FOETAL INTRA ABDOMINAL CYST : ANTENATAL DIAGNOSIS AND FOLLOW-UP

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Introduction

Small ovarian cysts in the foetus and in newborns are not uncommon. The most common cause of an antenatally observed intraabdominal cyst, excluding those of gastrointestinal and renal etiology is of ovarian origin [1]. Most of these cysts involute within the first few months of life and bear no clinical significance. However, large ovarian cysts are liable to undergo complications like torsion and haemorrhage in the intrapartum or postnatal period or cause dystocia and intestinal obstruction. We present this case of an intraabdominal cyst, in which, the antenatal detection and serial follow-up into the infancy of the child led to timely alerting the paediatric surgeons about development of complications, for necessary intervention.

Case Report

During routine antenatal ultrasound screening in a primigravida, a 28 weeks old foetus was detected to have a cystic mass, 4x4 cm in size, on the right side of the abdomen, which was followed-up and found to be persistent till term. A differential diagnosis of mesenteric cyst; duplication cyst and ovarian cyst was offered, in view of the foetus being of the female gender. The child was delivered normally at term and had an asymptomatic post-natal period. At 2½ months of age, the infant was brought under medical supervision in view of antenatal counselling. An examination revealed a rounded cystic to firm mass in the right periumbilical region. An ultrasound scan showed a right sided, predominantly cystic mass in the abdomen with hyperechoic areas within, showing no significant change in size [Fig.1(a) and 1(b)]. A differential diagnosis of mesenteric cyst, duplication cyst and right ovarian complex cystic mass was offered. To ascertain the exact nature and origin of this mass, a CT scan was done, which showed a complex cystic mass with a fluid-debris level and Hounsfield values of 13-14 HU and 20-24 HU respectively, above and below the level [Fig 2]. The same differential diagnosis as on ultrasonography was offered. At 3½ months of age, ultrasound follow-up revealed a well encapsulated cystic mass, measuring 10x10 cm, in the right iliac region, extending into the pelvis, with a fluid level and low level uniform echoes. Floaters of high echogenicity were seen attached to the wall of the cyst. Minimal ascitis

Figs. 1 a) & b) : LS and TS of pelvis of infant showing a large cystic mass superolateral and to right of urinary bladder with low level internal echoes.

was present. Other intra-abdominal organs were normal. A diagnosis of haemorrhage into the ovarian cyst was given. In view of the increase in size and the echogenic contents suggestive of haemorrhage, the child was taken up for surgery. Peroperatively, a 10 x 10 cm, pedunculated, left ovaries cyst was delivered. The right ovary was normal. Post operative recovery was uneventful. Histopathology revealed a large ovarian cyst with extensive infarction and necrosis with calcification in the necrotic zone consistent with a

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Fig. 2 : Axial CT scan section showing a well encapsulated cystic mass, right side, with a fluid level.

haemorrhagic ovarian cyst.

Discussion :

De Sa found small follicular cysts in 113 of 332 (34%) of stillborns and infants [1]. Small and uncomplicated cysts have a general tendency to regress during the first 6 months of life [2].

The genesis of these cysts is controversial. Evidence suggests that excessive stimulation of foetal ovary by both placental and maternal hormones in conditions like maternal diabetes, toxemia and Rh isoimmunization explains an increased incidence of cysts in infants of such mothers.[3]. Other suspected hypotheses include a precocious FSH peak between the 20-30th weeks of gestation and an abnormal HCG peak due to disorders of theca interna. It has also been suggested that prematurity and foetal hypothyroidism are associated with development of ovarian cysts.[4].

Ultrasound is the modality of choice for parental detection and postnatal follow-up in these cases. Ovarian cysts are identified by few ultrasound criteria which include, the presence of a cystic structure located on one or both sides of the foetal abdomen, integrity of urinary and gastrointestinal tracts and the female sex of the foetus. Small size of the pelvis in foeti and infants cause these cysts to be intraabdominal. Cysts in the liver and pancreas should also be considered as possibilities. However, mesenteric cysts, urachal cysts and enteric duplication cysts cannot be ruled out with absolute certainty. Therefore, a complete survey of foetal anatomy paying attention to cyst septations and bilaterality as well as serial antenatal sonographic follow-up is of great significance.

Management of uncomplicated ovarian cysts depends mainly on serial ultrasound follow-up. Simple cysts of ovary tend to resolve spontaneously and need only surveillance. Cysts less than 4 cm are managed conservatively. In utero aspiration of cysts less than 5 cm prevents complications and a subsequent inevitable oophorectomy [5]. When large ovarian cysts are diagnosed in a mature foetus, and a risk of difficult labour is present, delivery by caesarian section is given serious consideration to avoid intrapartum complications like torsion or rupture of cysts. Percutaneous aspiration of uncomplicated cysts in the neonate enable preservation of the residual ovarian parenchyma.[6].

Postnatal sonographic follow-up is mandatory for all cases of ovarian cysts detected antenatally. Any change in size and echopattern of previously anechoic cysts is suggestive of complications. A sudden development of intense hyperechogenicity followed by a complex heterogenous appearance indicates torsion of the cyst. Presence of intracystic flocculation with a characteristic fluid interface depicts intracystic haemorrhage.

92% of haemorrhagic ovarian cysts have increased sound transmission indicating it's cystic nature. Internal echoes show a variety of sonographic patterns due to internal blood clot formation and lysis [7]. Thus, the most common appearance is that of an anechoic mass with hyperechoic material within. Changing appearances of haemorrhagic ovarian cysts over time as a result of clot lysis is very diagnostic. Other features include a thick wall, more than 4mm, presence of septation and fluid in the pouch of Douglas. Rarely, they may be homogeneously hypo or hyperechoic. Appendiceal abscess, dermoid cysts and teratomas are included in the differential diagnoses.

Any sonographic evidence of complication in the intrauterine period is an indication for early delivery, if the foetus is deemed viable. Such cases may also require surgical intervention after birth. The evolution of complex echogenicity in ovarian cysts, significant increase in size or simple large ones which are more than 4 cm that do not disappear in the postnatal period or symptomatic cysts are indications for surgical removal [6,8].

In conclusion, an intraabdominal cystic mass, reaching into the pelvis, whether unilateral or bilateral in a female foetus, strongly suggests an ovarian origin. Majority of small, uncomplicated ovarian cysts either regress with no sequelae or remain stable. Serial antenatal and post natal ultrasound examinations are necessary for timely detection of complications. Size of

the cyst and / or it's sonographic characteristics are the two main factors for deciding on conservative or surgical management. Complicated ovarian cysts in the postnatal period are best treated by surgical removal.

In our case, a right sided, cystic intraabdominal mass in a female foetus was diagnosed antenatally and was followed up into the postnatal period. No obvious risk factors in the mother or known associations like hypothyroidism in the infant were noted. The cyst was stable throughout the in - utero life and in the neonatal period. Although the child was asymptomatic, increase in the cyst size and presence of a fluid interface with different echopatterns of the contents were suggestive of intracystic bleed, which necessitated surgery. Peroperative findings confirmed a large pedunculated ovarian cyst arising from the left ovary, with intracystic haemorrhage, infarction and necrosis. The cyst was predominantly lying on the right side. Right ovary was seen to be normal. A left ovariectomy was done . Histopathological features of areas of extensive infarction and necrosis and calcification in the necrotic zone of the large cystic mass was consistent with the preoperative diagnosis of haemorrhagic ovarian cyst.

References

1. De Sa et al. Follicular Ovarian cysts in still birth and neonates. Arch Dis Child 1975; 50: 45-50.
2. Esposito C, Garpoli V, Dimatto G. Laproscopic management of ovarian cysts in a new born. Surg Endosc (Germany) 1998;12(9): 1152-4.
3. Pryse-Lavies J, Denhurst CJ. The development of the ovary and uterus in the foetus, newborn and infants: Morphological and enzyme histochemical study. J Pathology 1971; 103: 5-25.
4. Jaferi SZH, Bree RL, Silver Metal. Foetal ovarian cysts : Sonographic detection and association with hypothyroidism. Rad 1984; 150 : 809-12.
5. Givoladino C, Bilacioni E, Bogolan P, Murji L. Antenatal ultrasonographic diagnosis and management of foetal ovarian cysts. Int J Gynae Obstet 1994;344 (10): 27-31.
6. Sapin E, Barge F, Lewin F, Baron JM, Adamsbaum C, Barbet JP, et al. Management of ovarian cysts detected by prenatal ultrasound. Eur J Pediatr Surg 1994; 4(3) :137-40.
7. Baltrowich OH, Kurty AB, Pasto ME. The spectrum of sonographic findings in haemorrhagic ovarian cysts. AJR 1987;148 : 901-5.
8. Gonzalez N, Temino R, Riazuelo G, Elias J. Esteban JA. Prenatal diagnosis of ovarian cysts : The ultrasonographic course and therapeutic importance. Cir Pediatr 1999; 12 (1) : 22-25.