



## An Unusual Size of Neonatal Ovarian Cyst

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### ABSTRACT

Neonatal ovarian cysts (NOC) are usually self-limiting structures, however, large or complex cysts may lead to severe complications. Unfortunately, no standard guidelines have been introduced for the management, treatment and follow-up of these cysts. In this report, we aimed to introduce a very large NOC without any pre- and post-natal complications. A 30 year-old mother, gravida 2, para 2, with an unremarkable prenatal course until the 36th week of gestation, delivered an infant. The routine fetal ultrasound revealed a 140x60 mm echogenic cyst, with debris in the lower fetal abdomen (it may be due to hemorrhage). A healthy female infant, weighing 3,200 gr was born through vaginal delivery at 38 weeks' gestation. On the first day after birth, the laboratory results showed normal serum concentrations of hormones. Repeated sonography after birth showed a neonatal ovarian cyst which had remained unchanged in size; therefore, clinicians performed an early surgery.

**Keywords:** Infant, Ovarian cyst, Prenatal diagnosis, Ultrasound

### Introduction

Ovarian cysts, usually unilateral, are the most frequently encountered abdominal tumors in female fetuses and newborns (1). Recently, due to the accessibility of ultrasound and great advances in radiographic modalities and techniques, neonatal ovarian cysts (NOC) can be easily detected during the prenatal period (2).

The incidence of ovarian cysts has been estimated to be approximately 30% (3). Generally, the term "pathological cyst" in newborns refers to a cyst more than 2 cm in diameter (4). Considering the ultrasonographic features, cysts are classified as "simple" and "complex"; with regard to their size, they are categorized as "small" and "large" cysts (5).

Simple cysts have a primary functional structure and are also named as "follicular cysts" (6, 7). A complex cyst is a thick-walled septated cyst, which contains blood clots or debris (8). Small cysts are usually asymptomatic and show spontaneous regression within a few months after birth; these cysts are rarely complicated, depending on their size and pedicle length (9).

In this report, we aimed to introduce a very large neonatal ovarian cyst without pre- and post-natal complications such as torsion, fetal anemia and hormonal defect.

### Case presentation

A 30 year-old mother, gravida 2, para 2, with an unremarkable prenatal course until 36 weeks' gestation gave birth to an infant. The routine fetal ultrasound revealed a 140 x60 mm echogenic cyst, with debris in the lower fetal abdomen (may be due to hemorrhage) (Figure 1). Since repeated sonography at birth showed a neonatal ovarian cyst with an unchanged size, clinicians performed an early surgery.

### Results

A healthy female infant, weighing 3,200 gr was born through vaginal delivery at 38 weeks' gestation. On the first day after the neonate's birth, the laboratory results showed normal serum concentrations of estradiol ( $E_2=8$  pg/ml; normal range=0-10 pg/ml), progesterone ( $P_4=26$  ng/ml; normal range=0-32.5 ng/ml), follicle-stimulating hormone ( $FSH=3.5$  mIU/ml; normal range=0.2-11 mIU/ml), and luteinizing hormone ( $LH=0.3$  mIU/ml; normal range=0.1-0.5 mIU/ml).

Physical examination of the neonate was unremarkable. Also, transabdominal ultrasound revealed the same echogenic cyst with the same size.

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Figure 1.

## Discussion

In the present report, the cyst was diagnosed at 36 weeks' gestation and was predominantly in the right ovary; this case is inconsistent with the results mentioned by Akin MA *et al* In their study, they mentioned a cyst with the mean size of  $53 \pm 15$  mm, which mostly disappeared in the right ovary (10).

According to the literature, NOC may occur as a result of fetal exposure to maternal and fetal gonadotropins and can often be found in newborns whose mothers have increased level of human chorionic gonadotropin (HCG) (as in diabetes, Rh isoimmunization and toxemia) (11). However, in the present case, the mother did not have pre-eclampsia, gestational diabetes, polyhydramnios or Rh-immunization which was consistent with the results mentioned by L. K. Læssøe *et al* (12).

Indications for NOC surgical intervention and choosing the best clinical approach are quite controversial. Mizuno M *et al* revealed that small simple ovarian cysts < 4 cm in diameter could be observed carefully with serial ultrasonography. Furthermore, they mentioned that all complex and simple ovarian cysts >5 cm in diameter, along with smaller cysts (which do not reduce in size), should be considered as indications for surgical treatment to rescue the ovarian tissue (13). Læssøe L *et al* showed that when fetal ovarian cysts are prenatally suspected, they should be followed up by serial ultrasonographic examinations, since the majority of them spontaneously regressed within the first year (12); however, symptomatic cysts and persistent/enlarged cysts should be surgically removed. In our case, we did not perform follow-ups for the patient, since there was a risk of ovarian torsion; therefore we chose surgery as the first step of treatment.

## References

1. Hasiakos D, Papakonstantinou K, Bacanu A-M, Argeitis J, Botsis D, Vitoratos N. Clinical experience of five fetal ovarian cysts: diagnosis and follow-up. *Archives of Gynecology and Obstetrics*. 2008;277(6):575-8.
2. Monnery-Noché ME, Auber F, Jouannic JM, Bénifla JL, Carbonne B, Dommergues M, et al. Fetal and neonatal ovarian cysts: is surgery indicated? *Prenatal diagnosis*. 2008;28(1):15-20.
3. Meizner I, Levy A, Katz M, Maresh AJ, Glezerman M. Fetal ovarian cysts: prenatal ultrasonographic detection and postnatal evaluation and treatment. *American journal of obstetrics and gynecology*. 1991;164(3):874-8.
4. Bagolan P, Giorlandino C, Nahom A, Bilancioni E, Trucchi A, Gatti C, et al. The management of fetal ovarian cysts. *Journal of pediatric surgery*. 2002;37(1):25-30.
5. Nussbaum A, Sanders R, Benator R, Haller Jr J, Dudgeon D. Spontaneous resolution of neonatal ovarian cysts. *American journal of roentgenology*. 1987;148(1):175-6.
6. Kessler A, Nagar H, Graif M, Ben-Sira L, Miller E, Fisher D, et al. Percutaneous drainage as the treatment of choice for neonatal ovarian cysts. *Pediatric radiology*. 2006;36(9):954-8.
7. Bean AD. Ovarian Cysts in the Guinea Pig (*Cavia porcellus*). *Veterinary Clinics of North America: Exotic Animal Practice*. 2013;16(3):757-76.
8. Cesca E, Midrio P, Boscolo-Berto R, Snijders D, Salvador L, D'Antona D, et al. Conservative treatment for complex neonatal ovarian cysts: A long-term follow-up analysis. *Journal of pediatric surgery*. 2013;48(3):510-5.
9. Turgal M, Ozyuncu O, Yazicioglu A. Outcome of sonographically suspected fetal ovarian cysts. *The Journal of Maternal-Fetal & Neonatal Medicine*. 2013 (0):1-18.
10. Akin MA, Akin L, Özbek S, Tireli G, Kavuncuoğlu S, Sander S, et al. Fetal-neonatal ovarian cysts-their monitoring and management: retrospective evaluation of 20 cases and review of the literature. *Journal of clinical research in pediatric endocrinology*. 2010;2(1):28.

11. Schmahmann S, Haller JO. Neonatal ovarian cysts: pathogenesis, diagnosis and management. *Pediatric radiology*. 1997;27(2):101-5.
12. Læssøe L, Laursen L. OP09. 04: Fetal ovarian cysts. *Ultrasound in Obstetrics & Gynecology*. 2013;42(s1):72.
13. Mizuno M, Kato T, Hebiguchi T, Yoshino H. Surgical indications for neonatal ovarian cysts. *The Tohoku journal of experimental medicine*. 1998;186(1):27-32.