Case study

Cardiac hydatid cyst in the right ventricle: uncommon localization of atypical chest pain

ABSTRACT

Hydatdidosis is a parasitic infection, often disseminated, common in breeding countries with contact with dogs.

caused by cysts containing larvae of the tapeworm echincoccus granulosis

pulmonary localization is the most frequent followed by hepatic damage, cardiac extension is infrequent, involvement of the right ventricle is extremely rare. which may progress to fatal complications such as cardiogenic shock and masive pulmonary embolism

We report the observation of a young patient presenting for atypical chest pain with discovery of a solitary hydatid cyst in the right heart.

INTRODUCTION

Hydatidosis also known as Hydatid disease or echinococcosisis a potentially serious, sometimes fatal, parasitic infection caused by cysts containing the larval stages of the Echinococcusgranulosus (E. granulosus) tapeworm (Dog Tapeworm). It canoccurworldwide and isespeciallycommon in cattle-rearing countries.
As for the disease's localization, pulmonary hydatidosis is the most frequent followed by hepatic, and cardiac localization is rare (0.5–2%).
Hydatidosis of the right ventricle alone is exceptional, and is six times rarer than the left ventricle, and can lead to fatal complications such as pulmonary embolism, systemic dissemination, and anaphylactic shock in case of cyst rupture.

Purpose: To report a rare case of cardiac hydatid disease of the right ventricle, highlighting the clinical particularities of this disease in addition to the importance of multimodality imaging for its assessment.

Case Presentation

We report the case of a 18-year-old woman living in the countryside, with no significant medical history, who presented to the emergency department with pseudo-anginal chest pain and palpitations.Laboratory tests found hypereosinophilia, cardiac biomarkers and routine tests were normal. Chest x-ray and abdominal ultrasound findings were unremarkable.

Electrocardiogram (ECG) showed repolarization abnormalities inantero-apical and inferior leads. Transthoracic echocardiography revealed a voluminous hyperechoic mass in the right

UNDER PEER REVIEW

ventricular (RV) cavity which was attached to the interventricular septum (IVS) without communication with the left cavities, measuring 47 x39x36mm (Figure 1).

Cardiac computed tomography identified a thin-walled, oval, regular,fluid density mass implanted on the right side of the IVS and extending to the RV apex. (Figure 2) Hydatid cyst was the most likely diagnosis considering the patient's rural environment and the fact she lived with dogs; followed by the less likely possibility of a congenital heart cyst, which was confirmed with positivehydatid serology.

Early and urgentsurgery was decided, and cardiac cystectomy was performed.Postoperative specimens analysis confirmed the diagnosis by showing a hydatid cyst with live scolices of Echinococcus granulosus.

The postoperative period was uneventful and the patient was discharged home on albendazole with good clinical evolution.

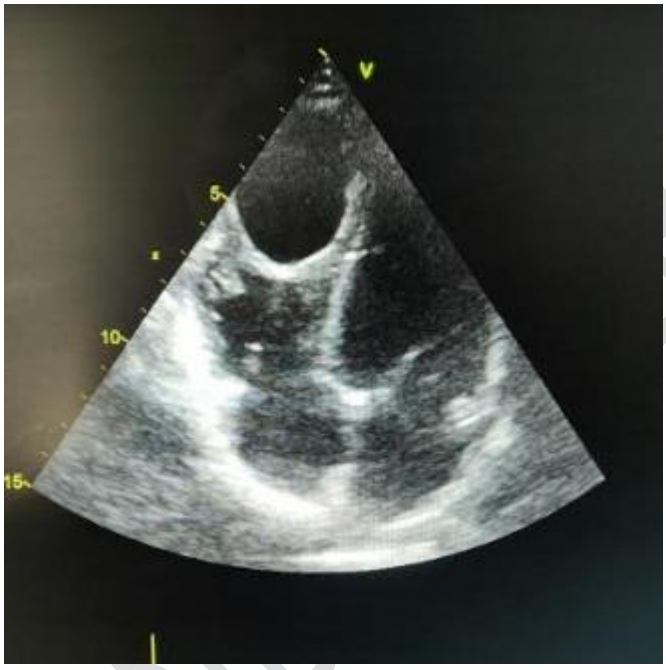

Figure 1 : apical four chambers Transthoracic echocardiography showin hydatic cyst image in right ventriculair apical region

UNDER PEER REVIEW

FIGURE 2 : Cardiac computed tomography image of the hydatid cyst

UNDER PEER

DISCUSSION

Hydatid cyst is a widespread pathology in breeding countries, especially in Africa and Asia, however, epidemiological studies on human echinococcosis are still not available. [1-2]

Cardiac involvement is mainly by systemic extension of the left heart, involvement of the right heart is rare []

Our observation represents a rare case of solitary hydatid cyst at the right ventricular level, the literature has reported that intracavitary rupture is frequent, which can lead to immobilization in the pulmonary arteries, pulmonary hypertension and cardiogenic shock. [3]

The EKG and chest x-ray do not show specific signs.

The Transthoracic echocardiography is the first test to be performed to help detect cardiac involvement, its location and size.

The use of multimodal cardiac imaging could be very beneficial in guiding threpaeutical management.

Surgery with an excision type covered by medical treatment (albendazole) remains the most used strategy [4]

CONCLUSION

Cardiac localization of hydatid disease is rare.The clinical polymorphism,the latency and the severity of the complications are the essential characteristics.Treatment is mainly surgical.There is a risk of recurrence,hence the importance of biological and radiological monitoring.Good prevention in endemic countries is the key to the global eradication of this parasitic infection

UNDER PEER REVIEW

REFERENCES

[1] Oraha AY, Faqe DA, Kadoura M, Kakamad FH, Yaldo FF, Aziz SQ. Cardiac Hydatid cysts; presentation and management. A case series. *Ann Med Surg (Lond)*. 2018; **7**(30): 18- 21

[2] Sadjjadi SM. Present situation of echinococcosis in the Middle East and Arabic North Africa. *Parasitol Int*. 2006; **55**(Suppl): S197- 202

[3] Noaman H, Rawaf S, Majeed A, Salmasi AM. Hydatid cyst of the heart. *Angiology*. 2017; **68**(9): 765- 768.

[4] Wadhawa V, Shah J, Doshi C, et al. Surgical overview of cardiac echinococcosis: arare entity. *Interact CardiovascThorac Surg*. 2018; **27**(2): 191- 197.