CASE REPORT

Atypical chest pain in a patient with hydatid cyst of the interventricular septum

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SUMMARY

We report a 57-year-old man presenting with symptoms of sharp pricking, exertional retrosternal chest pain multiple times, each episode lasting for a few seconds. On evaluation, the ECG of the patient showed normal sinus rhythm with T wave inversions in leads V1–V3. Troponin T test was negative. Transthoracic echocardiography showed a globular mass in the interventricular septum. Cardiac MRI was suspicious of the lesion to be a hydatid cyst. Surgical excision of the lesion followed by histopathology was confirmatory of hydatid cyst.

BACKGROUND

Infection with the larval or adult form of *Echinococcus granulosus* tapeworm results in cystic hydatid cyst. Only 0.5%–2% of these patients have cardiac involvement. The involvement of interventricular septum of the heart is even rarer. To the best of our knowledge, very few case reports have been published where the patient's angina-like retrosternal chest pain was due to hydatid cyst in the interventricular septum.

CASE PRESENTATION

A 57-year-old man, occasional smoker, farmer by occupation, came to the emergency department with a history of acute onset, sharp pricking, exertional retrosternal atypical chest pain, multiple times in a day, each episode lasting for a few seconds. The pain used to aggravate while walking a distance of a few hundred metres. He had no other systemic symptoms.

On examination, he had normal vital parameters. His ECG showed normal sinus rhythm with T wave inversions in leads V1–V3. Chest X-ray was normal. Troponin T and creatine kinase-Muscle Brain (MB) levels were normal.

Two-dimensional transthoracic echocardiography showed an oval, multicystic lesion located in the interventricular septum of the heart (figure 1). Cardiac MRI showed a 40×45 mm mass on fast spin echo sequences (figures 2–5). ELISA was positive for *Echinococcus* antibodies. Other parts of the body such as lungs, liver and brain were screened for the presence of hydatid cyst through chest X-ray, ultrasound abdomen and CT of brain, respectively. There was no evidence of hydatid cyst in these organs. The patient was started on tablet albendazole 400 mg once a day for hydatid cyst 5 days preoperatively and was advised to continue the

same 12 weeks postsurgery. Surgical intervention to excise the lesion was done. The entire contents of the cyst along with the germinative membrane were excised during the surgery. The patient was discharged 2 weeks postoperatively.

INVESTIGATIONS

His ECG showed normal sinus rhythm with T wave inversions in leads V1–V3. Chest X-ray was normal. Troponin T and creatine kinase-MB levels were normal.

Two-dimensional transthoracic echocardiography showed an oval, multicystic lesion located in the interventricular septum of the heart. Cardiac MRI showed a 40×45 mm mass. ELISA was positive for *Echinococcus* antibodies.

DIFFERENTIAL DIAGNOSIS

Ischaemic heart disease, oesophagitis, oesophageal spasm, gastro-oesophageal reflux disease.

The quality and duration of pain was unlike ischaemic heart disease. Troponin and creatine kinase-MB levels were normal. There was no regional wall motion abnormality, and the presence of the hydatid cyst confirmed the causative aetiology of the patient's chest pain.

The patient never had any symptoms suggestive of dyspepsia or acid peptic disease in the past. We did not evaluate these possibilities further in view of the presence of hydatid cyst on two-dimensional transthoracic echocardiography.

Figure 1 Transthoracic two-dimensional echocardiography showing oval, multicystic, multiseptate lesion suggestive of hydatid cyst of interventricular septum. LA, Left Atrium; LV, Left Ventricle; RA, Right Atrium; RV, Right Ventricle.

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Figure 2 Fast-spin echo MRI sequences showing an isointense, well-circumscribed oval multiloculated cystic lesion located in the septum separating the two ventricles with scalloping of the interventricular septum.

Another differential diagnosis for intracardiac mass lesions is cardiac tumours such as myxomas, papillary fibroelastomas, pericardial cyst and ventricular aneurysm. Myxomas are usually located in the atria or interatrial septum. Papillary fibroelastoma usually arises from the cardiac valves and is rarely attached to the interventricular septum. Ventricular aneurysms and pericardial cysts are never located at the interventricular septum.

TREATMENT

The patient was started on tablet albendazole 400 mg once a day for hydatid cyst 5 days preoperatively and was advised to continue the same 12 weeks postsurgery.

Surgical intervention to excise the lesion was done. The entire contents of the cyst along with the germinative membrane were excised.

OUTCOME AND FOLLOW-UP

The patient was discharged 2 weeks postoperatively and was found to be asymptomatic at 30 days' follow-up.

Figure 3 Fast-spin echo MRI sequences showing an isointense, well-circumscribed oval multiloculated cystic lesion located in the septum separating the two ventricles with scalloping of the interventricular septum.

Figure 4 Fast-spin echo MRI sequences showing an isointense, well-circumscribed oval multiloculated cystic lesion located in the septum separating the two ventricles with scalloping of the interventricular septum.

DISCUSSION

Cardiac hydatid cyst is a rare medical condition. The patient's symptoms are dependent on the size and site of the cyst. Less than 10% of the cardiac hydatid cysts are symptomatic. The cardiac hydatid cysts grow very slowly and are usually asymptomatic. If not treated appropriately, rupture of the cyst may occur.^{1,2}

In the heart, the left ventricle is the most common site of the hydatid cyst (55%–60%). The reason for which could be attributed to the fact that this heart chamber has the maximum myocardial mass and rich blood supply.³ The interventricular septum involvement occurs only in 5%–9%.^{4,5} The cyst usually grows slowly and most of the time, the patients are asymptomatic. Some patients may develop pericardial pain, dyspnoea, cardiac arrhythmias or heart block.⁶ Certain cases may mimic acute coronary syndrome.⁷

The organism most commonly associated with the formation of a unilocular cyst is *E. granulosus*. The unilocular cyst contains

Figure 5 Fast-spin echo MRI sequences showing an isointense, well-circumscribed oval multiloculated cystic lesion located in the septum separating the two ventricles with scalloping of the interventricular septum.

thousands of individual protoscolices along with multiple daughter cysts. Cysts behave as space-occupying lesions and cause pressure effect on adjacent tissues.

The fluid inside the cyst contains parasite antigen which it may sensitise the host. Cyst rupture, either spontaneous or due to surgical procedure, leads to life-threatening anaphylactic reaction.⁸

Presence of daughter cysts and membrane attachment are the characteristic radiological signs on MRI to confirm the diagnosis of hydatid cysts. MRI is superior to other modalities of investigations in the diagnosis of hydatid cyst because it establishes the anatomical location, nature of internal and external structures better than other imaging modalities.^{9 10} Cardiac surgery is the treatment of choice for all cases of interventricular septal hydatid cyst.¹¹

Learning points

- ▶ Cardiac hydatid cyst is a rare medical condition manifesting in less than 10% of patients suffering from it.
- ▶ Interventricular hydatid cysts are even rarer and occur only in 5%–9% of these patients.
- ▶ Cardiac surgery is the treatment of choice for cardiac hydatid cyst.

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