Prenatal Detection of a Pericardial Teratoma

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A 17-year-old gravida II, para I woman was referred for a fetal echocardiographic evaluation at 28 weeks of gestation because of the finding of hydrops fetalis on an obstetrical scan. The study demonstrated a large, complex, anterior mediastinal mass resulting in rotation of the heart leftward and posterior with compression of the right heart chambers (Figure 1). The intracardiac anatomy was normal, with no significant inflow or outflow obstruction identified. Intrauterine removal of the mass was considered but declined by the parents. Preterm labor developed at 32 weeks of gestation and was unresponsive to medical management. The infant was delivered by cesarean section and required immediate endotracheal intubation for respiratory distress. The infant developed hypotension responsive to volume resuscitation and vasopressor medications. The infant’s respiratory status stabilized with high-frequency ventilation.

An MRI was obtained to evaluate the mass and its extent within the thoracic cavity before surgical intervention. The MRI confirmed the diagnosis of a large anterior mediastinal mass consistent with a pericardial teratoma (Figure 2).

On the fourth day of life, the child was taken to the operating room. The tumor was exposed through a median sternotomy incision. As noted on the fetal echocardiogram and MRI, the mass occupied the majority of the anterior mediastinal space and displaced the heart leftward and posterior. The mass arose from the ascending aorta. Manipulation of the tumor resulted in aortic obstruction and profound hypotension. The size of the tumor precluded initiation of cardiopulmonary bypass. The tumor was excised at its base, leaving a large defect in the aortic wall. The patient was placed on cardiopulmonary bypass, and the aorta was reconstructed with a patch of cryopreserved pulmonary homograft.

Pathological study of the tumor confirmed the diagnosis of teratoma with immature complex elements (Figure 3).
Figure 2. Thoracic MRI. T1-weighted parasagittal image demonstrating an anteriorly located mass measuring 7 cm in transverse × 5 cm superior to inferior × 4.5 cm anterior (A) to posterior (P). Mass has solid and cystic components with multiple septations. Border of mass could not be distinguished from cardiac structures. Arrows outline posterior aspect of tumor.

Figure 3. Gross pathological specimen. Arrow defines attachment to ascending aorta. Mass measured 7.5 × 5.0 × 4.0 cm. Serial sectioning demonstrated mass to be 80% solid and 20% cystic. Microscopic examination confirmed diagnosis of pericardial teratoma with 15% immature neural tissue.
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