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Compressive Pericardial Teratoma about a Case at Regional Hospital of Saint Louis/Senegal

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Abstract

Introduction: Cardiac tumors in children are rare. Most are discovered in children under one year of age. Echocardiography is the basic examination for the screening, it allows their detection from the fetal stage. **Observation:** She was a 14-year-old patient with no known history of pathology. She was admitted to our department for the exploration of dyspnea and chest pain. At her admission, she had stable hemodynamics. At cardiac auscultation, heart sounds were muffled. The EKG recorded a sinus rhythm, and negative T-waves from V1 to V4. The chest X-ray showed cardiomegaly and a dense, rounded, heterogeneous left hilar opacity, well limited. Echocardiography objected to a great intrapericardial mass in front of the left cardiac cavities compressing part of the left atrium and left ventricle associated with an important pericardial effusion. The CT scan found a heterogeneous pericardial suspected myxoma mass. The pathological examination confirmed pericardial teratoma. The patient had an excision of the pericardial mass. The evolution after surgery was favorable. **Conclusion:** Intra-pericardial teratomas are benign tumor. Complete removal of the tumor is curative and without recurrence.

Keywords

Teratoma, Pericardium, Saint-Louis

1. Introduction

Cardiac tumors are rare in the pediatric population with an incidence of 0.027% to 0.08% in pediatric autopsies [1] [2]. These tumors are most often benign and primitive, rhabdomyoma being the most common histological type, followed by

fibroma and teratoma [1] [3]. Teratomas, although rare, are a major subgroup of pediatric cardiac tumours. These are germ cell tumors, containing the 3 germ layers: endoderm, mesoderm and ectoderm. Most often, teratomas are diagnosed before the age of 15, usually in the first year in newborns and even fetuses. They are considered primary and benign cardiac tumours, but may undergo malignant degeneration [3].

Echocardiography is the basic examination of the diagnosis, it allows their screening from the fetal stage [4]. The treatment is surgical and the complete resection is curative and without recurrence [5]. We report a case with a favorable outcome supported by surgical excision.

2. Observation

She was a 14-year-old patient with no known pathological history. She was admitted to our department for the exploration of dyspnea and intermittent chest pain. She had no personal medical-surgical history. At her admission, she had stable hemodynamics with a blood pressure of 125/67 mmHg, a heart rate of 90 cycles per minute, and a saturation of 97% in ambient air. At cardiac auscultation heart sounds were muffled.

Biology couldn't find any abnormalities.

The electrocardiogram recorded a sinus rhythm with a ventricular frequency of 94 cycles per minute, negative T-waves from V1 to V4 (**Figure 1**).

Chest X-ray showed cardiomegaly with cardiothoracic index of 0.6. There was a dense, rounded, heterogeneous left hilar opacity with internal boundaries that merged with cardiac shadow (**Figure 2**).

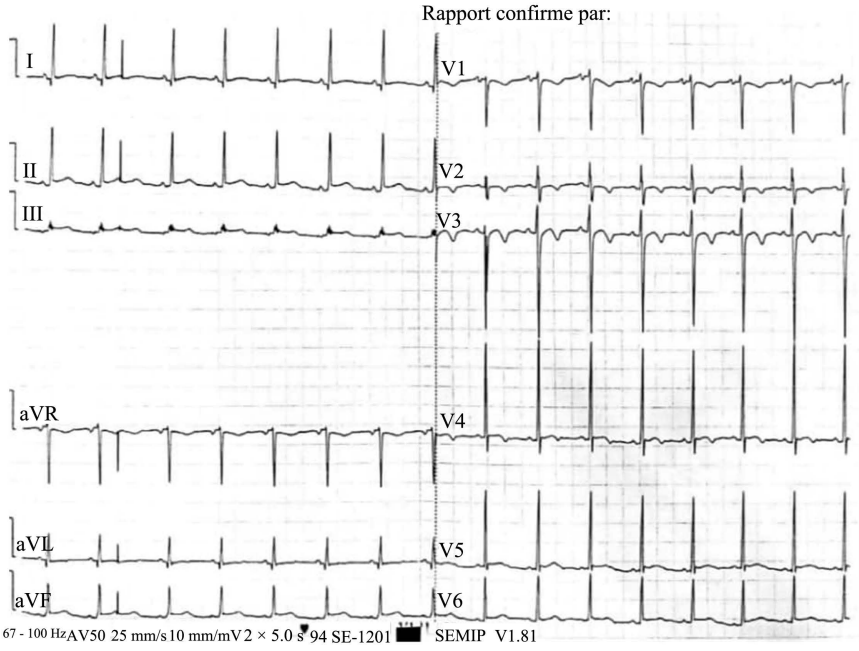

Figure 1. Electrocardiogram recording a sinus rhythm, with negative T-waves from V1 to V4.

Echocardiography objected a great intrapericardial mass in front of the left cardiac cavities compressing part of the left atrium and left ventricle associated with an important pericardial effusion (Figure 3 and Figure 4).

The CT scan found left lateral anterior mediastinal mass measuring 82 mm × 45 mm × 70 mm. It has a liquid component, a fat component, a calcified shell and a tissue component enhanced after injection of contratse product. It is in continuity with the pericardium, comes in contact with the left ventricle, pulmonary arteries, pulmonary veins and homolateral stem bronchus. This mass is associated with a pericardial effusion of medium abundance (Figure 5).

The biopsy with pathological examination confirmed an inflammatory eroded teratoma and the patient had benefited from an excision of the pericardial mass by a left anterolateral thoracotomy. Post-operative follow-ups are favorable with clinical regression of symptomatology and echocardiographic control was normal with complete regression of pericardial effusion and absence of pericardial mass resisted (Figure 6).

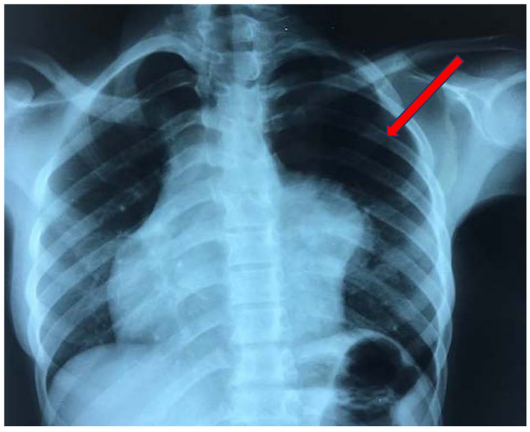

Figure 2. X-ray of the thorax showing mediastinal opacity at the internal boundaries that merge with the cardiac shadow (red arrow).

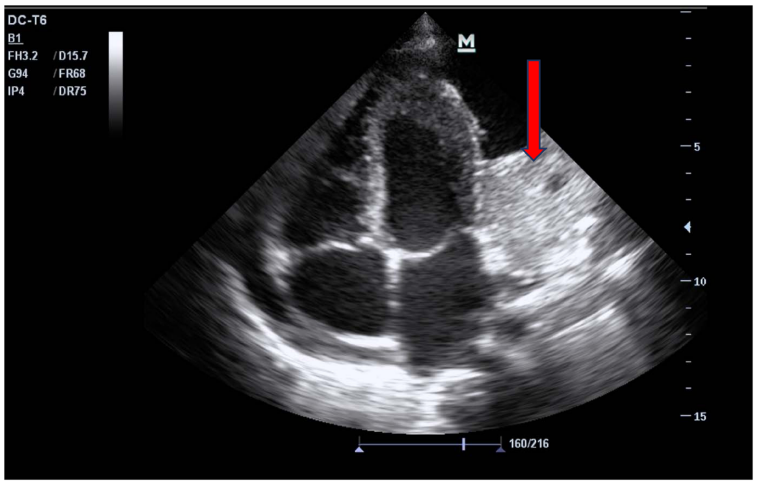

Figure 3. Echocardiography; apical 4 chambers showing intrapericardial mass with pericardial effusion (red arrow).

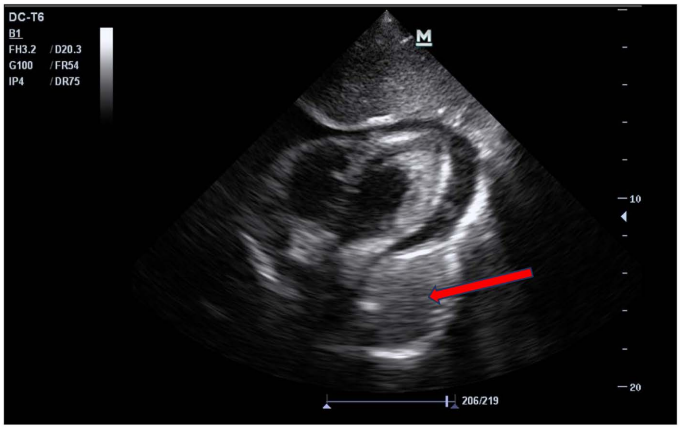

Figure 4. Echocardiography; subcostal showing intrapericardial mass with pericardial effusion (red arrow).

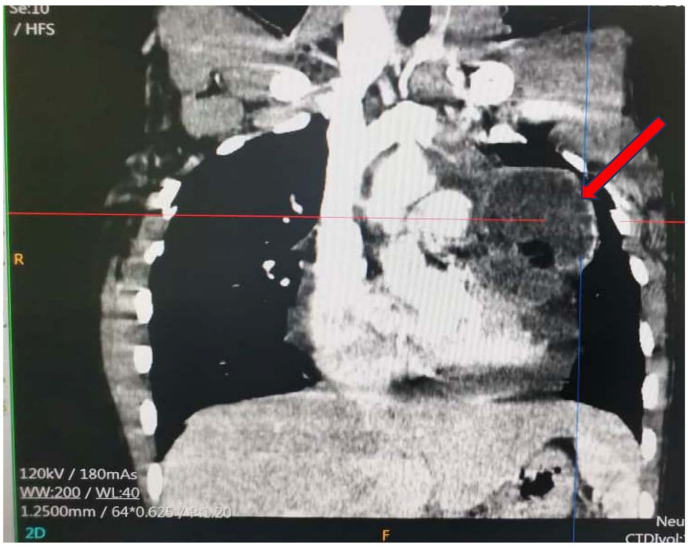

Figure 5. CT scan showing intrapericardial mass (red arrow).

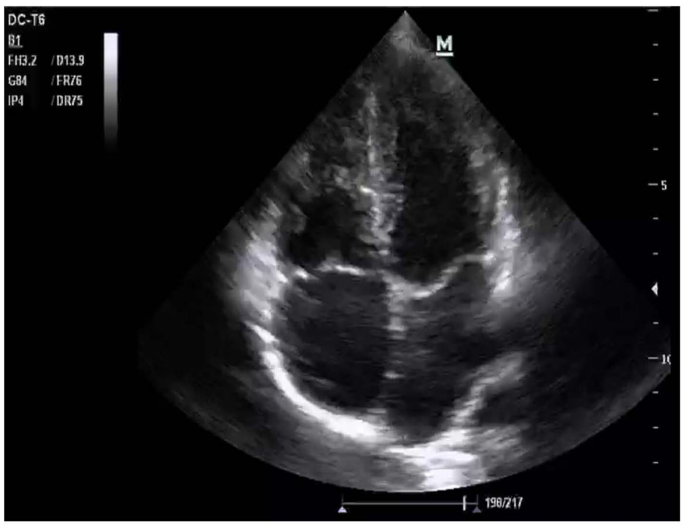

Figure 6. Post-operative echocardiography.

3. Discussion

Primary cardiac tumors in the pediatric population are very rare. Their incidence was first estimated from autopsy studies between 0.001% and 0.2%. More recent estimates were made using ultrasound databases with an incidence of childhood heart tumors ranging from 0.17% to 0.20% in the largest studies [4]. Teratomas or dysembryomas are tumors derived from the three germ lines with a dominant ectodermal component. A variety of tissues can be found: cartilage, skeletal muscle, liver, digestive tract [4].

Intra-American teratomas account for less than 2% of all cardiac tumors in pediatrics and are exceptionally malignant [5] [6].

The particularity of this case lies in the compressive nature of this mass on the left heart chambers. The clinical manifestations include pain and dyspnea modified by position changes. These tumors remain asymptomatic for a long time, which explains that the discovery was made at the age of 14 years. Fetal teratomas are now often diagnosed in utero during screening ultrasound. After birth, the symptoms are determined by the size of the teratoma and the presence of a pericardial effusion that may cause a mass effect and/or a physiology of the tamponade [4], which probably explains the tolerance until the age of 14 in our patient. In some situations, the discovery may be incidental to chest x-ray or echocardiography.

Imaging is essential in the diagnosis of pericardial teratoma, which in some cases may remain asymptomatic for a long time. At chest x-ray, it appears as a rounded anterior mediastinal mass, ovoid, interesting a hemithorax [7] [8].

In front of the doubtful image on the chest x-ray in our case, echocardiography was performed. It thus allowed the highlighting of the mass associated with a pericardial effusion.

The use of echocardiography has contributed to its discovery. It is the key examination in earlier detection with increased sensitivity [1]. Intra-pericardial teratomas are large, encapsulated, polycystic tumors, often located on the right, in front and at the top of the cardiac mass [4]. On the other hand, in our patient the tumor has a left lateral localization with compression of the cardiac chambers. The echocardiography is supplemented by a CT scan, which accurately measures the mass by its density.

The CT scan found in our patient a heterogeneous pericardial mass, margined, lobulated with intrinsic elements including soft tissue, fat, cystic formation and calcified shell. The calcified character of the contours of the mass is a very favorable argument for myxoma [9]. The CT scan also allows to assessing the condition of neighboring structures: vascular (superior vena cava), look for a pulmonary perforation or trachebrochic. This evaluation is necessary to consider the surgical approach [2] [10].

The total resection of the mass can be difficult when it is a compressive teratoma or in case of adhesion with neighboring structures (lung, large vessels, diaphragmatic structures) [4]. In this case, an extracorporeal circulation is necessary to reduce the risk of complication

The total resection of a pericardial teratoma is of excellent prognosis and recurrences remain rare. However, during follow-up, imaging such as echocardiography is essential in combination with serum assays of alpha fetoprotein.

4. Conclusion

Teratomas, although rare, are a major subgroup of pediatric cardiac tumors. These are germ cell tumors, containing the 3 germ layers: endoderm, mesoderm and ectoderm. Echocardiography is the basic examination of the diagnosis, it allows their detection from the fetal stage. The treatment is surgical and the complete resection is curative and without recurrence.

Consent

Written informed consent was obtained from mother's patient for publication of the case report and accompanying images.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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