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Case Report

DEXTROCARDIA WITH PYOPERICARDIUM – A RARE COMBINATION

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ABSTRACT

Dextrocardia is a description term indicating that the heart is in the right hemithorax. Hieronymus Fabricius is credited with describing situs inversus in the 1606, while Marco Severino described dextrocardia in 1643. Dextrocardia with situs inversus (reversed abdominal contents) is essentially a mirror image of a heart, with a mirror image of the abdominal contents. In this situation, the cardiac anatomy and connections are usually (but not always) normal. Dextrocardia is believed to occur in approximately 1 in 12,000 people**.** Purulent pericarditis is a life-threatening disease with an incidence of 0.24 per 1000 pediatric admission.Since incidence of both dextrocardia and pericarditis is low, a pericarditis has not been reported in a patient with dextrocardia in the English literature, as far as our information. A prompt surgical intervention with antibiotic gives a good result. Position of surgeon is always a matter of concern in patients with dextrocardia. Since we choose a right thoracotomy approach for this patient, standing of surgeon on the right side was appropriate.

Key words: *Dextrocardia , Pyopericardium , Pericardiectomy*

INTRODUCTION

Dextrocardia is a description term indicating that the heart is in the right hemithorax. Dextrocardia is believed to occur in approximately 1 in 12,000 people**.** Purulent pericarditis is a life-threatening disease with an incidence of 0.24 per 1000 pediatric admission. Since incidence of both dextrocardia and pericarditis is low , a pericarditis has not been reported in a patient with dextrocardia in the English literature, as far as our information. Here we report a case of purulent pericarditis in a patient with dextrocardia. Patient was managed with a prompt surgical intervention with antibiotic. We choose a right thoracotomy approach for this patient, standing of surgeon on the right side was appropriate.

CASE REPORT

A 1 ½ years old female patient presented with the complaints of poor feeding for the last 1 month and sluggishness. She had a history of abscess over forehead one month back which was managed conservatively with antibiotics.

She was full term normal delivered baby with normal milestones . She was fully immunized without any history of tuberculosis. No known cardiac disease was present in the other sibling.

patient was febrile at the time of admission with a heart rate of 140/minute, blood pressure 70/48 mm of Hg and respiratory rate of 64/minute. Chest examination revealed good air entry on both side of chest and a central trachea.

Precordial examination revealed apex beat on the right side of the chest in 5^{th} intercostals space, 1 cm lateral to midclavicular line. Heart sounds were muffled. Abdominal examination showed liver on the left side with a hepatomegaly of 5 cm below the costal margin. Chest x-ray showed dextrocardia with cardiomegaly. Echocardiogram confirmed dextrocardia with 1.6 cm circumferentially thick and organized pericardial fluid with septation. Respiratory variation across mitral valve was more than 25% and there was no diastolic collapse of right ventricle.

Case Report

On the above mentioned findings a diagnosis of pyopericardium with dextrocardia with situs inversus was made.

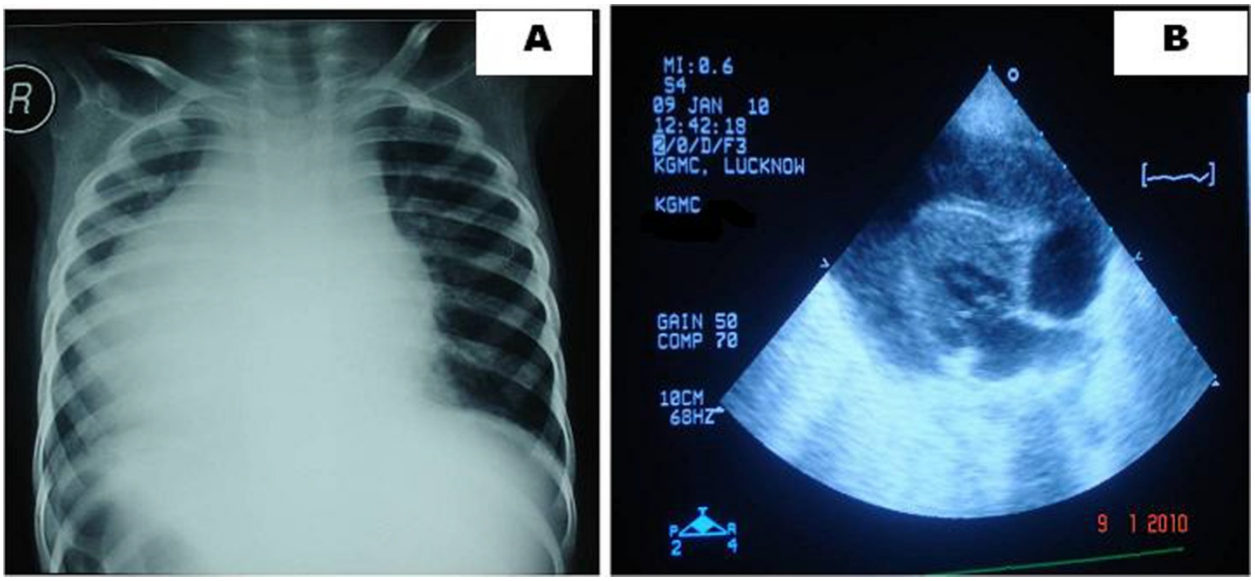

Figure 1: (a) CXR showing dextrocardia with cardiomegaly (b) Echocardiogram confirmed dextrocardia with 1.6 cm circumferentially thick and organized pericardial fluid

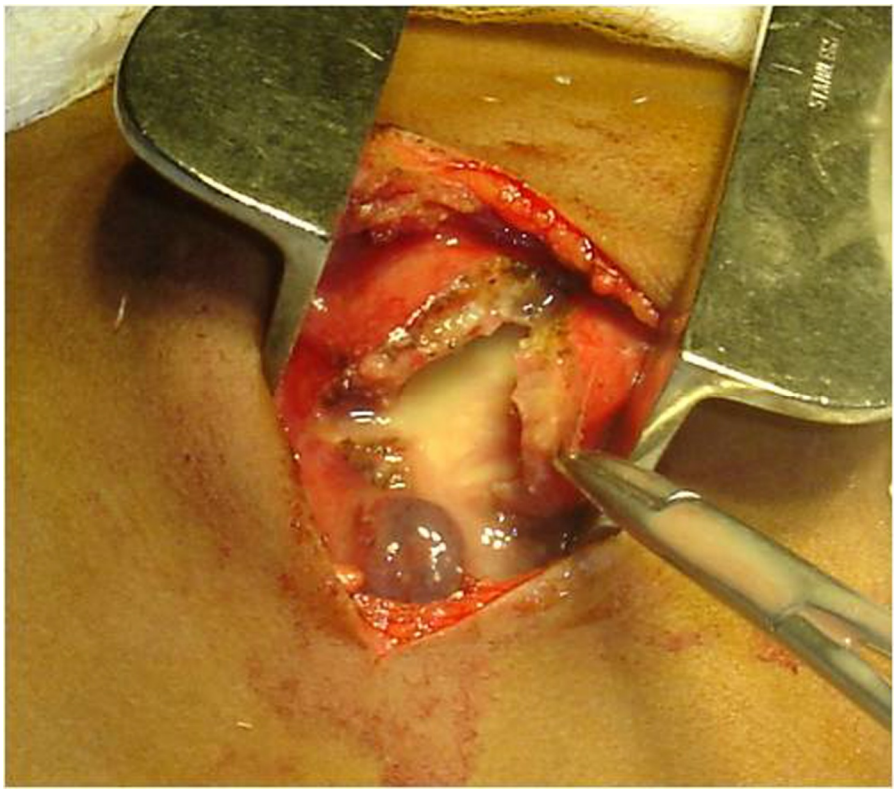

Figure 2: Operative photograph showing right anterolateral thoracotomy incision with thickened pericardium.

Pericardiocentesis done and 100ml of straw colored fluid aspirated. Pericardial fluid was exudative in nature. Pericardial fluid culture was sterile. Antibiotic continued but the patient remained symptomatic.
Patient was referred to CTVS department for pericardial drainage. Chest was opened under general anaesthesia through a small right anterolateral thoracotomy incision with the surgeon standing on the right side of operation table. Pericardium was opened. Pericardial cavity was filled with thick organized pus. Partial pericardiectomy done. Chest was closed over an intercostal chest tube. Patient was shifted to intensive care unit. Her postoperative course was uneventful. Histopathological examination of the pericardium showed fibrinous exudates with mixed inflammation surrounded by dense fibrocollagenous tissue, without any granuloma.

DISCUSSION

Dextrocardia is a description term indicating that the heart is in the right hemithorax. Hieronymus Fabricius is credited with describing situs inversus in the 1606, while Marco Severino described dextrocardia in 1643. Dextrocardia with situs inversus (reversed abdominal contents) is essentially a mirror image of a heart, with a mirror image of the abdominal contents. In this situation, the cardiac anatomy and connections are usually (but not always) normal. Dextrocardia is believed to occur in approximately 1 in 12,000 people (Bohum *et al.,* 2007). Although the exact aetiology is unclear it is thought to be autosomal recessive. Situs inversus with dextrocardia is rare.
Purulent pericarditis is a life-threatening disease with an incidence of 0.24 per 1000 pediatric admission (Liew *et al.,* 2004). In a review of 40,262 consecutive autopsies that were performed over a period of 86 years (including 54 years of pre-antibiotic era), Klacsmann *et al.,* 1977 could find only 200 cases of purulent pericarditis. A multicentric study (Dupuis *et al.,* 1994) conducted over a period of 27 years (1963 – 1990) identified only 51 cases of purulent pericarditis in infants and children.
Since incidence of both dextrocardia and pericarditis is low , a pericarditis has not been reported in a patient with dextrocardia in the English literature , as far as our information.
The most common organism identified are streptococcus, staphylococcus, hemophilus and m. tuberculosis (Liew et al 2004, Pankuweit et al 2005). Commonly it is associated with congenital heart disease and related surgical measures, intracardiac lines or immunodeficiency (Liew et al 2004, Pankuweit et al 2005, Awadallah et al 1991). Rarely it occurs in pediatric patients with a structurally and functionally normal heart (Alexiou et al 1999).
In pediatric patients with congenital heart disease the majority of cases are treated successfully with antibiotics alone (Liew et al 2004, Klacsmann et al 1977, Dupuis et al 1994, Pankuweit et al 2005, Awadallah et al 1991), but the timing and extension of surgery is a matter of controversy.
Mortality of untreated pyopericardium approaches 100% (Dupuiset al 1994). Although antibiotics are essential to control infection, they alone are not sufficient. It has been shown that mortality was more than 75% when antibiotics alone were used, 22-33% when antibiotics were combined with pericardiocentesis and 0% when antibiotics were used in conjuncture with surgical drainage (Dupuis et al 1994, Feldman *et al.,* 1979).
Although there is general agreement that in addition to antibiotics, prompt and complete drainage of pus from pericardial space is essential for improved survival, debate continues as to the safe and effective method of drainage (Goodman *et al.,* 2000, Dupuis *et al.,* 1994). Proponents of various techniques claim good results with repeated pericardiocentesis with or without intrapericardial injection of fibrinolytic agents, sub-xiphoid tube drainage, partial pericardiectomy (open or thoracoscopic) and radical pericardiectomy.
Position of surgeon is always a matter of concern in patients with dextrocardia (Saad *et al.,* 2009). Since we choose a right thoracotomy approach for this patient, standing of surgeon on the right side was appropriate.
In conclusion, dextrocardia with pericarditis is a rare combination of disease. A prompt surgical intervention with antibiotic gives a good result.

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