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Case Report

Thrombotic cardiac apex hydatid cyst

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ABSTRACT

Hydatid cyst (HC) is an endemic infestation in the cattle-breading countries such as in Iran. The involvement of heart by HC is rare; however, nesting of larva in the left ventricular apex with subsequent rupture to the systemic circulation and thrombus formation in the remaining cyst cavity is an exceedingly rare phenomenon. A 45-year-old man referred to our emergency cardiac room with chest pain and a transthoracic echocardiography (TTE) that showed a cardiac apex cystic lesion. The differential diagnosis of a cystic tumor, a HC, or aneurysm in the apex of the left ventricular walls was considered and evaluated by TTE and magnetic resonance imaging. However, the thrombotic HC was confirmed at the surgery. The cyst with its thrombotic component was excised surgically by on-pump cardiac surgery. The postoperative period was uneventful and the patient was discharged to home and treated with a full course of Albendazole therapy for 4 weeks. Six-month follow-up with TTE revealed complete healing of the apex defect without recurrence of the cyst.

1. Introduction

Cardiac involvement by Hydatid cyst (HC) is rare comprising less than 3% of cases of human hydatidosis. Cardiac involvement by HC is usually manifested in the muscular part of the heart as in the interventricular septum or the left or right ventricular free wall. The right ventricle, the right atrium, or the left atrium involvement has also been reported in the medical literature. The cardiac apex as a part of septum is supplied by both left and right coronary artery and is considered as a high risk location for larva nesting.[1] The HC of the apex has equal chances to rupture into the right or left ventricle, but the interventricular septal HC commonly ruptures into the left ventricle. After HC ruptures to a cardiac cavity, two scenarios are likely. If the cavity has a wide connecting orifice to cardiac chamber, the risks of cardiogenic shock and systemic emboli are high, but if the connecting orifice is a narrow, the risk of thrombus formation due to stagnation of blood in the cavity is higher than the risk of emboli.[2] Thrombus formation in remnant cavity could present as a cardiac apex pseudo-aneurysm containing a thrombus.[3] We present a case of left ventricular thrombotic HC that was preoperatively diagnosed as a pseudo-aneurysm.

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2. Case report

A 45-year-old woman was referred to our hospital from a local hospital with chest pain and dyspnea for the last two months. A physical examination revealed normal cardiac and respiratory sounds. In abdominal palpation, no mass or hepatosplenomegaly was found. Chest X-ray was normal. On ECG, T-wave inversion was seen in the anterior leads, but his rhythm was sinuous and regular. A transthoracic echocardiography (TTE) showed a left apical cystic mass with intra-cavity heterogeneous content (Figs. 1 and 2). Magnetic resonance finding revealed a large cystic mass in the apex of the left ventricle (Figs. 3 and 4).[3,4] An HC haemagglutination test was positive and its titer was 120 IU. Coronary arteries were normal in angiographic study. The patient was scheduled for open cardiac surgery by a median sternotomy. Cardiopulmonary bypass (CPB) was instituted using bicaval and ascending aorta cannulation. The ascending aorta was cross-clamped and antegrade crystalloid cardioplegia was infused in the aortic root. The cyst was easily found in the left ventricular apex muscle oriented towards the lateral wall (Fig. 5). With high suspicion of HC, cardiac apex was isolated from the surrounding pericardial cavity and covered circumferentially with hypertonic saline soaked sponge gauze. The cardiac apex was opened and thrombotic content of the cyst was removed. The cavity contained multiple daughter cysts and membranes with an organized thrombus. The connecting narrow orifice of the cavity to the main left ventricle chamber was blocked by a clot. Narrow connection of the cyst to the left ventricular cavity and its block by thrombotic material prevented free discharge of cavity's content to circulation, so a major anabolic event was avoided as per past medical history of the patient. After

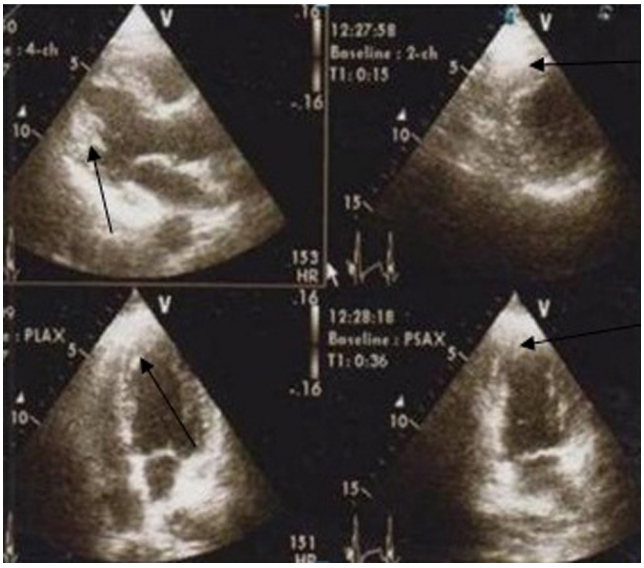

Fig. 1 – Echocardiography in multiple views shows apical cyst. (1a, left upper image): long axis view shows cyst with black vertical arrow. (2a, right upper image): four chamber view shows cyst with black transverse arrow. (3a, left lower image): four chamber view shows wall of cyst with vertical black arrow. (4a, right lower image): four chamber view shows cyst with transverse black arrow.

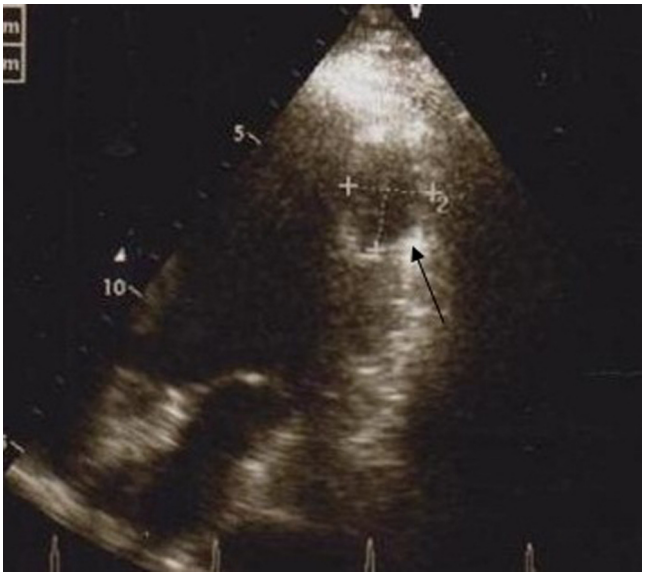

Fig. 2 – TTE in three-chamber view shows apical cyst (black arrow).

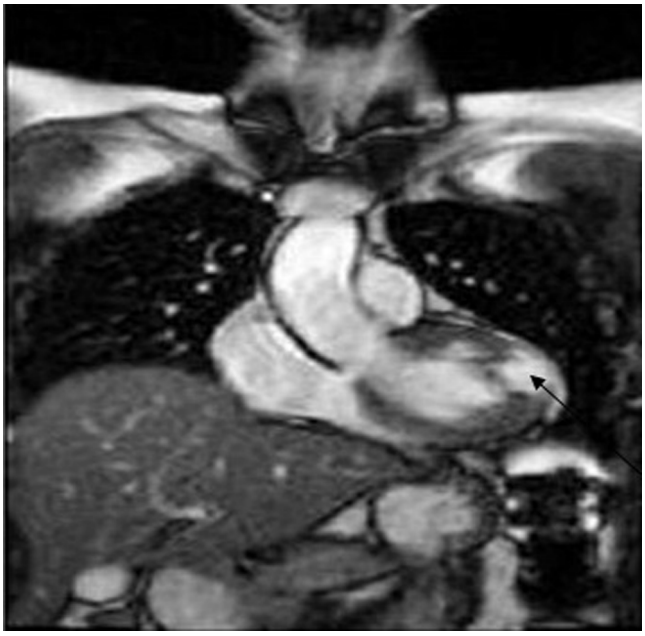

Fig. 3 – Magnetic resonance imaging revealed apical cyst filled with contrast (black arrow).

removal of cyst contents, the cyst cavity was irrigated with hypertonic saline solution. The orifice of the cyst cavity to the left ventricle was sutured by two 4/0 proline sutures and the rest of cyst was closed with the capitonage method. The patient recovered from the surgery and his postoperative course was uneventful. Culture and smear study of cyst contents showed negative bacterial results. Albendazole was given in the postoperative period for 4 weeks. The patient was discharged on the 13th day of surgery. Echocardiography revealed no further recurrence of the cyst during 6 postoperative months. Histopathological examination showed