

HYDATID CYST OF THE HEART A REPORT OF 5 CASES

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Abstract — 5 Cases of hydatid cysts of the heart underwent successful enucleation or removal of the cysts with the aid of cardiopulmonary bypass are being reported. Their location, signs, symptoms, diagnostic procedures and consequences are being discussed. Clinical, radiologic, electrocardiographic and coronary angiographic findings all confirmed the diagnosis. All the patients had uneventful postoperative course and had been followed-up regularly. Cardiac hydatid cyst is seen infrequently, even in the endemic regions. The incidence rate is 0.3 to 2 percent of all hydatid cyst patients, thus it is not a matter of routine cardiac surgery practice.

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Key words: Hydatid cyst; marsupialization; cystotomy; cardiopulmonary bypass

INTRODUCTION

Echinococcus disease is common in the sheep raising countries of the world and effect the heart in 0.3 to 2% of cases. This infestation is becoming less common after successful introduction of hydatid cyst eradication programs. D'VEE, Deve and Dumont have contributed to the diagnosis of human echinococcosis. William introduced the first case of hydatid cyst of the heart (1936). This article is a brief explanation of five cases of heart echinococcosis, and its surgical treatment by the aid of cardiopulmonary bypass (1).

CASE REPORT

CASE 1

An 11 year-old male was admitted with dyspnea of one year's duration. On physical examination, a systolic murmur in the pulmonary area was audible. Chest roentgenogram was normal. Echocardiography revealed a cystic lesion in the right ventricle (RV), and subsequent cardiac cathetrization confirmed a mass in right ventricular outflow tract (RVOT).

With an impression of hydatid cyst, other organs were evaluated, but no lesion was found. Through median sternotomy under cardiopulmonary bypass (CPB) and cardiac arrest, with crystalloid cardioplegia, the RV was opened longitudinally below RVOT and 3 to 4 cm cyst on the interventricular septum below

RVOT inside the RV was found. A clear fluid was aspirated and subsequently the cyst was excised completely. There was no significant invasion of the cyst to myocardium. Postoperative course was uneventful and the patient was discharged on the 5th postoperative day without any sequella (Fig. 1 and 2).

CASE 2

An eighteen-year old male was admitted to neurology ward with hemiparesis and convulsion. On routine PE, muffled heart sounds were detected and additional work up was scheduled. Echocardiography revealed a 5x5 cm cystic lesion in the left ventricle (LV) and radionuclide angiocardiology showed a reduced activity in LV due to a mass lesion. Without a definite diagnosis, the patient underwent an operation with the same approach as mentioned above for case 1. A hydatid cyst in the myocardium, without any communication with the ventricular chamber was evacuated (Fig. 3).

CASE 3

A thirty-six year old known case of hydatid cyst of the abdomen who had undergone 12 successive operations, presented with dyspnea on exertion and arrhythmia. Echocardiography and cardiac catheterization reports were compatible with hydatid cyst of the heart. The patient was operated upon using the same technique. Multiple small and large hydatid cysts were located between aorta and superior vena cava and between left auricle and pulmonary vein with invasion to myocardium lateral to left anterior descending without any communication with the cavity. All the cysts were evacuated and excised completely.

CASE 4

A thirty-year old male and a known case of hydatid cyst of the lung and liver who had been operated upon twice before, presented with palpitation and arrhythmia. PE was normal Echo and MRI were compatible with hydatid cyst of the RV chamber. The patient underwent an operation and 7 to 8 cm cyst on the wall of RV was evacuated (Fig. 5, 6, 7 and 8).



Fig. 1. Cyst in right ventricular outflow tract

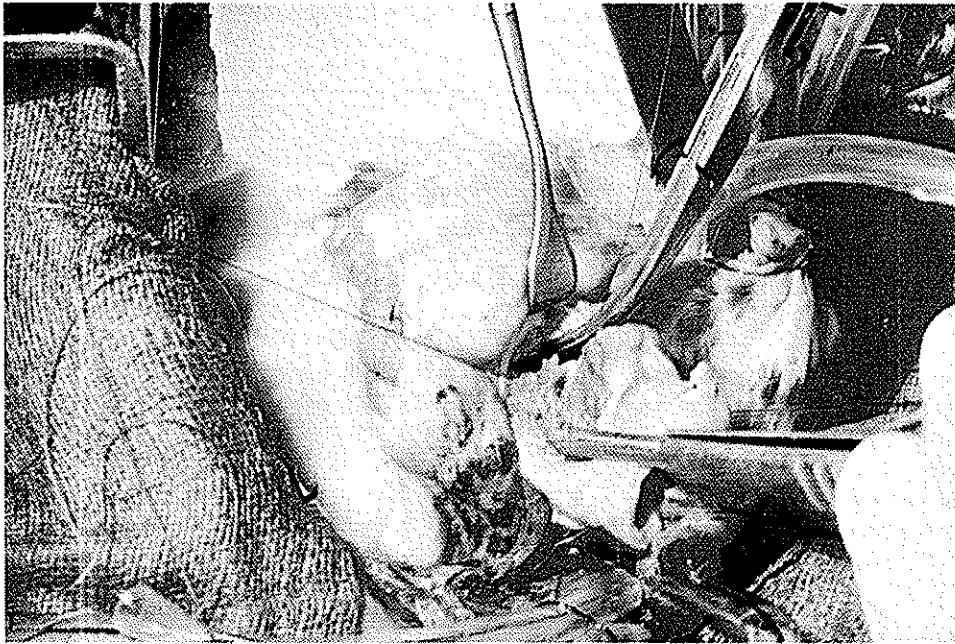


Fig. 2. Excision of cyst

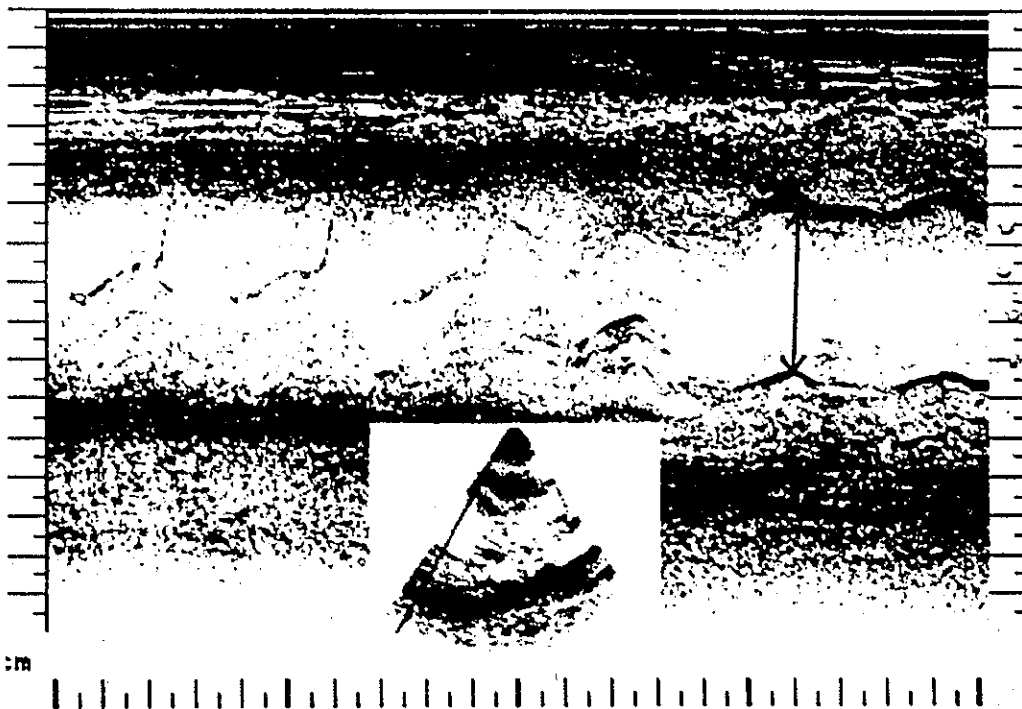
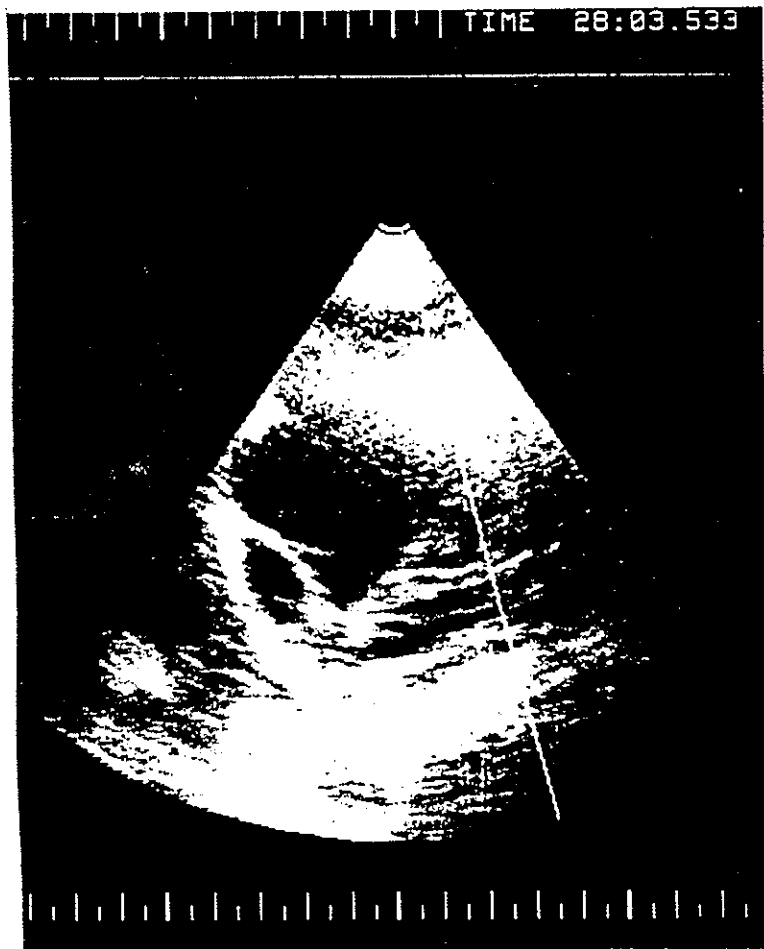


Fig. 3. Echocardiograms of case 2

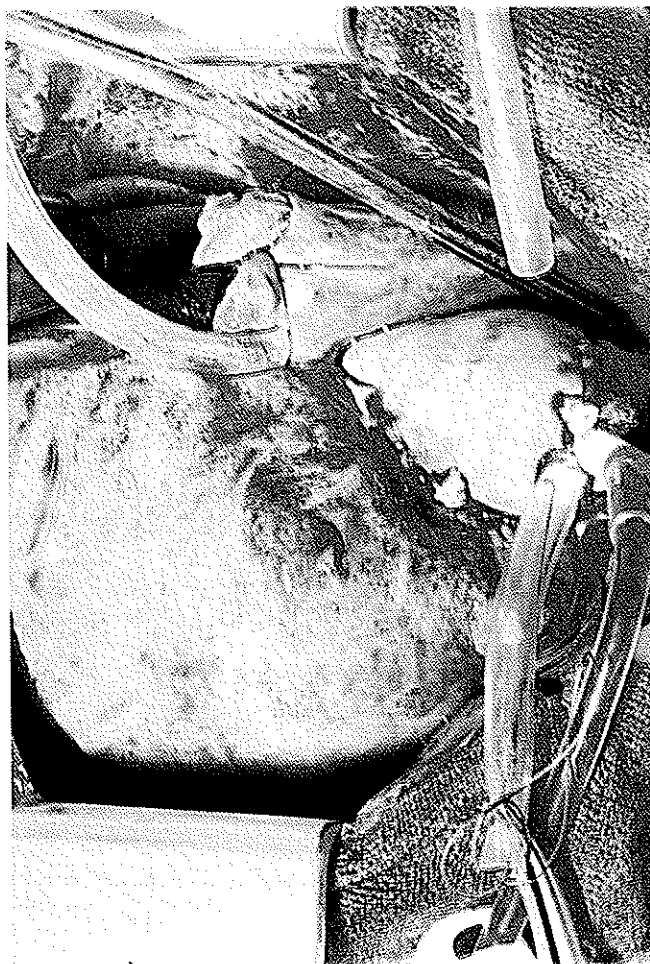


Fig. 4. Hydatid cyst of the RV chamber

The operations of these four patients were performed with the aid of total cardiopulmonary bypass and cardiac arrest with crystalloid cardioplegia. Post operative course was uneventful and the mean hospital stay was 9 days. there were no recurrences after 3 to 6 years of follow-up.

CASE 5

An eight year old male child was referred to neurosurgery ward with right side hemiplegia from one year ago, and occasional loss of consciousness. Further examination revealed a cystic lesion in left occipital lobe of the brain which confirmed in CT scan of the skull.

Hydatid cyst was suspicious and in Echocardiographic study cystic lesion of 1.5x2x2 cm in dimension was found in left ventricular region under mitral valve area.

The patient was referred to cardiac surgery ward and underwent operation with the aid of cardiopulmonary bypass and hypothermia. An incision was made on left ventricular region over the bulging area and many ruptured cysts and also intact daughters' cysts were evacuated and left ventricular wall was sutured with 2° Ethibond and 3° Prolene.

Postoperative period was quite uneventful and echocardiogram showed success of surgery. The patient was referred back to neurosurgery ward for operation on his brain and three huge hydatid cysts were evacuated.



Fig. 5. View of the cyst in the RV wall



Fig. 6. View of the whole cyst lying in its bed

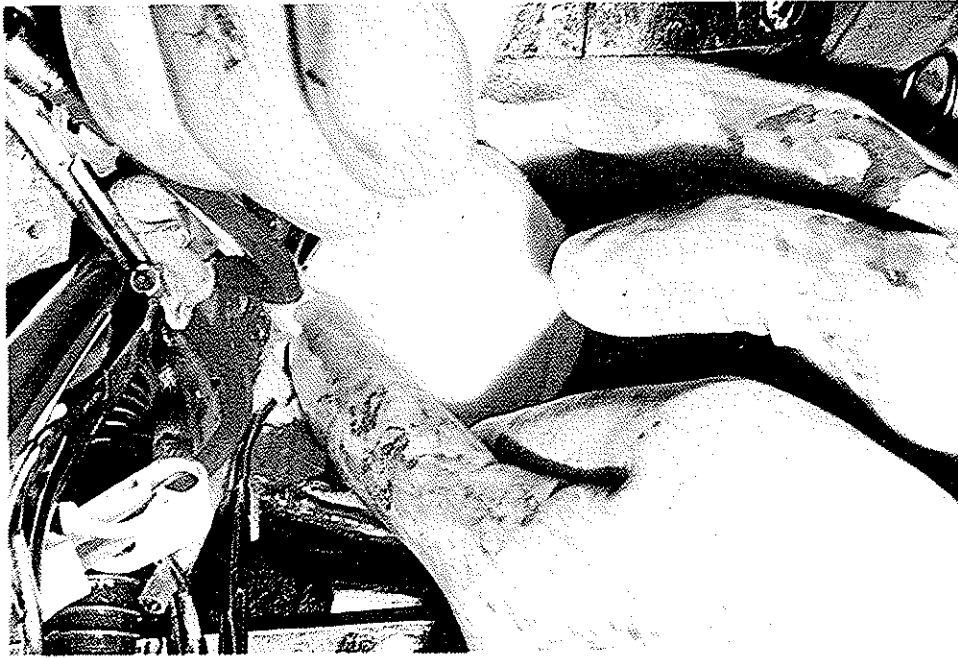


Fig. 7. Enucleation of the cyst

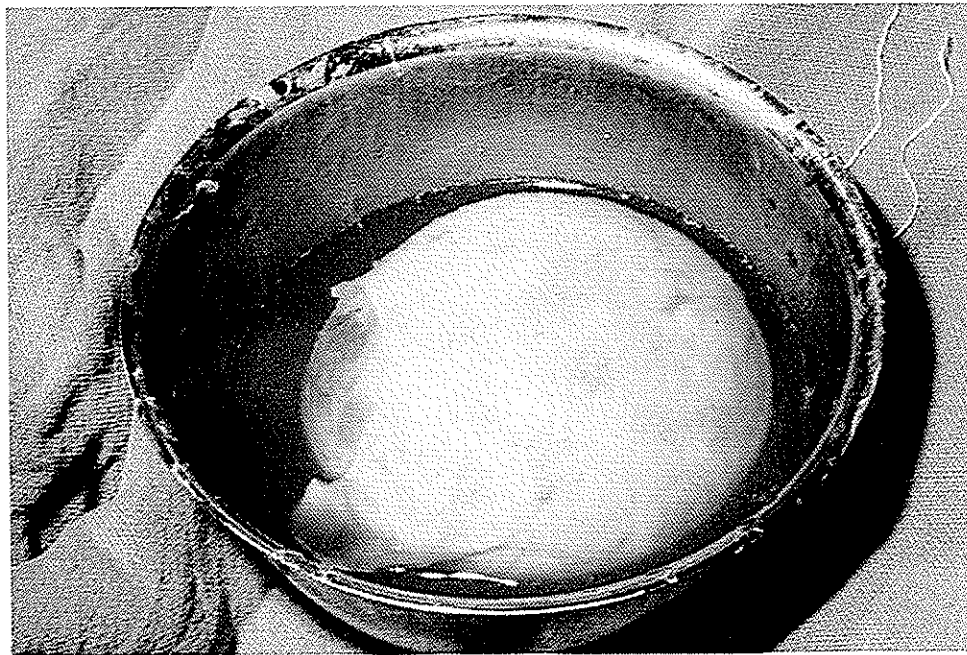


Fig. 8. The whole evacuated big unruptured cyst

DISCUSSION

Liver and lungs are the most frequently involved organs by hydatid cysts. Cardiac hydatid cyst is rarely encountered (0.2-3%) and if at all it involves the heart, the most frequent site is the wall of the left ventricle (1). The myocardial reaction to the cyst causes an adventitial pericyst layer which surrounds the intact laminated membrane and progressively becomes abundant and eventually inseparable from the myocardium (2,3,4,5).

The first cases of echinococcosis were reported by Williams in 1936 and Griesinger in 1946 who after reviewing the literature reported 15 cases.

When a case is suspected on the basis of clinical signs and symptoms, diagnosis can be confirmed almost easily by highly progressive and advanced technological devices.

The clinical picture of cardiac hydatid disease depends on the location, size, number of the cysts, the patient's age and whether the cysts are calcified or not. There is usually a long asymptomatic period (6). Development of the symptoms are generally due to the pressure exerted on the myocardium by an enlarged cyst. It may cause a murmur due to obstruction of the RVOT or malfunction of the papillary muscles (7).

Hydatid cysts localized in the interventricular septum have been reported with an encroachment upon the inflow tract of the RV resulting in tricuspid stenosis and towards the inflow tract of the LV causing mitral stenosis (6,8,9). Rupture into the pericardium may cause acute pericarditis and tamponade or chronic constrictive pericarditis. Rupture into the RV can cause acute or chronic pulmonary hypertension or metastatic pulmonary artery echinococcus emboli. Ruptured emboli into the LV may cause systemic emboli (2,10).

Fatal complications such as sudden rupture, suppuration, anaphylactic shock, arrhythmias and emboli phenomenon can also occur (11,12,13). The major complication of surgical removal of interventricular cysts are right and left bundle branch block or different degrees of blocks up to complete A-V block (11,14). In cases who develop a complete A-V block, it is mandatory to install a transitory pacemaker before closing the chest and wait until the patient resumes his or her own rhythm and loses dependency on pacemaker.

The treatment modality proposed for cardiac hydatid cysts is marsupialization (14), inactivation of the off-spring vesicles after cystotomy and removal of layers.

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