

## PRENATAL DIAGNOSIS AND MANAGEMENT OF A FETAL INTRA-ABDOMINAL ATYPICAL CYSTIC MASS.

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### Abstract

The prenatal ultrasound (US) screening is used on daily basis worldwide, and the detection of fetal intra-abdominal cystic masses is more frequent. Many authors reported diagnosis of ovarian cysts as the most encountered intra-abdominal cystic masses in fetus, and this was also the first diagnosis that we considered in the reported case. Still, because its atypical sonographic appearance, we decided closely observation and rapid postnatal diagnosis. Other cystic entities should be considered, as the urogenital and digestive malformations: obstructive stenotic or atretic abnormalities of the urinary, digestive or biliary tracts, digestive duplication or isolated renal, hepatic, splenic or the mesenteric cysts.

We hereby present the case of an isolated, multilocular and heterogeneous voluminous cystic intra-abdominal mass, referred to our unit Prenatal Diagnostic Unit in the third trimester. A conservative management was adopted. Fetal follow-up US scans revealed the persistence of the mass, with stationary aspect and dimensions. The fetus was born at 38+3 weeks of gestational age. Postnatal US confirmed the persistence of the cystic intraabdominal mass, with similar features. On the seventh day of life, laparoscopic surgery was performed. A voluminous mesenteric cystic mass was removed. The postoperative evolution was uneventful.

### Rezumat: Diagnosticul prenatal și managementul unei formațiuni chistice abdominale fetale tipice

Screening-ul ecografic prenatal este folosit azi de rutină la nivel global, ceea ce facilitează detecția de mase chistice abdominale fetale, raportate din ce în ce mai frecvent. Mulți autori consideră chistele ovariene drept cea mai frecventă patologie tumorală chistică intraabdominală fetală depistată prenatal. Acesta a fost și primul nostru diagnostic prezumtiv în cazul de față. Totuși, aspectul atipic al acestuia ne-a determinat să monitorizăm atent evoluția acestuia și să căutăm obținerea precoce a unui diagnostic cert. Alte patologii chistice ar trebui luate în considerare în cadrul diagnosticului diferențial: malformații digestive și urogenitale, precum obstrucțiile – stenoze sau atresia la nivelul tractului urinar, digestive sau biliare, duplicațiile digestive sau chisturile izolate renale, hepatice, splenice sau mezenterice.

În această comunicare prezentăm cazul unei formațiuni chistice fetale voluminoase, heterogene, multiloculare situată intra-abdominal, lateral dreapta, caz îndrumat către unitatea noastră de diagnostic antenatal în trimestrul al treilea. A fost adoptată o atitudine de expectativă, deoarece monitorizarea ecografică fetală a relevat caracteristici staționare ale formațiunii și starea de bine a fătului, cu scor optim. După naștere, la 38+3 săptămâni gestaționale, evaluarea imagistică postnatală a confirmat descrierea prenatală a formațiunii tumorale, cu etiologie incertă. În ziua a șaptea postnatal, intervenția laparoscopică a fost realizată. A fost diagnosticat și excizat un chist voluminos mezenteric, iar evoluția postoperatorie a nou-născutului a decurs favorabil.

**Cuvinte cheie:** diagnostic prenatal, ecografie morfologică, chist abdominal fetal, chirurgie pediatrică, chirurgie laparoscopică

## Introduction

Fetal intra-abdominal cystic masses are often found on routine antenatal ultrasound screening, ovarian cysts being the most frequent intra-abdominal tumors in fetal female [1], with over 30 % of incidence [2]. Usually they are third trimester findings, due to the gonadotropins influence on the ovarian tissue. Most of them are small and have no clinical significance, as usually they subside after birth [1].

Differential diagnosis should include genitourinary tract disorders [3-6] (megacystis, renal cyst, hydronephrosis, urachal cysts, hydrometrocolpos), gastrointestinal tract disorders [7-10] (mesenteric cysts, liver and splenic cysts, pancreatic and choledoc cysts, digestive duplication and obstructive malformation, like duodenal and intestinal atresia, intestinal dilatation and volvulus). All these cystic masses usually have significantly different US features. In our case the mesenteric cyst had no typical appearance. Usually it is described as a medial cyst [8,9], but we have to acknowledge that this particular diagnosis is rather suspected in the lack of other typical signs for the rest of abdominal cystic masses.

## Case presentation

A 29-year old pregnant women, primigesta, referred to our Prenatal Diagnosis Unit at 36 weeks of amenorrhea for the evaluation of a previously diagnosed fetal abdominal cystic mass, suspected as polycystic kidney. At US examination we found a

multilocular, heterogenous, avascular cystic mass, located on the right side of the abdominal cavity, occupying the entire fetal right flank, from the hepatic inferior margin to the pelvis, with no displacement of the fetal thoracic organs or other structures in the abdominal and pelvic cavity (Figure 1A,B). Normal kidneys structure was confirmed bilaterally (Figure 1C).

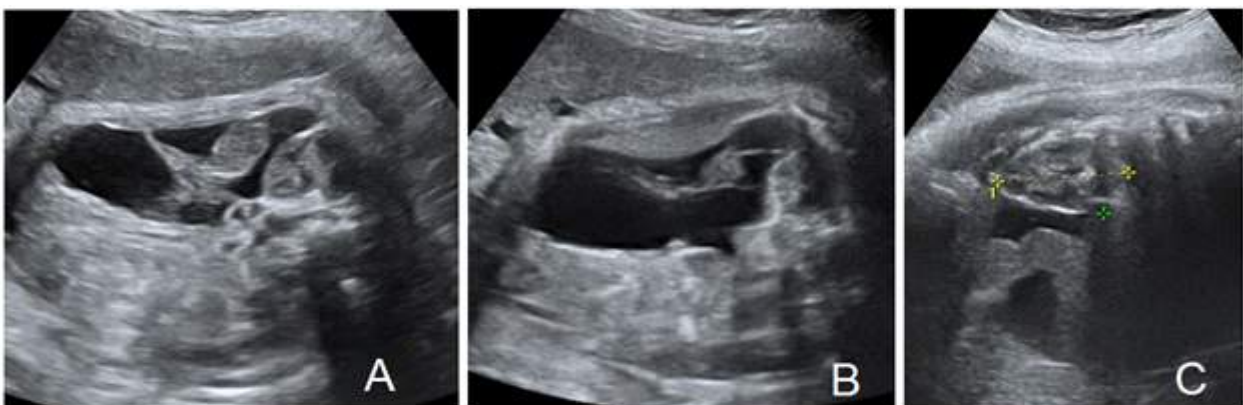
We first suspected an ovarian cystic mass, and decided expectative, with subsequent US examination. The fetus presented normal intrauterine well-being features, with optimal Manning score. The aspect and dimension of the cystic mass were stationary (Figure 2) on the follow-up scans.

The patient was scheduled for an elective C section at 39 weeks of amenorrhea, due to the association of severe myopia, but she presented in the emergency department in advanced labour, with complete dilatation at 38 +3 WA. She delivered vaginally a female fetus, 2950 g, Apgar Score 8, with instrumental aid (Spatulas de Thierry) at the lower pelvic outlet. Postpartum US confirmed the persistence of the cystic mass, with a fetus in good clinical condition.

A multidisciplinary team (obstetrician, neonatologist and pediatric surgeon) counselled the couple and obtained the consent for the surgical intervention. On the seventh day of life, the laparoscopic investigation confirmed a cystic mesenteric mass. (Figure 3).

Aspiration of the cystic mass (see Figure 4) with consecutive excision of the cyst and abdominal drainage was performed (Figure 5).

The postoperative evolution was favourable, with patient discharge at day three after the



**Figure 1.** The prenatal aspect of the cystic mass (A and B) and of the right kidney (C) at 36 WA.

laparoscopic surgery. Fluid cultures were negative and cytological assessment showed no evidence of malignancy. The histopathologic exam of the samples reported a benign multicystic mesothelioma.



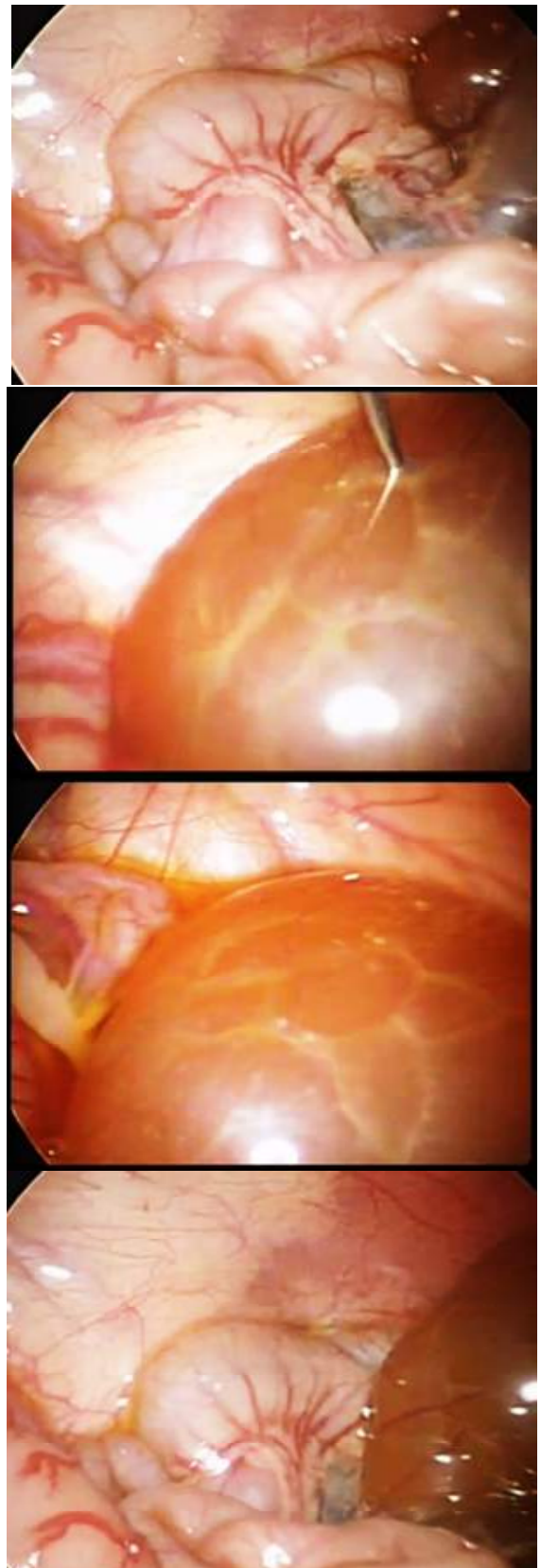
**Figure 2.** The stationary aspect of the cystic mass at 37 +5 gestational weeks.



**Figure 3.** The postnatal aspect of the cystic mass.

## Discussion

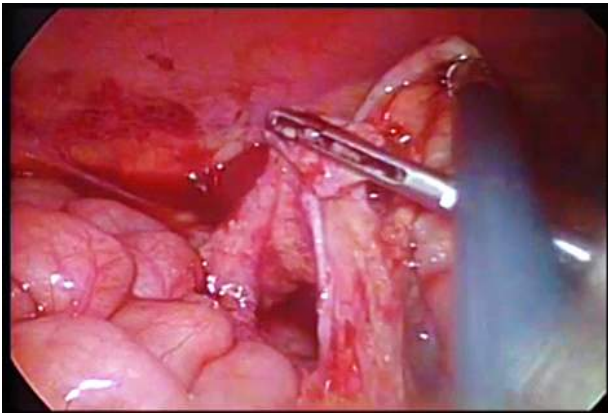
Progresses recorded in the maternal-fetal medicine field allow the diagnosis of the cystic intra-abdominal mass even in the first trimester of pregnancy. Though, the majority of cases reported in



**Figure 4.** The intraoperative aspect of the cystic mass. Aspiration was aimed to reduce the volume of the cyst, for a better surgical approach.

the literature are described in the second and third trimester of pregnancy [11-15].

US criteria for the mesenteric cyst were suggested in previous communications as follows: a



**Figure 5.** Intraoperative aspect after removal of the cystic mass. The forceps presents the mesenteric peritoneum.

single cystic mass, multiloculated, situated medial in the abdomen [8,9]. Contrary, in our case the voluminous cystic mass was located predominant on the right side of the abdomen and pelvis, below the anterior edge of the liver, and for that reason the ovarian cystic origin was initially suspected.

Few cases of mesenteric cyst are reported prenatally in the literature. Helling et al [16] reported in a 77 cases of intra-abdominal cystic masses diagnosed in the third trimester of pregnancy - 64 cases of ovarian cyst, 10 cases of mesenteric cysts (8 cases on male fetuses and 2 cases in female fetuses). Authors described the spontaneous resolution in the antenatal period or early in postnatal period.

In the event of diagnosis of an intra-abdominal cystic mass, in our view, subsequent US scans are required, due to the potential of complication, especially in ovarian cystic masses cases. Perrotin et al [17] reported in a 16 case series of simple ovarian cysts, a evolution to torsion in almost half of the cases. Also Heling et al. [16] described a similar rate of complications, most cases requiring the unilateral removal of the ovary or adnexa. The authors concluded that visualising the intracystic bleeding and fetal tachycardia are possible signs of torsion. Same authors concluded that the aspiration of the intraabdominal fetal cysts (suspected as ovarian masses) should be reserved to the large cystic masses only, due the potential risks of intracystic bleeding, infection of the amniotic cavity and preterm labour. Born et al. [18] highlight the potential benefit of the antenatal aspiration, for

determination in concentration of hormones in the cyst fluid. In our case, the stationary volume of the tumor and the fetal wellbeing evaluations encouraged us for expectative.

MRI usually confirm US findings, and in selected cases may contribute with additional information. For this reason it should be considered in antenatal evaluation of cystic intrabdominal masses, but with limited additional diagnosis potential over the sonographic evaluation. In our case the parents declined the procedure, due to the accessibility for a definitive diagnosis, by means of the postnatal laparoscopic investigation.

## Conclusion

Fetal cystic intra-abdominal tumours are very different in etiology and outcome, and their diagnosis should be followed by serial US fetal examinations in antenatal period. When atypical fetal abdominal cystic formations are visualized, the mesenteric origin should be considered. In our experience the vast majority of abdominal cystic tumours will subside after birth, and only large atypical and symptomatic tumours would benefit from neonatal surgery.

## Conflict of interests

*The authors declare that they have no conflict of interests.*

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