8 was first detected at 8 weeks of pregnancy, which grew up to 22cm at 38 weeks of gestations. (b) This large cyst did not affect the fetal growth. (c) The patient remained asymptomatic and the antenatal period was uneventful. (d) Hence one should not consider surgical intervention and should opt for conservative management. A surgical intervention is necessary if suspect signs are observed at ultrasonographic examination. If surgery is to be contemplated, delaying this into the second trimester allows for the pregnancy to declare its viability, whilst minimizing the risk of adverse pregnancy outcome.

Transvaginal ultrasound is the primary imaging technique tool of choice for the evaluation and follow-up of ovarian masses in pregnancy, as in the non-pregnant state. The experience of the sonologist is paramount when classifying ovarian pathology as benign or malignant. MRI does not seem to add further information to the nature of an adnexal mass when compared to ultrasound, even though MRI was superior to Doppler ultrasound and CT in the diagnosis of malignancy in women suspected of having ovarian cancer. High resolution ultrasound is simpler and cheaper than CT or MRI, and safe in pregnancy as well. Serum Ca-125 is reported to be particularly high during the first trimester. This is largely attributed to the increased production by the decidua. It is reported to decline with increasing gestation, indicating that a higher cut-off value should be used in pregnant women as compared with non-pregnant women.

In our case the cyst was unilateral affecting the right ovary, and detected as early as 8 weeks of pregnancy. It measured initially 12x8cm and grew gradually up to 22cm. The patient was closely monitored during the entire antenatal period by serial ultrasound up to 38 weeks of pregnancy. The last ultrasound scan done showed a large complicated right ovarian cyst with multiple septations measuring 22x18x15cm and extending to lower border of the liver. The gestational age of the fetus was 3 weeks weighing 2901 ± 241g.

The patient had an emergency LSCS at 38 weeks, and right salpingo oophorectomy was performed and specimen sent for histopathologic diagnosis. The examination of the ovaries at the time of caesarean section should thus be a routine practice, since the majority of asymptomatic ovarian masses are discovered incidentally, having been missed at the time of routine antenatal check-up. With routine obstetric ultrasound examinations, ovarian cysts are now more commonly diagnosed during pregnancy, and their management remains a challenging and debatable issue among obstetricians.

CONCLUSION
All ovarian cysts during pregnancy should be followed up by ultrasonography due to the possibility of adverse effects of the cysts on pregnancy.


Practice points

• The prevalence of adnexal masses in pregnancy in 0.19-8.8%.
• The vast majority are functional or physiological ovarian cysts (corpus luteum) and resolve spontaneously by the second trimester.
• Ultrasound is the primary modality used to detect ovarian masses and to assess the risks of malignancy. Tumour markers should be interpreted with caution, because several markers can be elevated as a result of the pregnancy itself (e.g., CA-125).
• Expectant management should be the standard of care for asymptomatic non-susicious adnexal masses diagnosed in pregnancy.
• When symptomatic, simple cyst can be safely and successfully treated by transabdominal ultrasound guided aspiration.
• Larger adnexal masses in pregnancy are the risk of torsion (1-22%), rupture (0-9%) or obstructed labour (2-17%).
• If surgery is to be performed, laparoscopy at 19-17 weeks of gestation appears to be safe and effective.
• Persistent ovarian masses in pregnancy carry a relatively low risk of malignancy (0-6.8%). More than a half of malignancies diagnosed during are epithelial lesions of low malignant potential (LMP). Germ cell tumours account for the majority of the invasive cancers. The large majority of ovarian malignancies in pregnancy are diagnosed at stage 1.

REFERENCES


