

Case Report

Left ventricle hydatid cyst of heart removed under cardiopulmonary bypass: anesthesia management

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ABSTRACT

Hydatid cyst uncommon in heart, echinococcosis is endemic in our country. Hydatid cyst in a heart may cause disturbances in conducting system, Pericarditis congestive cardiac failure. The surgery and anesthetic management become very challenging in this case. We are describing the successful management of such a case of left ventricle hydatid cyst removed under cardiopulmonary bypass in a middle age female.

Keywords: Hydatid cyst, Complication, Albendazole

INTRODUCTION

The hydatid disease in heart is very rare (0.2-0.5%).¹ Hydatid diseases are caused by *Echinococcus granulosus*.²

Other common sites of hydatid cyst are lung (18-30%), liver (55-70%), serous cavities, brain and pelvic organs. It is most commonly found in those countries where sheep and cattle raising constitutes an important occupation and consequently there is a close association between man, sheep and dog. Man harbors the larval form. Infection is generally acquired in childhood and disease manifested in adult life.

The possibility of intraoperative rupture and leakage of cyst contents has serious consequences like ventricular dysfunction, conduction disturbances & may lead to CCF. A patient of cardiac hydatid was successfully operated in cardiac operation theatre.

CASE REPORT

We are reporting a case of left ventricle hydatid cyst that was operated on cardiopulmonary bypass and successfully managed intraoperatively & post-operatively and discharged on 7th day. A 55-year-old female presented with chest pain, dyspnoea grade three and palpitation, her pulse rate was 45/min irregular & blood pressure was 100/60 mmHg. Heart sounds were normal & no murmur. Chest and abdomen examination were also normal, her biochemical investigation Hb% was 11%, TLC 5600/cumm, other investigations like KFT, LFT, blood sugar and serum electrolytes are within normal limits, X-ray chest shows cardiomegaly.

ECG shows sinus bradycardia with T wave inversion in lead I, II, avL, V₄-V₆, 2D echo shows a cystic lesion behind the interventricular septum. No regional wall motion abnormality, LVEF-55%, CT thorax shows a well-defined cystic lesion with multiple daughter cysts in

postero inferior aspect of ventricle involving pericardium, e/o mild pericardial effusion. Coronary angiography was normal.

Anesthetic management

At night before surgery patient was given oral lorazepam 2 mg and ranitidine 150 mg. Patient taken inside the operation theatre. Monitors: 5 leads ECG, SPO₂ probe were connected, peripheral IV lines were secured with 18 G. cannula.

Pre medication with IV pantoprazole 40 mg, antibiotic cefoperazone 1 gm, hydrocortisone 200 mg, fentanyl 50 micro gram, midazolam 2 mg, was given. Under local anaesthesia left radial artery cannulation, right internal jugular vein cannulation (7Fr. Triple lumen) and right femoral artery cannulation (4Fr. Sheath) done in view need of IABP.

IV xylocord (2%) 5 ml was given to attenuate pressure response. Pre oxygenated with 100% O₂ for 5 minutes, induction with inj. ketamine 100 mg + inj. vecuronium 8 mg and intubated with cuffed ETT No. 7.5 cuffed inflated and air entry checked and tube fixed.

Intra operative monitoring non-invasive, ECG, SPO₂, EtCO₂, temperature, urine output, arterial blood gases, activated clotting time (invasive or non-invasive) and invasive monitoring CVP invasive blood pressure were done.

Surgical procedure

Surgical excision of cyst was done. Initially surgery was tried off pumped but attempt was abandoned due to haemodynamic instability then patient was put on conventional cardiopulmonary bypass with superior and inferior venacava were cannulated on beating heart surgery attempted but was not possible. Hence aorta was cross clamped and cardioplegia was given through aortic route, left ventriculotomy done.

Cyst was aspirated & clear fluid was noted. Fluid was drained completely keeping pack around the cyst. The cyst was excised and cavities were sterilized and washed with normal saline & closed within 12 minutes of CPB circulation was restored and patient was rewarmed. CPB was terminated with infusion of dopamine 5 µg/kg/min. & NTG (Nitroglycerin) 1 µg/kg/min. and adrenaline 1 µg/kg/min. Total on pump (CPB) time was 57 min & aortic cross clamp time was 28 minutes, only one of cardioplegia was given.

A drain was kept in pericardium and was sutured. Patient shifted to cardiac recovery room for elective ventilation (duration ventilation was 18 hours) and extubated in morning. Her post-operative course was uneventful and discharged on 7 days of post-operative period and started oral albendazole for 12 weeks.

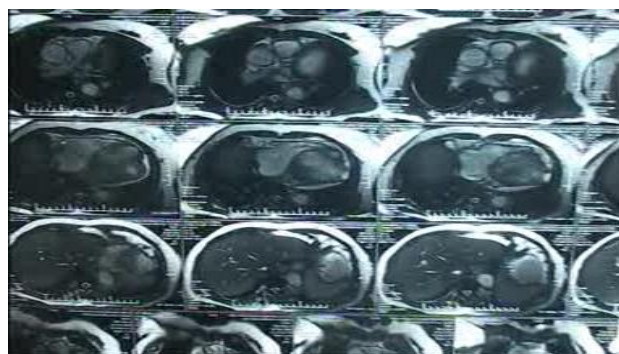


Figure 1: Scanned image showing hydatid cyst in the left ventricle.

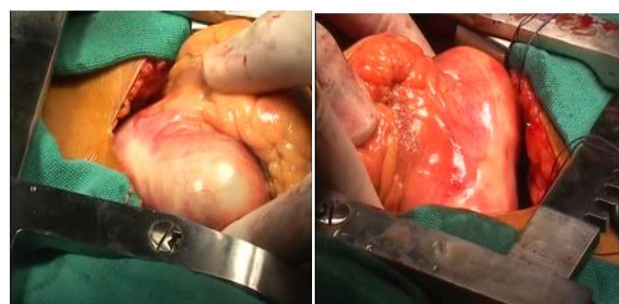


Figure 2: Showing intraoperative & post-operative hydatid cyst in left ventricle.



Figure 3: Showing intraoperative & post-operative hydatid cyst in left ventricle.

DISCUSSION

Hydatid diseases of heart are uncommon.¹ The hydatid diseases of the heart occurs in 0.5-2%. Hydatid diseases caused by *E. granulosus*,² which more commonly affects parenchymatous organs. Larvae reach the right side of the heart through thoracic duct and superior vena cava from right ventricle embryo passes through the pulmonary capillaries into left ventricle. Larvae reach the myocardium through the coronary circulation.

2D echocardiography is the diagnostic method of choice³ and CT/MRI are other diagnostic methods. Shalikh OK et al. and Miralls A et al. in their respective studies have reported that probably only 10% cases of hydatid have clinical manifestations.^{2,16} Richter D et al. reported a case of echinococcus of right ventricle⁵ and Turkvatan A⁴ and Erenturk S¹⁰ et al. reported cases of left ventricle hydatid.

Hydated cyst in heart usually in left ventricle. There are very few references are available in literature showing involvement of right ventricle hydatid.

Hydatid cyst of left ventricle is usually localized sub-epicardially and rarely ruptures into the pericardial space. In our patient the cyst was localized and free from wall of the left ventricle.

Pressures effects of cyst over surrounding tissue may cause disturbances in conducting system which might result in myocardial ischemia,⁶ conduction defect,^{7,12} pericarditis,⁸ congestive cardiac failure⁹ cardiac tamponade,¹⁰ ventricular tachycardia.¹¹

The major anesthetic concern in such cases is a possibility of anaphylactic reaction due to rupture of cyst during intro-operative period for which steroid and histamine blocking agents are useful.¹³ When given in the preoperative period. The anesthetic technique should combine drugs having minimized histamine release.

Kabam JR et al. reported 7 cases in a series of 10 patients (5 received H1 and H2 receptor blocking agent) that use of histamine receptor blocker (H1&H2) does not inhibit histamine release, it seem to attenuate the untoward acute hemodynamic responses by competing with histamine at receptor side.

Our most important anesthetic goal was to maintain sinus rhythm, adequate cardiac output and perfusion pressure during entire perioperative period. This patient was no complications related to the hydatid of left ventricle and was taken for an elective excision of cyst.

Surgical excision of the cyst is treatment of choice¹⁴⁻¹⁶ using cardiopulmonary bypass.

CONCLUSION

We conclude that hydatid disease of heart is very rare presenting in anaphylactic reaction & embolization secondary to cyst rupture is life threatening complication during intraoperative period. So the anesthesiologists have to be aware of and ready to manage the challenges like anaphylaxis.

This hydatid cyst can be excised uneventfully using cardiopulmonary bypass.

In the post-operative period these patients are to be advised albendazole therapy for twelve weeks. Regular follow ups are required and investigation conducted to watch for recurrence.

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REFERENCES

1. Dighiero J, Canabal EJ, Hazan J, Horlales JO. Echinococcus disease of the heart. *Circulation*. 1958;17:127-32.
2. Miralles A, Bracamonte L, Pavie A, Bors V, Rabago G, Gandjbakhch I, et al. Cardiac echinococcus. Surgical treatment and results. *J Thorac Cardiovasc Surg*. 1994;107:184-90.
3. Oliver JM, Benito. Cardiac hydatid cyst diagnosed by 2D echo. *Am Heart J*. 1982;104:164-5.
4. Turkvatan A, Yelgec NS, Calikoglu U, Olcer T. Primary left ventricular hydatid cyst in a child: a case report. *Can Assoc Radiol J*. 2000;51(6):346-8.
5. Richter D, Bosse A, Weber A, Farah I, Laczko A. Echinococcus cyst of the right ventricle. Diagnosis and therapy of a rare disease picture. *Zentralbl-Chir*. 2001;126(1):56-67.
6. Oliviero U1, Scordino F, Scherillo G, Tosone G, Orlando R, Fazio S. Myocardial ischemia caused by a hydatid cyst of the interventricular septum successfully treated with albendazole. *Ital Heart J*. 2000;1(6):431-4.
7. Bennis A, Darif A, Mehadji BE, Chraibi N. Cardiac hydatid cyst revealed by the complete heart block. *Heart Vessels*. 2000;15(1):46-8.
8. Hallidat JN, Jose R, Nicks R. Constrictive pericarditis following rupture of hydatid cyst. *Br Heart J*. 1963;25:21.
9. Kammoun S, Frikhai, Fourati K, Fendri S. Hydatid cyst of the heart located in the inter ventricular septum. *Can J Cardiol*. 2000;16(7):921-4.
10. Erenturk S, Kocazeybak B, Oner A, Sonmez B. Cardiac hydatid cyst in left ventricle. *Acta Chir Belg*. 1998;98(4):164-5.
11. Yadav BS, Garg N, Raj D. Hydatid cyst of heart presenting as ventricular tachycardia. *J Assoc Physicians India*. 1999;47(3):342-3.
12. Agrawal DK, Agrawal R, Barthwal SP. Interventricular septal hydatid cyst presenting as complete heart block. *Heart*. 1996;75(3):P266.
13. Kabam JR, Dymond R, Krestw M. Efficacy of histamine H1 and H2 receptor blockers in anesthetic management during operation for hydatid cyst of liver and lung. *South Med J*. 1988;81:1013-5.
14. Ameli M, Mobarhan HA, Nourajj SS. Surgical treatment of hydatid cyst of heart. Reports of six cases, *J Thorac Cardiovasc Surg*. 1977;61:757-63.
15. Shakibi JG, Safavian MH, Azar H, Siassi B. Surgical treatment of Echinococcal cyst of the heart. *Thorac Cardiovasc Surg*. 1977;74:941-6.
16. Shalih OK, Celik SK, Topcuoglu MS, Kisacikoglu Tokcan. A surgical treatment of hydatid cyst of heart. A report of 3 cases and review of literature. *Can J Surg*. 1998;41:321-7.

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