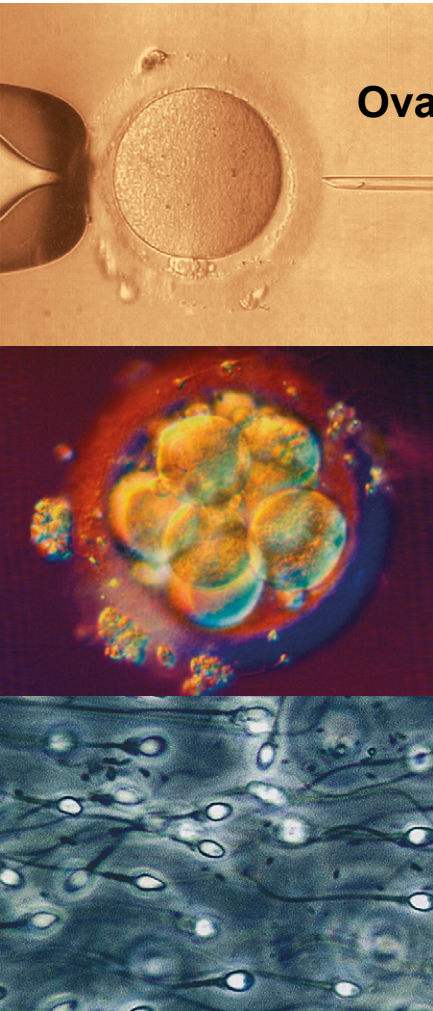


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Ovarian Neoplastic Cysts found in Consecutive Cesarean Sections – Case Report and Literature Review

C. Furau^{1,2}, G. Furau^{1,2}

Ovarian neoplastic cysts are considered to be a rare pathology associated with pregnancy. We performed a literature review regarding the management of ovarian pathology in pregnancy and report the case of two different kind of ovarian neoplastic cysts that were surgically removed during two consecutive cesarean sections at the same patient, followed by another surgical procedure for adnexal pathology. **J Reproduktionsmed Endokrinol_Online 2015; 12 (4): 392–5.**

Key words: ovarian tumor, pregnancy, cesarean section

■ Introduction

The challenge of managing adnexal masses in pregnancy has been of interest to the medical staff for a long time as revealed in C. Kicham's original article published in *Boston Medical Surgical Journal* in 1924. Almost 100 years ago, the author stated that ovarian cysts complicating pregnancy were not uncommon and usually did not disturb the evolution of the pregnancy or delivery, but because of their possible complications, they were worthy of special attention.

Incidence of ovarian tumors in pregnancy is estimated to be 0.2–2% depending on the stage of pregnancy. Great differences were reported by authors due to the fact that most of these ovarian cysts diagnosed during the first trimester of pregnancy regress spontaneously or do

not generate major complaints. However, they shall represent incidental findings during the cesarean section [1–4]. Only a small percentage of these cysts would generate clinical symptoms, few developing complications (torsion, bleeding, compression and rupture) and even fewer might becoming malignant, but in this situation, the mother's life might be endangered.

The development of radio-imaging and ultrasound in particular represented a crucial step in the antenatal diagnosis of fetal and maternal pathology and complications. Ultrasonographic diagnostic techniques and early detection of ovarian cysts during the first trimester of pregnancy have rendered possible to develop a management that includes both conservative and surgical techniques capable of treating ovarian pathology and at

the same time to enable pregnancy to be carried on. Progress and development of minimally invasive surgery, especially the evolution of laparoscopic technique, has enabled the approach of this pathology with very good results both for the mother and the fetus.

The management of persistent adnexal masses in the second trimester of pregnancy is still a debate theme for the specialists, the two main currents being the conservative and the surgical approach. Nowadays a more conservative approach seems suitable as ultrasound is reliable in monitoring and assessing the malignancy probability of the case and the acute complications are not as frequent. Surgical management during pregnancy is offered in cases that present with acute symptoms or are highly suspected of ovarian malignancy. Removal of adnexal



Figure 1. Intraoperative image of the left dermoid cyst [image from personal archive].



Figure 2. Content of the removed ovarian cyst, suggestive for a dermoid cyst [image from personal archive].

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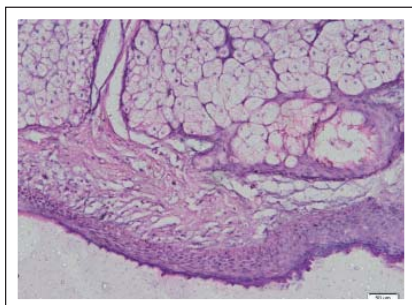


Figure 3. Left ovarian cyst. Histopathology aspect in HE coloration suggestive for dermoid cyst. Image from histopathology archive, reprint with permission.

masses during cesarean section is a good practice in many clinics.

■ Case Report

A 33-year-old gravida-7 para-1 presented in our clinic with a 13 week pregnancy for routine antenatal checkup. Her relevant medical history revealed a grandmother who had died due to ovarian cancer and an ovarian dermoid cyst incidentally discovered during her first delivery. Six years prior to this examination, she underwent cesarean section for breech presentation, resulting a female newborn, 3400 g, APGAR score 9 at one minute, during the procedure an 8/6 cm left ovarian dermoid cyst was incidentally discovered. Left oophorectomy had been performed. The histopathology confirmed the clinical diagnosis (Fig. 1–4).

Ultrasound examination of the current pregnancy diagnosed a single live intrauterine gestation corresponding to 13 weeks + 1 day and a right ovarian cyst of 12/10/7.5 cm with three thin septa. No ultrasound sign of malignancy was identified during the examination and the following examination performed by an expert ultrasonographer. CA-125 at week 16 of gestation was in normal range. The patient was counselled for surgical management (open laparotomy due to her medical history), but she refused it. The conservative management was realized through serial ultrasound and gynecological examinations, oral progesterone supplementation, with no complication occurring before week 37 of gestation, when the patient was admitted to the delivery room for premature rupture of membranes. Cesarean section was performed and after extracting a male newborn, 3050 g, APGAR score 9 at one minute, a right ovarian cyst of 20/18 cm was diagnosed. Right ovarian cystecto-

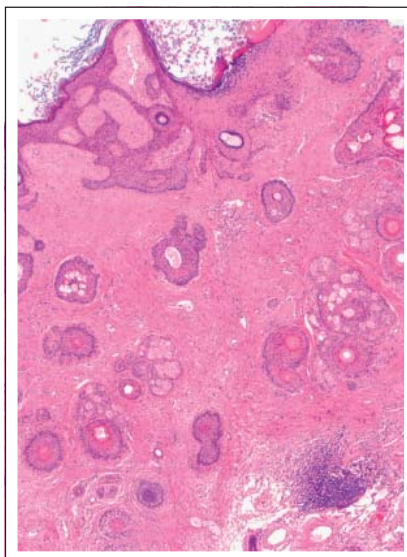


Figure 4. Left ovarian cyst. Histopathology aspect in HE coloration suggestive for dermoid cyst: hair, skin and sebaceous gland present in cystic wall. Image from histopathology archive, reprint with permission.

my was performed and also surgical tubal ligation on the patients demand. The histopathology revealed mucinous cystadenoma (Fig. 5). CA-125 at three months after the cesarean section was within normal range.

In our clinic, the uterus is routinely exteriorized for suture, offering by this a better overview of other pelvic pathologies.

Two years after the second cesarean section, the patient was admitted in the gynecology ward for severe pelvic pain. The ultrasound examination showed a right simple ovarian cyst of 7.5/7 cm. CA-125 was within normal range. Laparoscopic right ovarian cystectomy was performed.

No complications were reported during or after the surgical procedures.

■ Discussion

The late development of ultrasound in obstetrics has changed greatly the possibilities of diagnosis and influenced the management of pregnant women. Due to the increase of first trimester ultrasound exams of the pregnancy, an increase in incidental adnexal mass was reported, recent studies estimating that in 1–2%, even up to 5% of all pregnancies an adnexal mass can be seen. Differences between different studies can be significant as authors used different criteria for defining an adnexal mass and due to the gestational age at which the ultrasound

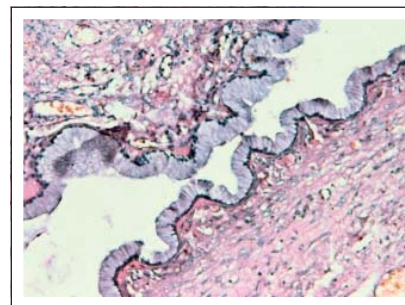


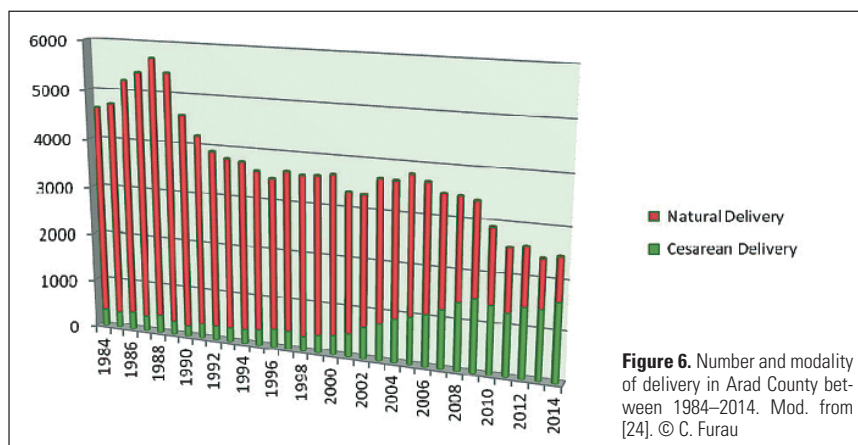
Figure 5. Right ovarian cyst. Histopathology aspect in HE coloration suggestive for mucinous cystadenoma-intestinal type. Image from histopathology archive, reprint with permission.

was performed. Authors agree that most of these adnexal masses will spontaneously resolve by the second trimester of pregnancy, being functional cysts. Those masses that persist in the second trimester have higher chances of being organic cysts [1–8].

Obstetricians can offer the patient a conservative management (wait-and-see strategy) as acute complications (torsion, rupture of a cyst) determined by adnexal masses are not very common and the incidence of ovarian malignancy is rare in pregnancy (malignancy rate 1–6% according to [1, 2, 9, 10]). The most common ovarian masses are represented by functional cysts, which in most of the cases regress in the second trimester of the pregnancy. In the order of frequency it is followed by dermoid cysts, cystadenomas, endometriomas, leiomyomas and paraovarian cysts [3, 5, 10–12].

Ultrasound can be used for early diagnosis, monitoring of the patient and for assessing a sonomorphological score, as it is easy to use, safe and has high sensitivity and sensibility. Different researchers established sonographic features characteristic for the different types of adnexal masses discovered in early pregnancy, having by this an important role in distinguishing benign masses from malignancies. Later on, as the pregnancy advances, ultrasound examination will have limitations because the uterus enlarges and an ultrasound window is harder to find [2, 11, 13–15]. The MRI (Magnetic resonance imaging) is safe to use in pregnancy during the second and the third trimester, but should not be abused as a diagnostic tool [1].

Asymptomatic adnexal masses with clear benign characteristics can be man-



aged conservative, while symptomatic cysts, as well as an increase of volume in an adnexal mass in the second trimester can be considered an indication for surgical removal of the cyst, because it has higher chances for torsion and also some researchers showed that larger size of the cyst can be associated with malignancy. If deciding for surgery, authors consider the period weeks 16–20 of gestation to be optimal and if possible laparoscopy to be the first choice, rather than laparotomy (high risk). Laparoscopy in pregnancy is considered to be safe and it has several advantages like shorter hospitalization time, faster recovery, lower overall costs, but in case of suspicion for malignancy, classic midline laparotomy should be the first option. No complications due to anesthesia were reported, but a higher prematurity rate was observed [1, 2, 4, 5, 14, 16–20].

The rate of persistent adnexal masses in pregnancy that are discovered during cesarean section varies on a large interval: 1/122 [12], 1/197 [21], 1/233 [22], 1/477 [23], 1/594 [14]. Gross data indicates that adnexal masses were found as one in 594–4771 live births. In one of our previous studies [16], we found 84 adnexal masses in cesarean section (1/ 141 cesarean; 1/485 births), 78 of them had a surgical management (1/152 cesarean; 1/523 births). A clear correlation between the increased rate of cesarean section and the increased discovery of ovarian tumors during the procedure was established. In our clinic, in a twelve year retrospective study we saw that the cesarean section rate increased almost five times in 2011 (50.21%) compared with 2000 (10.76%), while the incidence of adnexal masses removed during the procedure grew from 0.21% to almost 1%

(Fig. 6). We consider that exteriorizing the uterus during the cesarean section offers great advantages, like safer suture, less hemorrhage and a good perspective of the pelvis. Probably that is a reason for having a high incidence of ovarian tumors removed during cesarean section (1/193).

The patient should also undergo a well informed and to participate in the therapy process, like it happened in our case. Our patient chose to be closely monitored and not to be operated in pregnancy unless acute symptoms would have arisen.

The case of our patient can be considered a very rare one, as she had an ovarian tumor removed in both her cesarean sections. First in 2001, for a dermoid cyst left oophorectomy was performed and later in 2007 she had a cystectomy for the large left ovarian cyst that turned out to be a mucinous cystadenoma.

Prenatal diagnosis of an adnexal mass is important for the obstetrics team, as further more management options can be available (frozen section pathological diagnosis, the possibility of summoning an oncological team). In our case the dermoid cyst was an incidental discovery, while for the cystadenoma, the obstetrics team had a good prenatal diagnosis.

Studies indicate that prematurity and lower weight for gestational age can occur if an adnexal mass is removed during pregnancy. In our case, the first child (female, 3400 g, APGAR score 9) was delivered at the gestational age of 39 weeks + 3 days with cesarean section for breech presentation indication, and for the second child (male 3050 g APGAR score 9)

the gestational age was 36 weeks + 5 days and the indication was previous cesarean section, premature rupture of membranes and large right ovarian cyst. Both newborns were healthy and we think that prematurity in the second child could had been caused by the presence of the large right adnexal mass.

What makes this case even more particular is that further surgery was required for adnexal pathology. In 2011 that patient underwent laparoscopic right ovarian cystectomy for a 8 cm cyst. The pathological result revealed a functional serous cyst.

Summarizing, the case we presented is a very rare one, as we could not record in the studied literature any case report of a patient that underwent ovarian surgery for different neoplastic cysts in two consecutive cesarean sections.

Our opinion is that close ultrasound monitoring of adnexal masses discovered in pregnancy is the approach for the majority of cases, followed by removal of the masses during cesarean section.

Conclusion

Adnexal masses diagnosed during pregnancy should be thoroughly evaluated in order to choose an appropriate management. Ultrasound and MRI have a good safety profile and allows the obstetrical team to differentiate benign from malignant tumors. Unless malignancy is suspected, a conservative wait-and-see strategy is advisable, using serial ultrasound examinations for monitoring. If surgery is indicated during pregnancy, both laparoscopy and laparotomy can be performed based on tumor size, gestational age and surgical expertise, the best surgical window being 16 to 20 weeks of gestation. Exteriorizing the uterus during cesarean section offers less intraoperative complications, less hemorrhage and better inspection possibility for the pelvic organs, making incidental adnexal mass discovery not such a rare event. Surgical management of adnexal masses during cesarean section can and should be performed at this time avoiding later surgery for this incidental pathology. We did not observe complications or higher rates of morbidity and mortality associated with surgery for adnexal masses during cesarean section.

Suspicious of malignancy should be approached in a multidisciplinary oncological team.

■ Conflict of Interest

The authors declare no conflict of interest.

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