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Case Report

A rare case of intracardiac hydatid cyst in the interventricular septum of the heart

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ABSTRACT

Hydatid disease, also known as cystic *echinococcosis*, occurs due to *Echinococcus granulosus* tapeworm. It is an endemic disease in certain livestock-raising countries. Cardiac involvement is seen rarely, in around 0.5% to 2% of patients with hydatid disease. Interventricular septum is involved in around 4% of cardiac cases. According to Yaman et al., cardiac *echinococcosis* is a rare condition with a prevalence ranging between 0.5 to 2 percent. Here we report a case of a hydatid cyst in the heart. A 57-year-old male patient came to Gowri Gopal hospital, Kurnool, Andhra Pradesh on 29 July 2023 with complaints of shortness of breath for 6 months. He also complained about pain in the chest region for 6 months. ECG findings include sinus tachycardia, probable left atrial enlargement, left ventricular hypertrophy, nonspecific T abnormalities and ST elevation. Chest X-ray PA View revealed left mild fibrosis. Echocardiography showed a hydatid cyst sized 3x2.8 cm., grade I diastolic dysfunction and trivial mitral regurgitation. The patient underwent surgical excision and mitral valve repair. He recovered and was discharged successfully. We conclude that surgical resection, washout of the cavity with saline solution, and albendazole treatment can produce excellent outcomes in interventricular cardiac hydatid cyst cases.

1. Introduction

Hydatid disease, also known as cystic *echinococcosis*, occurs due to *Echinococcus granulosus* tapeworm. It is an endemic disease in certain livestock-raising countries.[1] Cardiac involvement is seen rarely, (0.5% to 2%) among patients with hydatid disease.[2,3] Interventricular septum is involved in around 4% of cardiac cases.[4]

Cardiovascular hydatid blisters can break and cause heart tamponade, and fatal arrhythmias. The disease affects both sexes equally, but young people are more frequently affected. The primary symptoms include cough, dyspnoea, palpitations, and chest pain. Echocardiography helps to diagnose cardiovascular hydatidosis. In more than half of the patients, CT and MRI can be utilized to provide a comprehensive description of the cysts, including their extent and anatomical relationships. Although there is a possibility of false-negative results, serological tests can be a useful addition. Patients with parasitic infections frequently present with eosinophilia, but this has not always been the case. In the vast majority of cases, surgical excision is carried out. Albendazole has been utilized for preoperative cleansing and during the postoperative period for as long as a half year to forestall a repeat. Fortunately, a high rate of complete recovery is linked to cystectomy. These cysts are commonly seen in the liver (in 50–70 percent of cases), and lungs (5–30 percent), followed by muscles, bones, kidneys, spleen, and brain. According to Yaman et al.[5] cardiac *echinococcosis* has a prevalence ranging from 0.5 to 2 percent. The primary means by which the parasitic larvae reach the heart is through the coronary circulation. Because of the rich coronary blood supply,

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the left ventricular wall is the most well-known heart area (60%), trailed by the right ventricle (10%), pericardium (7%), left chamber (6-8%), and right chamber (3-4%). Here, we report a case of an intracardiac hydatid cyst in a male patient.

2. Case Presentation

A 57-year-old male patient came to Gowri Gopal hospital, Kurnool, Andhra Pradesh on 29 July 2023 with complaints of shortness of breath for 6 months. He also complained about pain in the chest region for 6 months. Psychosis has been seen for 6 months. Personal history revealed mixed diet, normal sleep, appetite, bowel and micturition habits. On general examination, the patient is conscious, coherent cooperative with no pallor, no icterus, no cyanosis, no clubbing no edema and no other significant abnormality was found. Vitals are stable.

On systemic examination apex beat is visible, normal heart sounds are heard, and there were no added sounds or murmurs. The respiratory system was normal. The gastrointestinal system was normal.

2.1. The results of lab tests are as follows

Hemoglobin: 14.3 g/dl (normal)
White blood cell count: 6,430 cells/cumm (normal)
Platelet count: 1,88000 cells/cumm (normal)
Blood urea: 16.50 mg/dl (normal)
Serum creatinine: 0.70mg/dl (normal)
Liver function tests: Normal
Serum electrolytes: Normal
Random blood sugar: 135 mg/dl (normal)
HbsAg screening: Reactive (hepatitis B-Positive)

2.2. ECG findings are as follows

1. Sinus tachycardia rate >99
2. Probable left atrial enlargement
3. Left ventricular hypertrophy.
4. Nonspecific T abnormalities
5. ST elevationFigure 1

2.2.1. Chest X-ray PA view

Left mild fibrosis was seen.Figure 2

2.3. Echocardiography

Hydatid cyst sized 3x2.8 cm.,
Grade I diastolic dysfunction
Trivial mitral regurgitation.
Normal valves
No vegetation or clots
Normal left ventricular systolic function.

2.4. Diagnostic workup

2.4.1. Macroscopically

Cysts look spherical or ovoid in shape, grey white or creamy.

2.5. Microscopically

2.5.1. Hydatid fluid microscopy

Fluid aspirated from cysts and performed wet mount examination (Figure 3 Wet mount) shows hooklets.

2.5.2. Histological examination

Cysts removed surgically and performed histopathological stain (H & E), (Figures 4 and 5 showing H & E stain).

Gross: Grey white cysts measuring 0.5cc.

2.6. Microscopy

Sections showing lamellated membrane with protoscolices

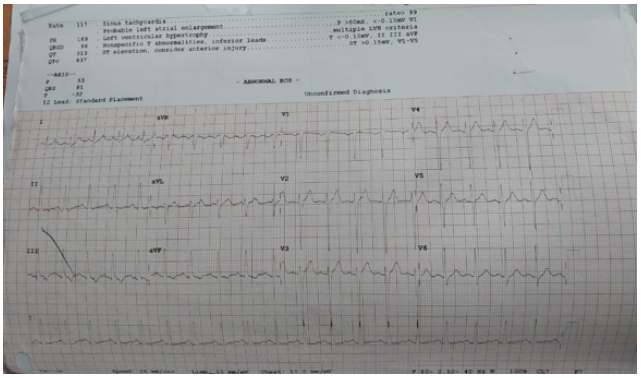

Fig. 1: ECG findings

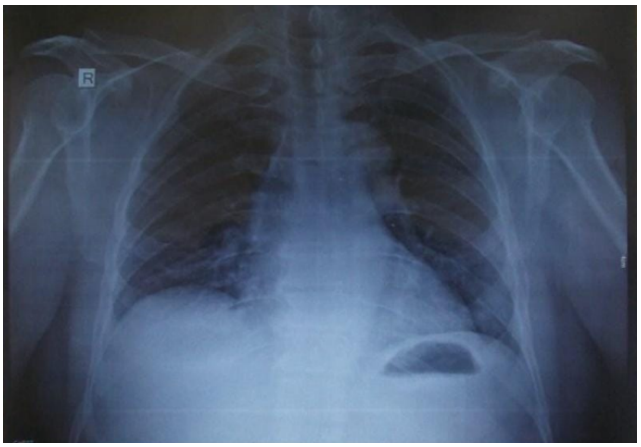

Fig. 2: Chest X-ray

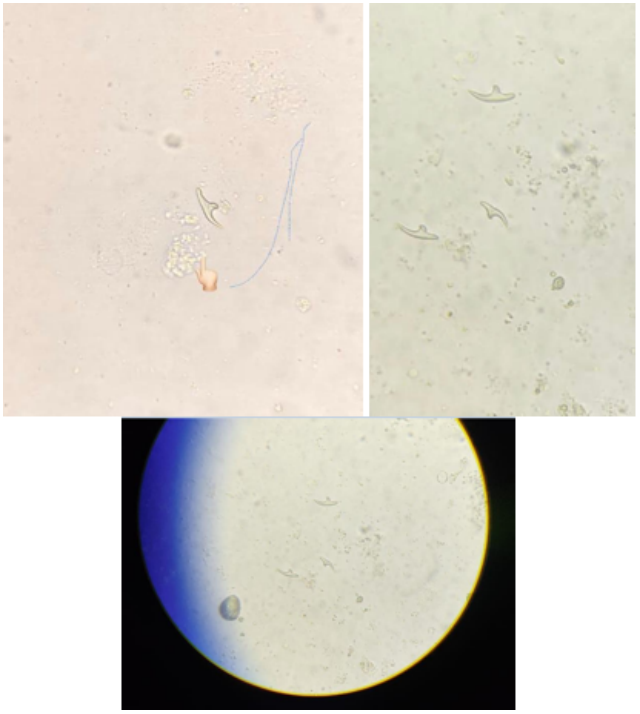

Fig. 3: Examination of Specimen—-Wet mount

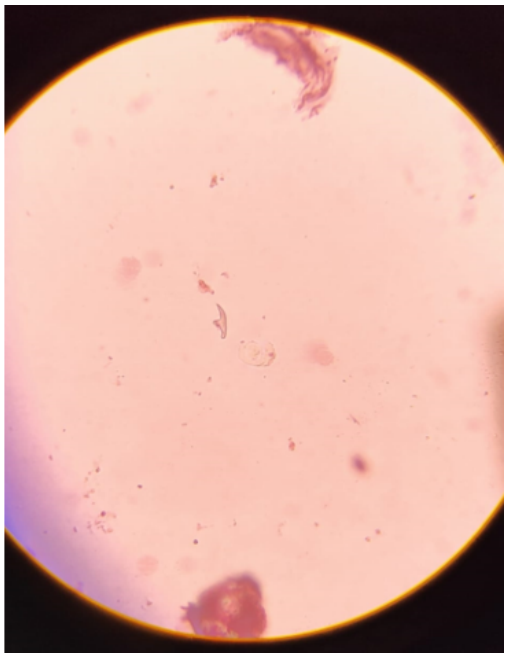

Fig. 4: Wet Mount-Safranin

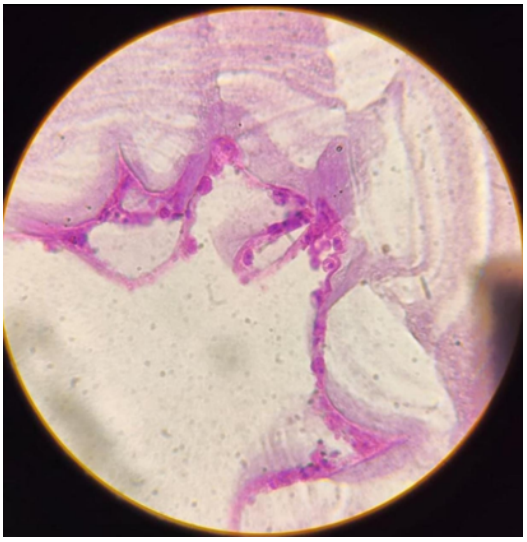

Fig. 5: H & E Section of the specimen

2.7. Treatment

After obtaining informed consent from the patient, the patients' data was collected.

3. Discussion

William first described cardiac hydatid disease in 1836, a condition that is extremely uncommon. The location of the hydatid cyst in the heart can affect ECG abnormalities like ST elevation. Echocardiography is a preferred modality in diagnosing cardiac hydatidosis, as per Oliver et al.[6] When echo is inconclusive and useful for diagnosis, CT and MRI provide a detailed description of the cysts, such as their extent and anatomical relationships.

Serological tests can give false-negative results, as sensitivity for cardiac is less than 50 to 60% and specificity is around 65% than extra cardiac like liver were sensitivity approaches 90%, as per Virgino et al.[7] Patients with parasitic infections typically exhibit eosinophilia, but some myocardial cysts exhibit negative values. The treatment of hydatid cyst disease is mainly surgical with a multimodality approach because there is currently no effective medical treatment for cardiac cysts. Medical treatment does not guarantee that the cyst will not rupture. In cases of cardiac Hydatid cyst, preoperative anthelmintic chemotherapy is controversial.

Tefere et al.[8] described a hydatid cyst in a 9-year-old young lady in the interventricular septum four years after the determination and clinical treatment of pneumonic hydatidosis beforehand. Since medical treatment does not guarantee that the cyst will not rupture and cause potential complications, surgery is the only option for cardiac hydatid disease.[9]

Ipek et al.[10] reported a hydatid cyst in a 39-year-old woman who presented with dyspnoea. Echocardiography showed a large cyst in the apex of the interventricular septum. CT showed a cystic lesion and MRI confirmed the presence of a 50 × 55-mm mass. The patient underwent a cardiopulmonary bypass. Through an incision given parallel to the left anterior descending coronary artery, and without opening nearby cardiac chambers, they aspirated the entire contents of the cyst, removed the germinative membrane, and washed the cavity using 20% hypertonic saline solution. The patient recovered successfully. She was given albendazole 5 days preoperatively, and the therapy was continued for 12 weeks postoperatively.

4. Conclusion

We conclude that surgical resection, washout of the remaining cavity with hypertonic saline solution, and albendazole treatment can produce excellent outcomes in interventricular cardiac hydatid cyst cases.

5. Source of Funding

None.

6. Conflict of Interest

None.

7. Acknowledgement

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