World Journal of Medical Case Reports
2021; 2(1): 1-3
http://www.sciencepublishinggroup.com/j/wjmcr
doi: 10.11648/j.wjmcr.20210201.11

Case Report

Right Atrium Hydatid Cyst at the Septal Leaflet of the Tricuspid Valve, Underwent TVR

Manochihr Timorian[1, *], Abdul khaliq Munib[2], Mohammad Rafi Hamidi[1]

[1]Department of Cardiothoracic and Vascular Surgery, Global Medical Complex Heart Institute, Kabul, Afghanistan

[2]Department of Cardiology, Herat Heart Hospital, Heart, Afghanistan

Email address:

Manochihr@yahoo.com (M. Timorian)

[*]Corresponding author

To cite this article:

Manochihr Timorian, Abdul khaliq Munib, Mohammad Rafi Hamidi. Right Atrium Hydatid Cyst at the Septal Leaflet of the Tricuspid Valve, Underwent TVR. *World Journal of Medical Case Reports*. Vol. 2, No. 1, 2021, pp. 1-3. doi: 10.11648/j.wjmcr.20210201.11

Received: October 15, 2020; **Accepted**: November 19, 2020; **Published**: January 15, 2021

Abstract: Echinococcus is an infection caused in human by the larval stage of *Echinococcus granulosus*, *Echinococcus multilocularis*, or *Echinococcus vogeli*. Slowly enlarging echinococcal cyst generally remains asymptomatic until their expanding size or their space occupying effect in an involved organ elicits symptoms. The most pathognomonic finding, if demonstrable is that of daughter cyst within the larger cyst. A specific diagnosis of *E. granulosus* infection can be made by the examination of aspiration fluid for protoscolices, but this is not recommended due to fear of spillage and anaphylactic reactions. Serodiagnostic assays can be useful, although a negative test doses not exclude the diagnosis of echinococcosis. Detection of antibody to specific echinococcal antigen by immunoblotting has the highest degree of specificity. The liver and the lungs are the most common sites of these cysts. Cardiac hydatid cysts are found in fewer than 2% of cases of hydatidosis. In 50% of such cardiac cases, there is multiple organ involvement. A 26-year-old female presented to our emergency department with dyspnea on exertion, and a mass lesion in her right atrium, her Investigations and pre-operative transthoracic echocardiography revealed the mass located in the right atrium at the septal leaflet of the Tricuspid Valve, which was confirmed a hydatid cyst during intraoperative intervention, along with no cysts of the lungs and liver. The lesion was successfully resected, and the tricuspid valve was replaced under Cardiopulmonarybypass.

Keywords: Hydatid cyst, Septal Leaflet, Tricuspid Valve, Echinococcus, Albendazole

1. Introduction

Cystic hydatid disease is an infection of the Echinococcosis (larval stage of *Echinococcus granulosus, Echinococcus multilocularis, or Echinococcus vogeli)* in human. [1] Life cycle of this zoonotic disease (cestode/tapeworm) involves dogs as definitive hosts, sheep as intermediate hosts, and human as accidental intermediate hosts. In humans it's rarely located in the heart (0.5%-2%), and frequently, infestations of the liver and lungs are 65% and 25% respectively. [2] Cardiac echinococcal cyst is rare, usually located in the left ventricle (60%), right ventricle (15%), the interventricular septum (9%), the left atrium (8%), the right atrium (4%) and the interatrial septum (2%) accordingly, [3] Though rare, but if left untreated, can still result in life-threatening complications.

2. Main Document

A 26-year-old female was admitted complaining of chest pain, palpitations, and breathlessness with no fever, nausea/vomiting, and no episodes of hemoptysis for a couple of years. The patient denies any history of respiratory and gastrointestinal symptoms, diaphoresis, weight loss, or rash. She was left untreated, and her family history, drug allergies and medication history turned up negative. As to her social history, she is single, works in a family of farmers, no history of illicit drug use or alcohol abuse and she has never smoked. On physical examination BP was 90/60mmHg, PR was 58bpm, HR shows prominent/peak p waves (P biphasic) in leads II and III with normal sinus rhythm and 60beats per minute (Figure 6), PO2 was 98%, temperature was 36 Celcius, and RR were 26 breaths per minute. Pre-operative CXR revealed enlargement of the right side of

heart (Figure 1). Computed tomography (CT), Enzyme linked immunosorbent test (ELISA) with IgG, cardiac MR, and hemagglutination test for the infection of echinococcosis were not performed due to low socioeconomic status of the patient. Transthoracic echocardiography showed normal biventricular function, dilated RA, RV, and a well-defined large cystic mass of the RA, originating from the septal leaflet of the tricuspid valve (Figure 2). Other serology assessments were within normal ranges.

The subject underwent surgery thorough a median conventional sternotomy, followed by cardiopulmonary bypass to prevent the risk of rupture and emboli created in the lungs and spillage of mother cyst contents during the operation (Figure 3). A lot of ruptured daughter cysts and an intact mother cyst was removed by the surgeon (Figure 4) and the defect was sutured, since the cyst invaded the septal leaflet of the tricuspid valve, and had totally left the TV unrepairable so a tricuspid valve replacement with 31mm mechanical prosthesis (ST. JUDE MEDICAL 2014-09) (Figure 5) was installed.

She was simply weaned off of the cardiopulmonary bypass and the postoperative course was uneventful. Albendazole was prescribed 10mg/kg/day for 6 months post-operation.

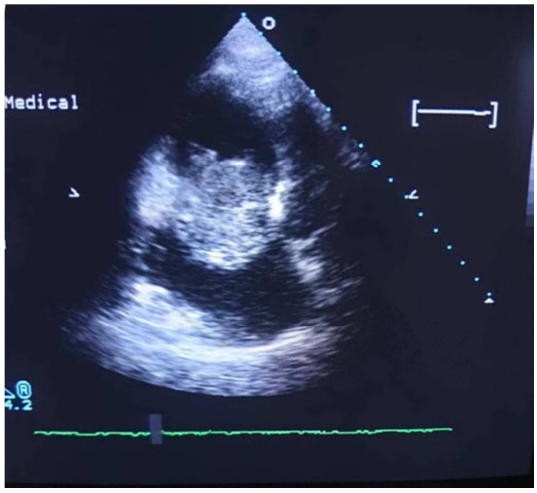

Figure 1. *CXR showing slight enlargement of the right atrium of the heart*

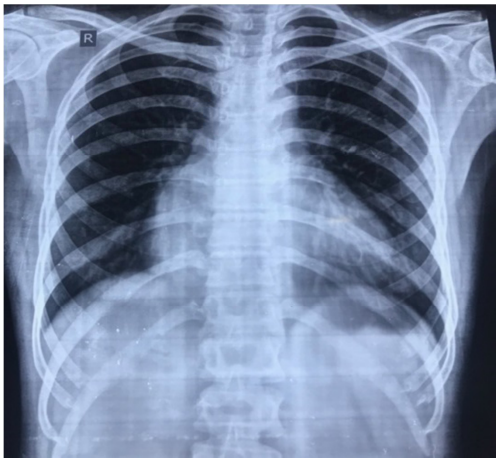

Figure 2. *A large mass seen in the RA on 2D echocardiography doppler report.*

3. Comment

Hydatid cyst of the heart results from the approach of the ova (hexacanth embryos) into the human intestine and entering into the portal or the lymphatic system where it travels from the vascular beds of the lungs or the liver into either the coronary circulation to invade the myocardium or the portal system to invade the right side of the heart. Chest pain in a cardiac hydatid cyst can be due to invasion of the parasite into the pericardium or ischemia when coronary artery branches are obstructed. Other presentations include; systemic hydatid embolism, TR, TS, and pulmonary hypertension from multiple hydatid pulmonary artery embolisms.

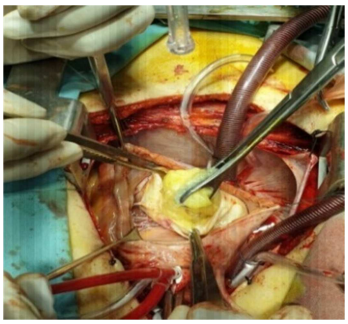

Figure 3. *Intraoperative image is showing cyst.*

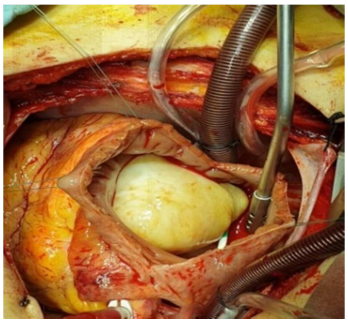

Figure 4. *Daughter cysts within a mother a mother hydatid cyst.*

Although invasion into the heart is extremely rare, which was first reported by Williams in 1936 [4, 5], when compared with the involvement of the liver and the lungs, the prevalence of the cardiac echinococcosis is reported in only 0.5%-2%, which is commonly located in the LV and least commonly located in the RA. [6] Clinical manifestation of cardiac echinococcosis mostly depends on number, size and location of the hydatid cyst, nonetheless if left untreated may result in life-threatening complications, often rupturing during operative manipulation which may cause anaphylactic shock, [7, 8] This case is interesting because the mother cyst was attached to the septal leaflet of the tricuspid valve and needed to replacement of the tricuspid valve with a mechanical prosthesis due to her young age.

With medical follow-up, the cure is about 33% hence surgery is indicated to prevent risk of rupture, [9] after all approximately 10% of all hydatid cysts tend to recur post-surgery. [10]

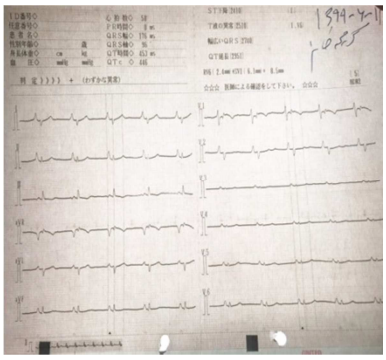

Figure 5. *Tricuspid valve replacement.*

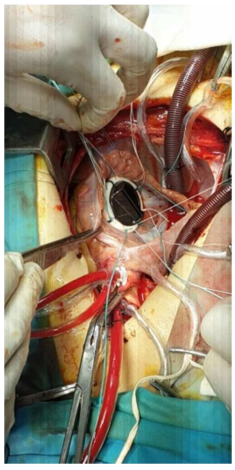

Figure 6. *ECG showing p-pulmonal in leads II and III; NSR, 60bpm.*

4. Conclusion

In conclusion, Hydatid cyst of the heart is rare and clinically may present with different signs and symptoms, hence due to high risk of rupture, cardiac hydatid cysts must be resected surgically under CPB regardless of symptoms, followed by medical therapy for at least two years post-surgery as the treatment of choice.

Echocardiographic and serology studies are recommended for five years to catch recurrences post operation.

Abbreviations

ARCS	Afghan Red Crescent Society
GMC	Global Medical Complex
TVR	Tricuspid Valve Replacement
bpm	Beats Per Minute
CVTS	Cardiovascular and Thoracic Surgery
CXR	Chest X-Ray
NSR	Normal Sinus Rhythm

Ethical Approval

Informed consent was signed.

Competing Interests

The authors declare that they have no competing interests.

Acknowledgements

This operation was financially supported by Dr. M. TIMORIAN, head of CVTS at Global Medical Complex.

References

[1] Firouzi, A., Borj, M. N. P. and Ghavidel, A. A., 2019. Cardiac hydatid cyst: A rare presentation of echinococcal infection. *Journal of cardiovascular and thoracic research*, *11* (1), p. 75.

[2] Tandon, S. and Darbari, A., 2006. Hydatid cyst of the right atrium: a rare presentation. *Asian Cardiovascular and Thoracic Annals*, *14* (3), pp. e43-e44.

[3] Pant, B., Ramesh, A. and Selvaraj, R., 2019. Hydatid cyst of the interventricular septum–A rare cause of heart block. *Indian pacing and electrophysiology journal*, *19* (2), p. 79.

[4] Yaliniz, H., Tokcan, A., Salih, O. K. and Ulus, T., 2006. Surgical treatment of cardiac hydatid disease: a report of 7 cases. *Texas Heart Institute Journal*, *33* (3), p. 333.

[5] A. Nemes, M. L. Geleinjnse, R. J. van Gums et al. Cardiac multiple hydatid cyst int. J Cardiovascular Imaging, 22 (5) (2006), PP. 647-6651.

[6] DIGHIERO, J., CANABAL, E. J., AGUIRRE, C. V., HAZAN, J. and HORJALES, J. O., 1958. Echinococcus disease of the heart. *Circulation*, *17* (1), pp. 127-132.

[7] Gülmen, Ş., Kiriş, İ. and Kuralay, E., 2009. *A case of right atrial hydatid cyst related with tricuspid septal leaflet and septum*. Pamukkale Üniversitesi Tip Fakültesi.

[8] Tejada, J. G., Saavedra, J., Molina, L., Forteza, A. and Gomez, C., 2001. Hydatid disease of the interventricular septum causing pericardial effusion. *The Annals of thoracic surgery*, *71* (6), pp. 2034-2035.

[9] Sensoz, Y., Ozkokeli, M., Ates, M. and Akcar, M., 2005. Right ventricle hydatid cyst requiring tricuspid valve excision. *International journal of cardiology*, *101* (2), pp. 339-341.

[10] Macedo, A. J., Magalhaes, M. P., Tavares, N. J., Bento, L., Sampayo, F. and Lima, M., 1997. Cardiac hydatid cyst in a child. *Pediatric cardiology*, *18* (3), pp. 226-228.