

Hydatid cyst of the interventricular septum causing complete heart block and postoperative ventricular septal defect

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Abstract

Cardiac involvement is seen in 0.5-2% of patients with hydatid disease, and involvement of the interventricular septum (IVS) is even rarer. We report surgical treatment of a large cardiac hydatid cyst in the IVS. A 55-year-old woman presented with dyspnea and bradycardia. Transthoracic echocardiography revealed a large cyst in the mid to apical part of the IVS. The patient was placed on cardiopulmonary bypass. Through an incision to bulging part of cyst into right atrium, and without opening adjacent cardiac chambers, we aspirated the entire contents of the cyst, removed its germinative membrane, and washed the cavity with 96% alcoholic solution. The patient recovered uneventfully. She had begun taking albendazole 5 days preoperatively, and this therapy was continued for 12 weeks postoperatively. A permanent pace maker was implanted because she was dependent on temporary pace maker and after 1 year follow-up, complete heart block had not recovered to normal conduction rhythm.

Keywords: Cardiac hydatidosis, heart block, septum involvement

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Introduction

Hydatid disease (cystic echinococcosis), which arises from the *Echinococcus granulosus* tapeworm, is endemic in some livestock-raising countries.^[1] Cardiac involvement is seen in only 0.5-2% of patients with hydatid disease and the interventricular septum (IVS) is involved in just 4% of cardiac cases. Hydatid cyst of the cardiac IVS with complete atrioventricular block (complete heart block [CHB]) was reported by many authors but in these articles no case of postsurgery ventricular septal defect (VSD) was reported.^[2] Herein, we report a case of a woman who had a large hydatid cyst in the IVS that was complicated by (CHB) and postoperative VSD.

Case Report

A 55-year-old woman with dyspnea and bradycardia was admitted to our hospital. An electrocardiogram showed a CHB pattern and a temporary pace maker was implanted that was later changed to permanent VVI pacemaker. Transthoracic echocardiography revealed a large cyst in the apical to mid part of the IVS [Figure 1]. An enzyme-linked immunosorbent assay was negative for *Echinococcus* antibodies. At surgery patient underwent median sternotomy and was placed on cardiopulmonary bypass (CPB) with aortic arterial and bicaval venous cannulation. The aorta was cross-clamped and cardioplegic solution was used. Sponges soaked with hypertonic saline solution were distributed throughout the pericardial cavity to prevent local invasion by the parasite. With this approach, we opened the cyst directly through the IVS causing an iatrogenic VSD that was confirmed by transesophageal echocardiography [Figure 2]. We aspirated the entire contents of the cyst, removed its germinative membrane, and washed the cavity with 96% alcoholic solution [Figure 3]. VSD was closed with

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Figure 1: Huge intra septal hydatid cyst

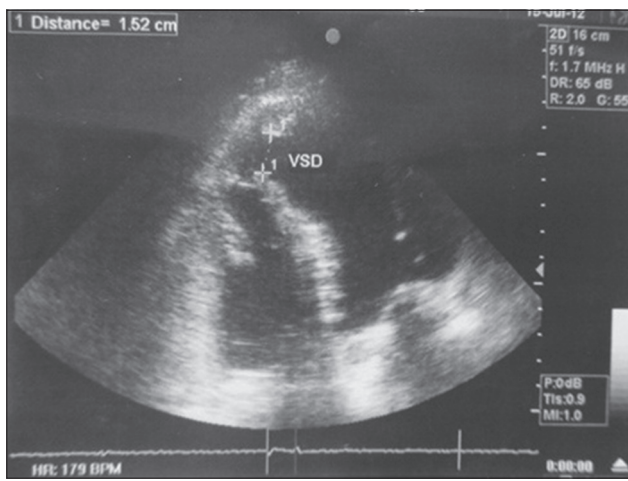


Figure 2: Iatrogenic ventricular septal defect formation after surgery



Figure 3: Daughter hydatid cyst

a small cortex patch and a Teflon felt. The postoperative period was uneventful. The patient had begun taking albendazole (400 mg twice daily) 5 days before surgery and continued with this therapy postoperatively for 12 weeks. At the routine follow-up examination, 1-year postoperatively, the patient was in New York Heart

Association functional Class I, with no trace of cysts on echocardiography.

Discussion

Cardiac hydatid cysts are rare and the coronary circulation is the main pathway by which the parasitic larvae reach the heart. Left ventricle has the largest muscle mass and because of a rich coronary blood supply, the left ventricle is the most common site of cardiac hydatid cysts in 60% of cases. The right ventricle is involved in (10-15% of cases), pericardium (7%), pulmonary artery (6-7%), left atrium (6-8%), right atrium (3-4%), and IVS (4%). Cardiac hydatid cysts are usually asymptomatic, but with cyst enlargement, patients have clinical symptoms such as dyspnea, cough and chest pain.^[3,4] CHB is a rare electrocardiographic sign that was seen in our patient. CHB is usually related to involvement of the conducting pathway by an interseptal hydatid cyst. Careful literature review revealed only nine cases of CHB by hydatid cyst, but none was complicated by a postoperative VSD.^[5] Surgery in almost all cases is the preferred treatment and risk of spillage of daughter cysts cause most cardiac surgeon uses the CPB for excising the cyst. We recommended a direct interventricular septal approach to prevent dissemination of the parasite to others organ. About 96% alcoholic solution is one of the most effective, relatively nontoxic protoscolicidal agents.^[6] We have also used this solution to wash out the remaining cavity. It is prudent to place solution-soaked sponges in the pericardial cavity during the operation to prevent local dissemination. Albendazole therapy (400 mg twice daily) is typically prescribed for at least 4 days preoperatively and for 4-12 weeks postoperatively.

Conclusion

Combined surgical resection of an interventricular cardiac hydatid cyst and wash out of the remaining cavity with hypertonic saline solution, and concurrent albendazole therapy typically yield excellent results.

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