Experimental
&
Clinical Article

Prenatal Diagnosis and Postnatal Outcome of Fetal Ovarian Cysts

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OBJECTIVE: The aim of the present study was to assess the ultrasonographic features, clinical characteristic, and neonatal outcome in fetuses with ovarian cyst.

STUDY DESIGN: Retrospective analysis of nine cases of fetal ovarian cyst diagnosed antenatally with regard to ultrasonographic finding, clinical course, and postnatal outcome.

RESULTS: Nine cases were diagnosed as having fetal ovarian cysts antenatally. The age of antenatal diagnoses ranged between 30-36 gestational weeks'. One case had (1/9, 11%) additional anomaly (Double collecting system). The cysts were unilateral in all cases. In one case the giant ovarian cyst was drained antenatally due to its compressive effects. Two cases were operated postnatally because of ovarian torsion (2/9, 22.2%). One case had persistent ovarian cyst which showed some degree of regression postnatally. One case regressed before birth, and remaining four cases completely vanished during postnatal follow- up (4/9, 44.4%).

CONCLUSION: The most probable outcome for fetal ovarian cysts is spontaneous resolution. Unless complicated with torsion and haemorrhage, close ultrasonographic follow- up is to be recommended.

Key Words: Ovarian cyst, Antenatal diagnosis, Neonatal outcome

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Introduction

Ovarian cysts are macroscopic cysts arising from the ovary, and the most common cause of an intraabdominal cyst reported antenatally, excluding bowel and renal etiologies. The estimated prevalance of macroscopic ovarian cysts is 20-34% among infants died within 28 days of life.[1] The improvement in ultrasound technology has made it possible to diagnose the presence of ovarian cyst antenatally. However, despite increased detection, no consensus could be reached for the antenatal and postnatal management of ovarian cysts. Therefore, it is important to collect, and present data and sharing experience regarding diagnostic, and therapeutic features of fetal ovarian cysts.

With this backround, we present our experience with 9 cases of fetal ovarian cyst detected antenatal in our prenatal diagnosis center.

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Material and Method

The study is consisted of retrospective analysis of fetal ovarian cases who were detected between 2009 and 2012 years in Erciyes University, Department of Obstetrics and Gynaecology, Prenatal Diagnosis Center. The data collected were analyzed retrospectively with respect to age of gestation at diagnosis, accompanying malformation, ultrasonographic features of the cysts, obstetric management and postnatal outcome. With regard to postnatal outcome, the main focus of interest was the confirmation of the prenatal diagnosis, frequency of surgery, and the indication leading to surgery.

The ultrasonographic evaluations were performed with the scans were performed with Voluson 730 Pro equipped with a 5- to 8-MHz transabdominal transducer (GE, Healthcare) and Logic 500 scanner and a multifrequency 3.5- to 5.0-MHz convex probe (GE Healthcare, Milwaukee, WI). The sonographic criteria for the diagnosis of ovarian cyst (a) Female sex, (b) Lower abdominal location, (c) Cystic structure, (d) Various internal structure (smooth, isolated, or heterogeneous), (e) No peristaltism, (f) visible kidney and bladder.[1,2] The statistical analysis was primarily descriptive. Overall data are reported as means, standard deviations, minimum and maximum values.

Results

Twenty cases were detected during the study period as having fetal intraabdominal cysts. Of these, two had urachal

cysts, 3 had hepatic cysts, four had mesenteric cysts, and two had intestinal duplication cysts. Finally, nine cases were diagnosed as having fetal ovarian cysts antenatally. The mean maternal age was 29.3 (min- max range: 24-34). The age of antenatal diagnoses ranged between 30- 36 gestational weeks'. In only one case (1/9, 11%) additional anomaly (Double collecting system) was detected. One fetus was growth restricted and one fetus was macrosomic with severe polyhydramniosis. The cysts were unilateral in all cases and detected in the right ovary in five cases (5/9, 55.5%), left ovary in one case (1/9, 11%), and central in three cases (3/9, 33.3%). The mean size of the largest diameter of the cysts was 50.5 ± 20.94 (min-max range: 27-102mm). The cysts were unilocular, anechoic, and simple in seven cases (7/11, 63.6%), containing septa in one case (17), 11.1%), and had internal echo in one case (1/9, 11.1%). In one case the giant ovarian cyst was drained antenatally due to its compressive effect, and ascites (1/9, 11.1%). Two cases were operated postnatally because of ovarian torsion and the procedure employed for these cases were ovarian cyst excision (2/9, 22.2%). One case had persistent ovarian cyst which showed some degree of regression postnatally. One cases regressed before birth (1/9, 11.1%) and remaining four cases completely vanished during postnatal follow-up (Between 2- 3 months'). The pathological diagnoses in the operated cysts were simple follicular cyst and hemorrhagic cyst. The summary of nine cases is in Table 1.

Discussion

Ovarian cysts are the most frequent, prenatally diagnosed intraabdominal cysts. The pathogenesis of fetal ovarian cysts is still unknown, although accumulated data suggest that they arise from fetal ovarian follicles under the influence of maternal and fetal hormones, namely, fetal gonadotropin, maternal estrogen and placental human chorionic gonadotropin.[3] Therefore, the conditions that associated with enlarged placenta such as hypothyroidism, preeclampsia, hydrops, and diabetes were thought to predispose fetuses to have ovarian cysts.[4,5]

Fetal ovarian cysts are generally isolated findings and not associated with other syndromes and/or chromosomal abnormalities. Very recently, Gaspari et al. in their small series reported a relationship between fetal ovarian cyst and Mc Cune-Albright syndrome.[6] Also, an association between ovarian cysts and fetal hypothyroidism has also been suggested on the basis of nonspecific stimulation of pituitary hormone synthesis.[5] In our series, one case had polyhydramniosis and diabetes as an underlying factor for ovarian cyst, and one case had double collecting system. According to available literature the association between double collecting system and ovarian cyst has not been reported before and, so we refrain from suggesting causal relationship between these two entities.

In nearly half of the cases with fetal ovarian cysts, the natural course is spontaneous resolution either pre or postnatally.[2,3,7-10] In nearly 40% of all cases it is claimed that ovarian torsion results, which is an indication for surgical intervention and which generally requires organ excision. In our series two cases required surgical intervention the main indications of which were torsion, and suspected torsion. In small infants and fetuses, the clinical signs and symptoms of ovarian torsion are very subtle and may easily be overlooked in both pre and postnatally. Therefore, the sonographic follow-up of cyst characteristic is essential. Nussbaum et al. published ultrasound criteria for the possible emergence of intracystic bleeding and torsion.[2] A normal ovarian cyst has a smooth border and is without an internal structure (Figure 1). If there is intracystic bleeding or torsion, the cyst acquires a heterogeneous structure (Figure 2-3), in part with internal septa.[11] Additionally, fetal tachycardia, secondary to peritonitis can be observed antenatally. In our two cases that were operated postnatally, the indications were persisted ovarian cyst with changing sonographic character without clinical signs and symptoms (Figure 4). As previously indicated, fetal ovarian cysts have insignificant malignant potential, and the surgical procedure of choice should be cyst excision, and or fenestration in cases of viable ovarian tissue exists. Supportingly, recent series, including ours, report lower surgical interventions rate and show a trend

Table 1: Summary of nine cases evaluated in our clinic

Case Number	Age	Diagnosis Time	Prenatal Cyst Size (USG)	Side Of CYST	Appearance	Additional Malformation	Outcome	Complication
1	28	35	102x80	Right	Homogenous	No malformation	Antenatal aspiration	No Complication
2	27	30	35x30	Central	Homogenous	No malformation	Persistant cyst	No Complication
3	31	36	50x36	Left	Homogenous	No malformation	Postnatal regression	No Complication
4	24	36	35x49	Central	Homogenous	No malformation	Postnatal regression	No Complication
5	32	33	45x44	Central	Homogenous	Double collecting system	Postnatal regression	No Complication
6	29	34	50x42	Left	Homogenous	No malformation	Antenatal regression	No Complication
7	34	35	20x27	Left	Homogenous	No malformation	Postnatal regression	No Complication
8	34	32	45x40	Left	Homogenous	No malformation	Surgery	Intracystic bleeding
9	25	32	52x41	Left	Heterogeneous	No malformation	Surgery	Torsion

toward ovarian- sparing procedure when it is necessary.[12] If there were no clinical symptoms postnatally, management was expectant.

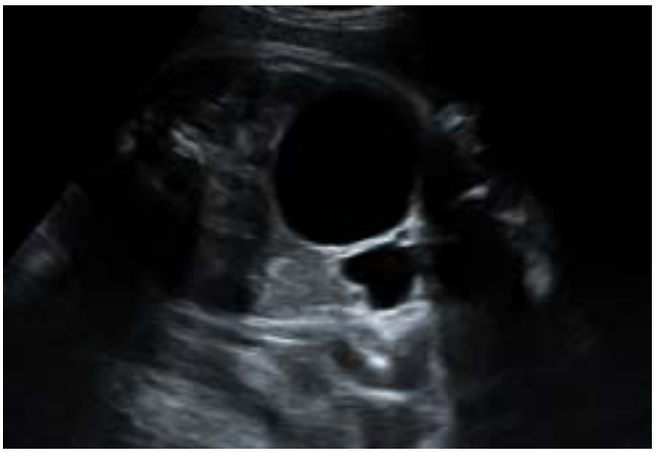

Figure 1: Transabdominal view of a simple, unilocular ovarian cyst in 32 weeks old fetus.

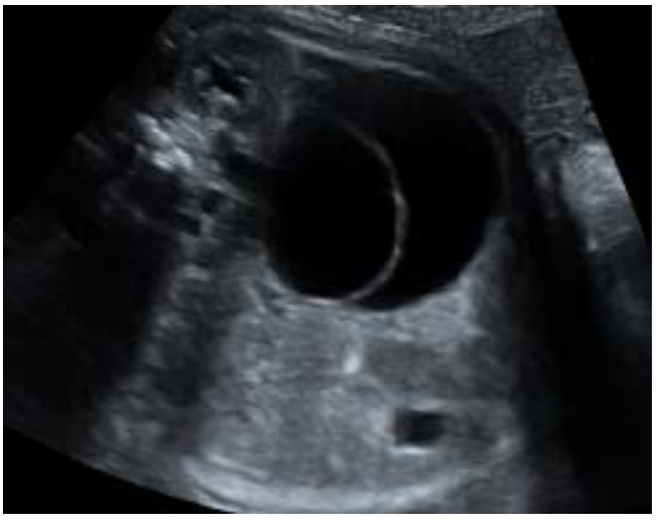

Figure 2: Transabdominal view of an ovarian cyts containing internal septation in 33 weeks fetus.

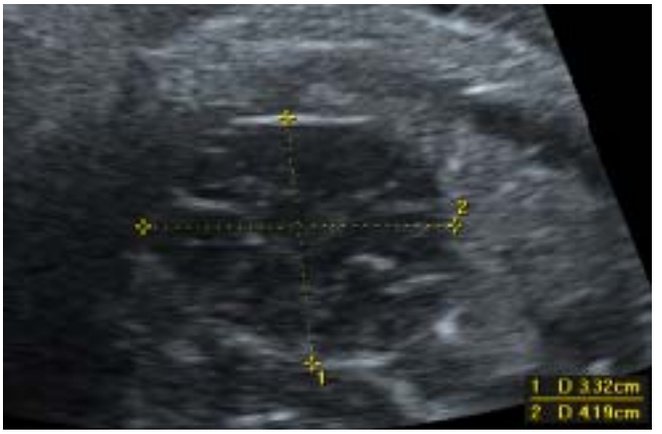

Figure 3: Transabdomina view of an ovarian cyst in 34 weeks fetus showing reticular intra cystic echoes consistent with intracystic hemorrhage.

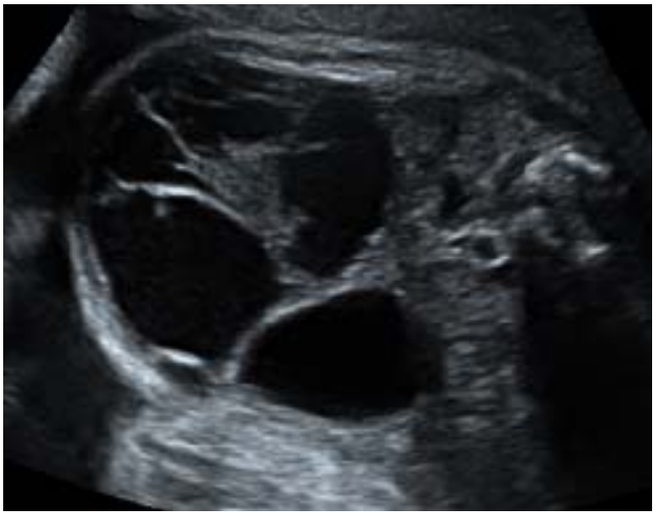

Figure 4: Transabdomina view of a complex ovarian cyst in 36 weeks fetus showing internal echogenities, and multiple septations. This fetus was operated postnatally due to ovarian torsion.

Antenatal aspiration of the ovarian cysts has been suggested as primary treatment for fetal ovarian cyst.[13,14] However, it is role is yet to be clarified. Some authors recommended it based on the fact that it provide material for sitologic analysis, preventing torsion, hydrops, and dystosia[13,3] but the evidences are not concluding, and criticized by other authors.[1] In our series, prenatal aspiration was performed for one case which was very large (102 mm) and causing ascites. The cyst did not recur pre and postnatally, and results in complete resolution. In our opinion, like others11 the only indication for puncturing an ovarian cyst is if it is huge and likely to impair fetal circulation, and spontaneous delivery.

Almost all of cases reported in the literature, the ovarian cyst is diagnosed in the second half of the pregnancy. The earliest case, in the 19 weeks of gestation was described by Meizner&Levy.[1] In accordant with the previous literature; all of our cases were diagnosed in the third trimester. In general, the mode of delivery is dictated by the obstetric indications and is not affected by the prenatal diagnosis of an ovarian cyst. Though contrary opinion reported[15] elective cesarean section in case of ovarian torsion is not recommended. When torsion of the cyst suspected, delivery at a tertiary care center in which postnatal care facility and experienced pediatric surgeon available is to be recommended.

In general, an ovarian cyst is not a life- treating condition, so that further diagnostic procedure can be carried out in the first days of life. Because of the hormone dependence of the condition it is frequently possible to wait for spontaneous resolution. In our clinic, we plan for a delivery at term and we strive for spontaneous birth. In every case, postnatal sonographic monitoring is carried out to provide a basis for further treatment.

Fetal Ovaryan Kistlerin Prenatal Tanısı ve Postnatal Sonuçları

AMAÇ: Bu çalışmanın amacı ovaryan kist olan fetuslarda ultrasonografik özellikleri, klinik karakteristikleri ve neonatal sonuçları incelemektir.

GEREÇ VE YÖNTEM: Fetal ovaryan kist saptanmış dokuz olguya ait antenatal ultrasonografi, klinik seyir ve postnatal sonuçlara dair veriler geriye dönük olarak değerlendirildi.

BULGULAR: Antenatal olarak dokuz hastada fetal ovaryan kist saptandı. Tanı ortalama 30-36 gebelik haftaları arasında konuldu. Bir vakada (1/9, %11) ek anomali saptandı (çift toplayıcı sistem). Tüm vakalarda kistler tek taraflıydı. Bir vakada dev ovaryan kist bası semptomları nedeniyle antenatal aspirasyon ile boşaltıldı. İki vaka ovaryan torsiyon tanısıyla postnatal opere edildi (2/9, %22,2). Bir vakada postnatal kısmi gerileyen tekrarlayan kist izlendi. Bir vaka doğumdan önce geriledi, kalan dört vaka ise postnatal takipler sırasında kayboldu (4/9, %44.4).

SONUÇ: Fetal ovaryan kistler için en muhtemel sonuç kendiliğinden gerilemedir. Torsiyon ya da hemoraji gibi komplikasyonlar olmadıkça ultrasonografik takip önerilmelidir.

Anahtar Kelimeler: Over kisti, Antenatal tanı, Yenidoğan sonuçları

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