

Fetal Abdominal Cystic Lesions: Diagnosis is not so Crucial



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Received: January 27, 2018; Published: February 06, 2018

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Keywords: Congenital anomaly; Fetal abdominal masses; Prenatal diagnosis; Prognosis

Abbreviations: US: Ultra Sound; MRI: Magnetic Resonance Imaging

Introduction

Fetal abdominal echogenic lesions are relatively common findings during routine screening of fetal morphology, especially with the sophisticated equipment now a day's such as high-resolution ultrasound (US) and fetal magnetic resonance imaging (MRI) [1]. However most of them present as round, anechoic cystic structure with different shape, size and origins. Thus diagnosis is often imprecise, prediction of postnatal intervention is poor and consultation cannot give relief to anxious parents. Fortunately, many of these lesions may not increase additional risk to fetus or neonate. They may resolve spontaneously in the uterus or after birth. Therefore, in most cases, expectant management is sufficient, but some still need early intervention. This article discusses some of the most common prenatally diagnosed fetal intra-abdominal masses, giving a brief description of the etiology, diagnosis, management and prognosis.

Epidemiology

Fetal abdominal masses can arise from gallbladder, liver, kidneys, and gastrointestinal tract and so on. Even an extra-abdominal mass sometimes may detect as an intra-abdominal cyst, such as extra lobar pulmonary sequestration. The most common etiologies for fetal intra-abdominal cysts are: ovarian cysts, gastrointestinal cystic duplication, hepatic and biliary cysts, meconium pseudo cysts, mesenteric cysts, adrenal cysts, splenic cysts and hydrometrocolpos excluding urinary origin and bowel dilatations [2,3]. Ovarian cysts are the commonest cystic lesion in females, estimated almost 1 in 2600 pregnancies. Duodenal atresia affects about 1 in 5000 pregnancies. Mesenteric cysts are estimated in 1 in 20000 pediatric admissions. Choledochal cysts occurs about one in 2 million with a fourfold increase in females.

Diagnosis

Diagnosis of Abdominal cystic lesions is really challenging for a variety of similar differential diagnoses and frequent false positives. Prenatal ultrasound is the main tool to detect intra-abdominal cystic lesions, which can provide a specific diagnosis or at least narrow the differential diagnosis. The overall accuracy of prenatal US is reported about 90%, with a sensitivity of 80%, a specificity of 70% and a positive predictive value of 75% [4,5]. The lesions always present as simple or complex cysts at different locations such as in the upper or lower abdomen. This ambiguous description may complicate the diagnosis. Ovarian cysts, mesenteric cysts and enteric duplication cysts are hard to distinguish because they can all present as simple cysts in the lower abdomen, on upside of the bladder. At this time, MRI has become a useful addition for prenatal diagnosis because it's better anatomical localization and contrast resolution, especially in central nervous system, genitourinary, and hepatobiliary anomalies. Also, there are some cysts like hepatic cysts and renal cysts, of which localization can be detected easily, but precise diagnosis is hard to reach.

However, sometimes citing a specific diagnosis prenatally may be unwise. For example, the classical 'double bubble' sign is typical for duodenal atresia, while annular pancreas or obstruction in the proximal gastrointestinal tract can also result in this presentation by US. Therefore, it is necessary to establish a specific diagnosis prenatally unless fetal intervention is ready. In some cases, karyotyping should be taken into consideration such as the 'double bubble' sign that has a strong association with trisomy 21, or combined with other anomalies.

Manage and Prognosis

The counseling group should contain obstetricians, pediatric surgeons, neonatologists, geneticists, ultrasound and radiographic experts. Though many abdominal masses cannot reach a specific conclusion, expectant therapy is sufficient in most cases. Most fetal abdominal masses have excellent outcome even after surgical resection [1,3]. Ovarian and mesenteric cysts have a great chance to resolve spontaneously. It is said only one-third of ovarian cysts remain until the neonatal period. Several studies have shown that complex cysts or simple cysts larger than 5cm may increase the risk of ovarian torsion. Thus recommendation is either aspiration or surgery when cysts do not shrink. Immediate intervention is recommended when simple cysts turn into complex cysts which mean there is hemorrhage or necrosis or debris. Duplication cysts in gastrointestinal tract or urinary system do not need immediate resection after birth in asymptomatic patients.

Surgical resection can wait to allow for neonatal growth, but postnatal evaluation should be done carefully to observe obstructive or infective symptoms. Choledochal cysts, gastrointestinal atresia or tumors such as teratoma and neuroblastoma, need early surgical intervention after birth. Hemangiomas can use medicines such as corticosteroids and interferon alpha. When medical therapy fails, invasive therapy such as surgery, hepatic artery ligation is indicated. Spontaneous regression of hemangioma is also possible.

Communication

Many fetal abdominal masses only need conservative management and may do no harm to newborns. Thus sometimes

counseling group may not be able to give parents a clear answer about 'what it is', but they can comfort anxious parents by 'what need to do later'.

Conclusion

Fetal abdominal cystic lesions are common and the prognosis is good in most cases. Most of them do not need precise diagnosis prenatally since immediate fetal intervention is not necessary. But careful evaluation and close follow up is required after birth in case of potential surgical intervention.

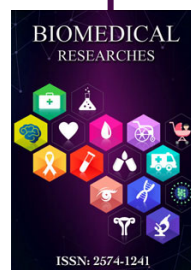
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