

Case Report

Intrapericardial Teratoma in a Premature Neonate: Pre-Delivery Diagnosis and Successful Surgical Removal

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Intrapericardial teratoma is a rare cardiac tumour that is typically a lone, large, polycystic mass, in contact with the base of the heart and accompanied by pericardial effusion. In itself it is benign, but it can be potentially fatal because of pressure on the heart or great vessels. It is usually surgically removable. Here we describe a case of intrapericardial teratoma that was identified by foetal echocardiography prior to Caesarean delivery and was successfully removed surgically in a premature neonate. The postoperative course was uneventful, and six years later the child shows normal development and has a normal echocardiogram.

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Intrapericardial teratoma is a rare primary cardiac tumour that often causes symptoms through pressure on the structures of the cardiovascular and/or respiratory system and can potentially be fatal.^{1,2} We present a case of intrapericardial tumour that was identified before delivery in a foetal echocardiogram and was successfully treated surgically in a premature neonate.

Case presentation

A 30-year-old primigravida delivered at 34 weeks of gestation (WOG) a female baby weighing 2.36 kg. During pregnancy, the following problems were noted: IgG antibodies for toxoplasma at 12 WOG; fungal vaginitis at 26-30 WOG, treated with miconazole cream; and mild womb contractions at 33 WOG, without consequences. All the routine foetal echocardiograms were normal.

The last foetal echocardiogram, recorded 8 days before delivery, showed pericardial

effusion and a cystic mass in the mediastinum, in contact with the right atrium (Figure 1). For this reason, a premature Caesarean delivery was scheduled and was performed without problems. The baby was respiratorily and haemodynamically stable. Clinical and laboratory examinations were normal. The echocardiogram showed moderate pericardial effusion and a cystic space-occupying lesion, 23 × 25 mm in size, on the anterior mediastinum, which was pressing on the right atrium and slightly on the superior *vena cava* (Figure 2). Magnetic resonance imaging (MRI) of the chest showed a multi-cystic mass with a capsule, adhering to the wall of the ascending aorta and pressing on the right atrium and superior *vena cava* (Figure 3). Two weeks later, a new echocardiogram showed an increase in the size of the tumour (dimensions 36.8 × 31.7 mm), mild to moderate obstruction of the superior *vena cava* (Doppler flow velocity 2 m/s) and mild pressure on the right pulmonary veins.

In view of the worsening of the pres-

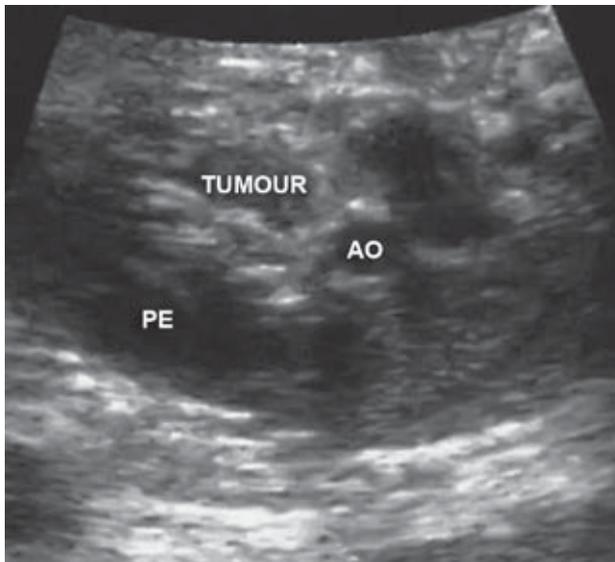


Figure 1. Foetal echocardiogram, showing an intrapericardial polycystic mass pressing on the right atrium with pericardial effusion (PE).

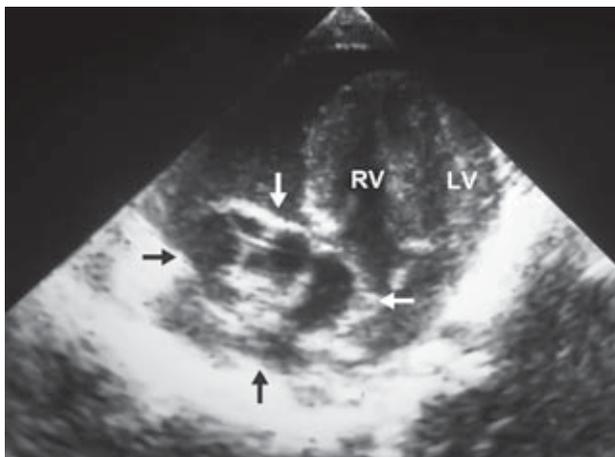


Figure 2. Echocardiogram after birth, showing an intrapericardial polycystic mass (arrows) pressing on the right atrium with pericardial effusion.

sure phenomena, the baby was referred for surgery, at age 23 days and body weight 2.7 kg. Extracorporeal circulation was on standby. Via a median sternotomy with preservation of the thymus gland, the pericardium was opened and a large quantity of cloudy yellow fluid was aspirated, reminiscent of lymph. The cystic lesion, around 30 × 30 × 20 mm in size, was revealed, overlaying the great vessels, with its volume covering the larger part of the right ventricle and pressing on the right atrium and superior *vena cava* (Figure 4). During the preparation, the mass was cut open and released fluid similar to that in the pericardium. The

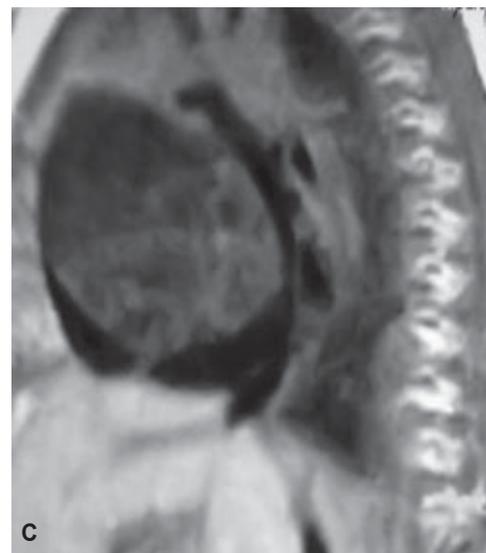
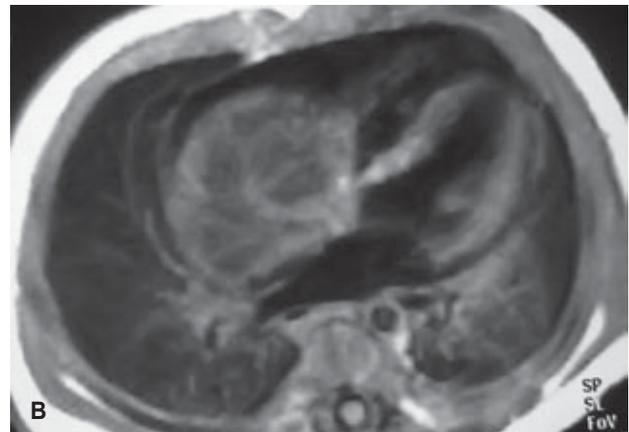
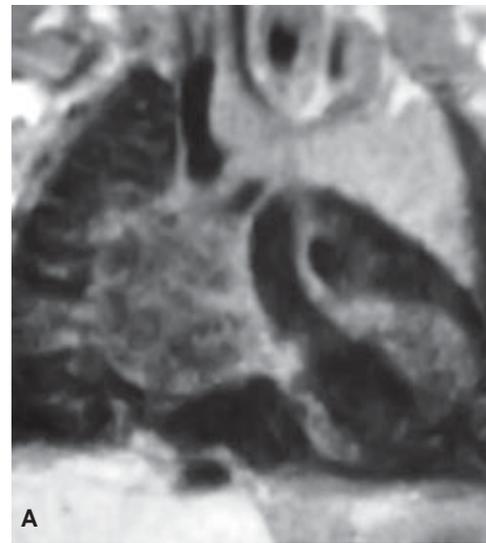


Figure 3. Magnetic resonance imaging of the chest (a), transverse (b), and oblique (c) sections, showing an intrapericardial polycystic mass with a capsule adhering to the right lateral wall of the ascending aorta.

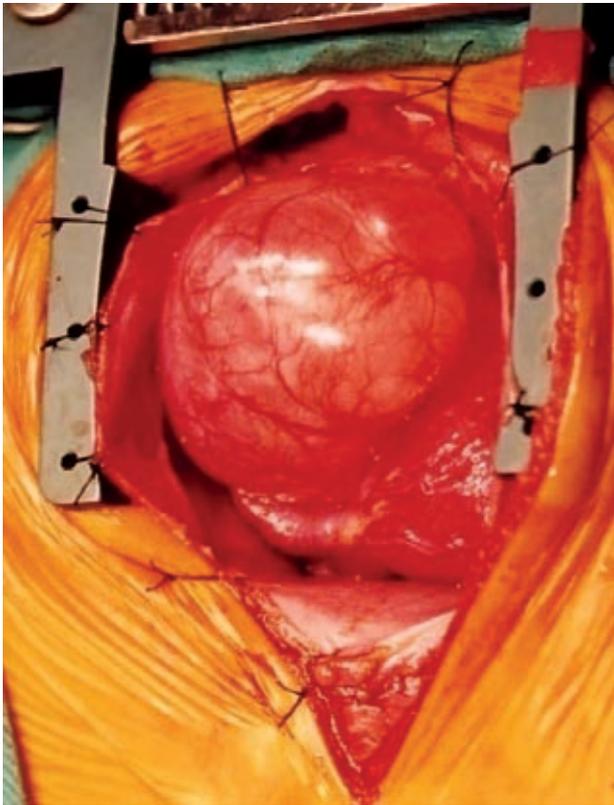


Figure 4. Intraoperative image of the teratoma after opening of the pericardium. The tumour overlaps almost the entire heart.

mass was polycystic and was firmly attached to the right anterior wall of the ascending aorta.

The mass was completely removed apart from a small section of its wall, which was left adhering to the aortic wall for safety reasons (risk of injury to the aorta). On completion of the procedure, the pericardial cavity was rinsed well with normal saline and drained with a chest tube in the usual way. Closure of the pericardium and sternotomy were performed in the standard manner. The central venous pressure dropped from 24 mmHg before to 8 mmHg after the removal of the tumour.

The patient's postoperative course was uneventful. She was extubated two hours after surgery; she was discharged from the Cardiac Surgical Intensive Care Unit on the 2nd postoperative day and from the hospital on the 8th postoperative day.

On histological examination, the external surface of the tumour was smooth and deep red in colour. In sections, the tumour had multiple cysts, 3-15 mm in diameter, with a smooth external surface and an elastic wall. It was a mature teratoma with representation of all three germinal layers (endoderm 50%, mesoderm 25%, and ectoderm 25%).

Six years later, the patient is very well, with normal development and a normal echocardiogram.

Discussion

Intrapericardial tumour is usually diagnosed in neonates and infants, sometimes before delivery, as in our case. Typically, it is a lone tumour, large, polycystic, with a capsule and pedicle, adhering to the base of the heart and/or the great vessels (aorta, pulmonary arteries).^{1,3} The majority of these tumours are benign, but they are potentially life-threatening because of the large pericardial effusion and the external pressure they exert on the heart and great vessels. In our case there was a significant increase in central venous pressure.

The echocardiogram is the primary diagnostic imaging modality, though MRI has a better discriminatory ability regarding the anatomical relationship between the intrapericardial tumour and the neighbouring vital structures, without "blind spots".⁴ These tumours are usually surgically resectable. Even if a small portion of the wall of the tumour remains adherent to the aorta, as in our case, it seems there is no recurrence of the tumour, even years after removal.

References

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