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Prenatal USG presentation, diagnosis and outcome of fetal echogenic lung lesions

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Objective

To describe fetal echogenic lung lesion in terms of presenting features on prenatal USG, to establish the diagnosis and to predict the prognosis and the outcome.

Methods

This is a five year single centre, retrospective study conducted from January 2013 to December 2017. During this period, a total of 40 pregnant women were diagnosed with echogenic lung lesion in the fetus. The gestational age range was from 16 to 29 weeks. This included 6 cases of CHAOS (congenital high airway obstruction syndrome), 28 cases of CPAM (congenital pulmonary airway malformation) and 6 cases of pulmonary sequestration (PS).

Results

The ultrasound presentation of CHAOS was unmistakably similar and classical in all the cases with bilateral enlarged, echogenic lung and anteriorly pushed heart. Enlarged trachea could be demonstrated in all the cases. Three (50%) out of six fetuses had associated fetal hydrops and one fetus had ascites at the time of presentation. There were no other associated abnormalities in the fetuses. All couples opted for termination of pregnancy. Out of 6 cases of PS, 3 were intra-thoracic and 3 extra-thoracic lesions. All the 3 cases of extrathoracic PS, delivered and a postnatal USG of the abdomen and a chest X ray were unremarkable with the babies doing well. Two out of 3 fetuses with intrathoracic PS had associated mediastinal shift which regressed in size towards term. The postnatal X ray in both these cases was unremarkable. In one fetus with intrathoracic PS, the lesion reduced in size but persisted. Postnatal X ray showed evidence of the lesion; however, as the child is asymptomatic, no active intervention has been performed. The child is managed conservatively and is being followed up with serial X rays. Of 28 fetuses diagnosed with CPAM, 14 presented with right - sided CPAM and 14 presented with left - sided CPAM. Out of 28 cases, macrocystic lesion were seen in 4 (14.2%) cases, Type II lesion was seen in 3 (10%) cases and microcystic lesion was seen in remaining 21 (75%) cases. There was an associated mediastinal shift in 13 (46.4%) fetuses at diagnosis. Only one (3.57%) fetus had associated hydrops at diagnosis. Three couples opted for termination of pregnancy, one fetus with macrocystic CPAM and hydrops had IUFD after 2 weeks. Out of four fetuses with macrocystic CPAM, two were terminated, one had IUFD due to hydrops and in one fetus the lesion increased in size antenatally, baby underwent thoracoscopic excision of the cyst at 2 years of life and doing well now. Out of the 3 Type II CPAMs, two fetuses delivered and postnatal MRI is normal. In one fetus, the lesion became macrocystic during follow up, but regressed at 30 weeks with normal postnatal X ray. Out of 21 fetuses with microcystic CPAM, one was terminated as the fetus was having other systemic malformation. In nine fetuses, the lesion regressed antenatally. In all 20 cases, the postnatal x ray was normal and babies are doing well, without any intervention.

Conclusion

Fetal lung lesions are easily diagnosed during the anomaly scan. Among fetal echogenic lung lesions the most common one is CPAM. CHAOS can be diagnosed in every single case and can be associated with hydrops and is a lethal condition. Fetal CPAM and PS are relatively benign lesions. The presentation could vary but tracing the blood supply is the key to diagnosis. CPAM and PS though look deceptive and CPAM could be associated with mediastinal shift, but generally regress with increasing gestational age. Diagnosing the lesion with accuracy and the presence of associated hydrops are useful in predicting the outcome.