

## Intrapericardial teratoma in a newborn: a case report

Öztekin Oto<sup>1</sup>, Mehmet Güzeloğlu<sup>1</sup>, Mustafa Kır<sup>2</sup>, Kıvanç Metin<sup>1</sup>, Handan Çakmakçı<sup>3</sup>, Gökhan Albayrak<sup>1</sup>, Aydın Koç<sup>1</sup>

Departments of <sup>1</sup>Cardiovascular Surgery, <sup>2</sup>Pediatric Cardiology and <sup>3</sup>Radiology, Dokuz Eylül University Faculty of Medicine, İzmir, Turkey

**SUMMARY:** Oto Ö, Güzeloğlu M, Kır M, Metin K, Çakmakçı H, Albayrak G, Koç A. Intrapericardial teratoma in a newborn: a case report. Turk J Pediatr 2012; 54: 71-73.

We report a successfully surgically intervened case of intrapericardial teratoma, which was diagnosed prenatally. Intrapericardial teratomas are rare cases, and surgical management of those tumors are challenging in this age group. The compression effect of the mass led to misdiagnosis of the anomaly as a transposition of the great vessels. We conclude that intrauterine echocardiography in experienced hands is an essential tool for the follow-up of these patients to detect the pericardial effusion and compression of the cardiac structures, which may cause tamponade and heart failure.

**Key words:** teratoma, heart, newborn.

Intrapericardial location of teratomas in newborns is very rare (5-6 in 10,000 newborns)<sup>1</sup>. We present here a neonatal pericardial teratoma case that resembled cardiac malformation due to compression to the heart, which caused shifting and respiratory distress.

### Case Report

We present a newborn with intrapericardial teratoma who was the fourth birth of a healthy, 28-year-old woman. Fetal echocardiography at the 28th gestational week revealed an intrapericardial cystic mass and transposition of the great arteries. After his birth at the 36th week with 2250 g weight, without any cardiorespiratory compromise, he was delivered to our institution. His mediastinum was large on plain chest X-ray. A heterogeneous mass attached to the lateral wall of the left ventricle and pericardium in the left hemithorax was visualized on cardiac magnetic resonance imaging (MRI) (Figs. 1A, 1B). Transthoracic echocardiography (TTE) examination showed a 6x4 cm large cystic tumor, containing solid parts, near the left atrium and a secundum atrial septal defect. The margins of the mass were not clearly identified at the left atrium and ventricle borders (Figs. 2A, 2B).

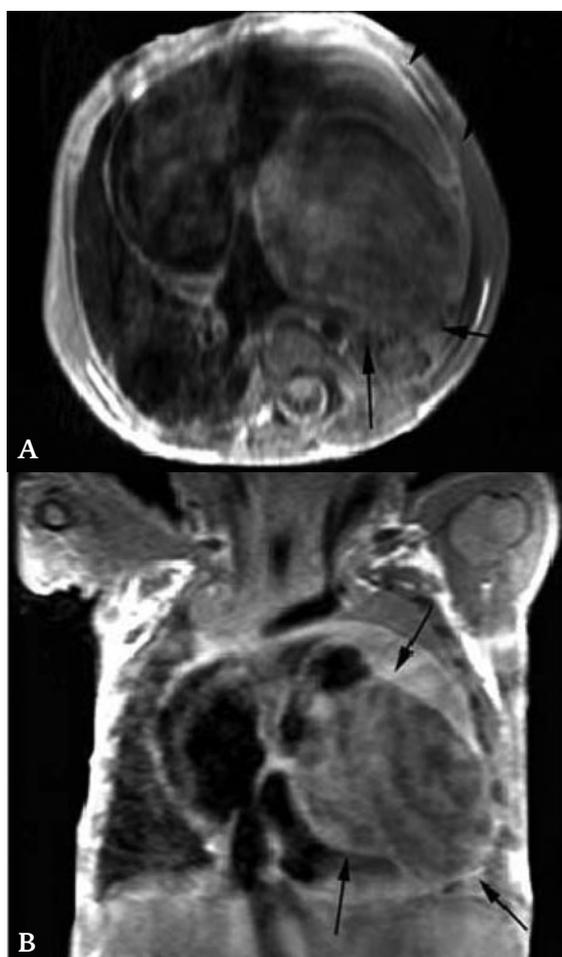


Figure 1. Preoperative cardiac MRI.

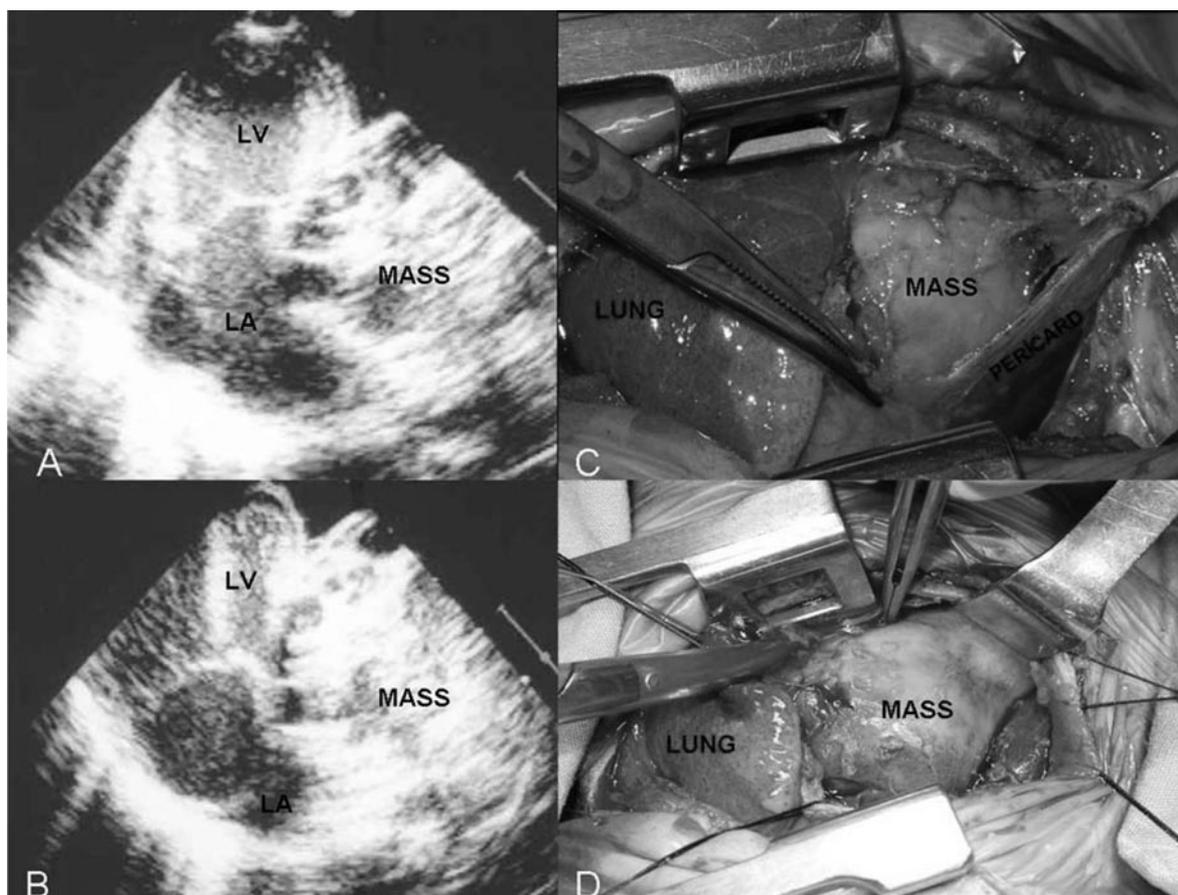


Figure 2. Preoperative transthoracic echocardiography (A, B) and intraoperative images of the mass (C, D).

He was operated on the 30th day of life. A left lateral thoracotomy incision was performed. The left lung was totally atelectatic. The tumor was visualized after a pericardiectomy parallel to the phrenic nerve (Figs. 2C, 2D). There were adhesions to the left atrium, aorta and proximal aspect of the main pulmonary artery. Near-total excision of the tumor was performed without cardiopulmonary bypass. Tumoral invasion to the adjacent vascular structures made en bloc excision impossible. He was extubated in the Intensive Care Unit (ICU) on postoperative day 1 and the subsequent treatment was planned with the pediatrics and pediatric cardiology departments in a multidisciplinary manner.

The histopathological examination of the multiloculated, cystic, irregular, myxoid, and grayish white tumor was reported as mature intrapericardial teratoma. There was no pericardial fluid and the cardiac functions were normal on TTE after the 1st postoperative week.

## Discussion

Teratomas are tumors originating from endodermic, mesodermic or neuroectodermal germinal layers. Pediatric cases are usually localized in the sacrococcygeal region, gonads or mediastinum, or intracranially. Intrapericardial teratomas are very rare, and can produce pericardial fluid retention, tamponade, cardiac dysfunction, or even heart failure<sup>2</sup>. Pericardial and pleural effusion and ascites may be present during fetal life. Respiratory distress at birth might be a finding due to pulmonary immaturity and tracheal compression. Although routine prenatal ultrasound is highly effective, its diagnosis is difficult before the 23rd gestational week. The compression effect of the mass on the cardiac architecture was the main reason for intrauterine misdiagnosis as transposition of the great vessels in this case. Computed tomography (CT) and MRI are very useful tools to detect the mass and identify its borders<sup>3,4</sup>. Even though the tumor in our case had been

identified on intrauterine echocardiography in another hospital at the 28th week, it was misdiagnosed as transposition of the great arteries. Postnatal TTE in our institution visualized the intrapericardial mass, which had changed the cardiac configuration with compression effect. Usually, as in our case, the tumor is attached with a pedicle to the adjacent great vessels<sup>5</sup>. TTE did not visualize the margins of the tumor, and the borders with the left ventricle and atrium were poorly identified. The MRI suggested that there may be a relationship between the tumor and the pericardium or lateral wall of the left ventricle. We observed the direct attachment of the mass to the pericardium during surgery.

Surgical intervention is mandatory for the treatment of these tumors. The presence of hydrops is a poor prognostic factor<sup>6</sup>. Surgical excision of the tumor without cardiopulmonary bypass can be performed after the delivery in cases without hydrops<sup>7</sup>, as we also performed in our patient. In cases with immature tumors or subtotal resections, long-term follow-up is necessary. Serial alpha-fetoprotein samples are recommended to detect malignant recurrences.

#### REFERENCES

1. Devlieger R, Hindryckx A, Van Mieghem T, et al. Therapy for foetal pericardial tumours: survival following in utero shunting, and literature review. *Fetal Diagn Ther* 2009; 25: 407–412.
2. Soor GS, Chakrabarti MO, Luk A, et al. Prenatal intrapericardial teratomas: diagnosis and management. *Cardiovasc Pathol* 2010; 19: e1-4. Epub 2008 Oct 1.
3. Brown KM, Banerjee S, Kane PA, et al. Intrapericardial teratoma presenting with circulatory compromise. *Ann Thorac Surg* 2006; 81: 374.
4. Tollens T, Casselman F, Devlieger H, et al. Fetal cardiac tamponade due to an intrapericardial teratoma. *Ann Thorac Surg* 1998; 66: 559–560.
5. Mirzaaghayan MR, Shabani R. A huge intrapericardial teratoma in an infant. *Pediatr Cardiol* 2008; 29: 1122–1123.
6. MacKenzie S, Loken S, Kalia N, et al. Intrapericardial teratoma in the perinatal period. Case report and review of the literature. *J Pediatr Surg* 2005; 40: e13–e18.
7. Harder J, Wong A, Sigalet D. Intrapericardial teratoma in the perinatal period. Case report and review of the literature. *J Pediatr Surg* 2005; 40: e13-8.