CASE REPORT

Fetal vulvar cysts with spontaneous resolution

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SUMMARY

Congenital anomalies of the external genitalia occur in 2–3 per 100 infants. These anomalies might bring variable degrees of morbidity to the infant and often constitute diagnostic challenges for health professionals. We present a case report of a fetus with bilateral vulvar cysts diagnosed during the third trimester ultrasound. The cysts spontaneously regressed before birth and the newborn showed no genital anomalies at birth.

BACKGROUND

Congenital anomalies of the external genitalia occur in 2–3 per 100 infants¹ and may be a diagnostic challenge for health professionals. These anomalies are often transient or physiological but should also raise suspicion for pathologic events² that might bring variable degrees of morbidity to the infant. We present an unusual finding of fetal bilateral vulvar cysts that became a diagnostic challenge.

CASE PRESENTATION

We present a case of a 28-year-old healthy primigravida, with no relevant medical, social or family history, who initiated pregnancy surveillance at our institution at 21 weeks gestational age. First and second trimester ultrasound showed a female fetus; combined first trimester screening for aneuploidy and serum analysis were unremarkable. At third trimester ultrasound, performed at 31 weeks 2 days gestational age, the fetus had normal growth (19th centile), with normal amniotic fluid index and umbilical artery Doppler; however, two regular well-defined cystic images were seen, 6.2 and 6.5 mm in size, located one in each *labia majora* of the vulva ([figure 1](#)). No other anomalies were detected.

INVESTIGATIONS

An ultrasound was repeated within a 2-week interval at 33w2d of gestational age. In this examination

normal growth (18th centile) and normal amniotic fluid index were confirmed. After an exhaustive exploration, the cystic vulvar images seen in the anterior examination were not observed but there was a doubt about *labia majora* hypertrophy. No other anomalies were detected ([figure 2](#)).

The ultrasound findings were discussed with the parents, and reinforced the probable benign and physiological nature of the cysts. They agreed to re-evaluate the external genitalia only in the neonatal period.

DIFFERENTIAL DIAGNOSIS

During childhood, cysts appearing as labial or vulvar masses are common, most are congenital and appear at birth or with hormonal stimulation at adolescence.³ The differential diagnoses include congenital or acquired hernia (often containing the ovary), gonadal and embryonic remnants such as Skene's duct cysts (paraurethral cysts), hymenal cysts, Gartner's duct cysts (mesonephric cysts), Bartholin's duct cysts and cysts of the canal of Nuck (hydrocele).³

Skene's duct cysts refer to prostatic homologues located in the pavement of the distal urethra.² Gartner's duct cysts refer to cystic dilations of the Wolffian duct remnants located along the anterolateral wall of the vagina.² These two types of cysts, as well as hymenal cysts, usually present as interlabial mass.

Bartholin's duct cysts and hydrocele of the canal of Nuck usually present as cysts located on the *labia majora*. The first corresponds to the most common cystic lesion arising in the vulva, usually in reproductive age, due to accumulation of secretions,² occupying a posterior position.³ The Canal of Nuck, or *processus vaginalis*, accompanies the round ligament along the inguinal canal until the *labia majora* as a rudimentary peritoneal sac that usually obliterates by 8 months of gestation.^{2–4} Patency of the Canal of Nuck has a prevalence as high as 20% in postmortem studies on female infants.⁴ Symptoms occur in a smaller percentage.⁴ It can become symptomatic through the formation of cysts that are found in the anterior aspect of the *labia*,² infection or the passage of pelvic contents.

In order to exclude any disorder of sex development, a thorough exploration of the genitals was conducted.

OUTCOME AND FOLLOW-UP

The parturient delivered a healthy newborn at 40w gestational age. The paediatric observation confirmed a normal female phenotype without any vulvar anomaly.

Figure 1 Ultrasound at 31 weeks 2 days.

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Figure 2 Ultrasound at 33 weeks 2 days.

DISCUSSION

Due to its location, most probably the vulvar cysts in this case report correspond to bilateral Bartholin's duct cysts or a bilateral hydrocele of the Canal of Nuck that became visible in the third trimester perhaps in relation with higher hormonal levels typical of the late second and third trimesters. The mechanism implied may be an imbalance between fluid secretion and absorption by the secretory membrane lining cystic surfaces, which is idiopathic in most cases.^{5 6}

To the best of our knowledge, after searching in PubMed, there are no descriptions of prenatal diagnosis of Bartholin's duct cyst. Cevik *et al*⁷ report a case of urinary retention with hydronephrosis in a neonate with a Bartholin's duct cyst compressing the urethra but diagnosed in the second day of life. Similarly, cyst of the canal of Nuck is a rare pathology,^{8 9} not reported in most textbooks of gynaecology or surgery,^{5 6 10 11} occurring in the paediatric population^{4 8 9 12 13} and in adult women.^{6 10–12 14} In the prenatal period, hydrocele is well documented only in male patients.¹⁵

The importance of this prenatal diagnosis is related to being able to detect lesions that might bring morbidity to the neonate and being able to reassure parents about the favourable and benign course of the disorder.

In this particular case, there was a complete resolution *in utero* and no neonatal complications were reported. However, as previously cited, Cevik *et al*⁷ reported a case of urinary retention with hydronephrosis due to urinary tract system compression from a Bartholin's duct cyst. Another complication described in the neonatal period is inflammation in the context of spilled meconium through the inguinal canal during an episode of meconium peritonitis, which most often occurs before or shortly after birth.⁴ Jedrzejewski *et al*¹⁶ presented a 2-month-old girl with a movable mass in the right inguinal region, which corresponded to a herniation of the uterus and right ovary through the canal of Nuck. Mandhan *et al*⁹ also reported a case of a 5-year-old girl presenting with a 6×3 cm painful mass in the left inguinolabial region, which turned out to be an infected hydrocele.

In this case, the exploration of the genital organs led to exclusion of a disorder of sex development. In the first place, there

was a second trimester ultrasound describing normal female genitals. Furthermore, there was no enlarged phallic structure, abnormal/fused labia,¹⁷ or enlarged wrinkled adrenals, which are typical of congenital adrenal hyperplasia,¹⁸ the most common cause of ambiguous genitalia.³ The importance of the exclusion of such a diagnosis is related to the prevention of potential life threatening conditions, such as the adrenal crisis related to congenital adrenal hyperplasia¹⁹ and parental counselling.

Learning points

- Vulvar cysts usually have benign and favourable courses.
- These cystic lesions might have complete resolution in utero with no associated morbidity to the infant.
- Occasionally postnatal morbidity is reported if there is compression of adjacent structures, inflammation/infection or herniation.

Competing interests None.

Patient consent Obtained.

Provenance and peer review Not commissioned; externally peer reviewed.

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