

THORACOTOMY AND EXCISION OF RIGHT VENTRICULAR MYOCARDIAL HYDATID CYST - ANAESTHETIC MANAGEMENT

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SUMMARY

We present a case of a young female with hydatid cyst of right ventricle of the heart, who was posted for thoracotomy and excision. Although Echinococcosis is endemic in our country, heart is an uncommon site for localization of hydatid disease. In our patient, the cyst was located on right ventricle and presented with unusual features like, ventricular tachycardia and hypotension.

Keywords : Hydatid cyst, Myocardial, Complications.

Hydatid disease is caused by Echinococcus granulosus, a plathyhelmenth (class Cestoidea). It is a disease of temperate climate. 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 (due to intimate association with dog), though the disease doesn't manifest before adult life. Hydatid cyst's sites of localization, from most common to least common, are liver, lung and other organs like brain, spleen, kidney, bone, muscle, pelvis, heart, spinal cord and retina. In nearly 75% of patients with hydatid disease, the right lobe of the liver is invaded and contains a single cyst.¹

In majority of cases, disease remains latent (symptomless) for many years and its presence is only detected at autopsy or by its pressure effects on the surrounding tissues or when the cyst ruptures or suppurates. The pressure symptoms will vary according to the site of the cyst. Rupture of cyst is associated with anaphylaxis.^{2,3}

Case report

A 25 year old female patient approached her cardiologist with complaints of palpitation and chest pain. Her ECG showed ventricular tachycardia and supra ventricular tachycardia and her BP was 80/60 mmHg.

She was treated with tab. disopyramide 100 mg tid and was referred to our hospital for further evaluation and management. She was admitted in ICCU. She had a past history of IHD and was on tab. isosorbide dinitrate 10 mg

tid and tab. metoprolol. 10 mg bid. She had 3 uneventful pregnancies and deliveries before. She was well built and nourished not in distress conscious, well oriented and responded to oral commands. On examination she had pallor and clubbing of fingers. Her pulse rate was 130 bpm and BP was 100/70 mmHg. All other systems were normal.

Ventricular tachycardia was treated with inj. pethidine 50 mg, inj. metoclopramide 10 mg, inj. lidocaine 60 mg (2% 3 ml) IV stat.

As the arrhythmia remained refractory, cardioversion was planned. A DC shock of 100 J was given, but as the arrhythmia still remained refractory, a 200 J DC shock was repeated and the arrhythmia reverted. ECG showed wide QRS complex and inverted T waves in lead II, III, aVF, V₂₋₆, and pulse rate of 80 bpm B.P. of 100/70 mmHg were recorded after the treatment.

Then the patient received inj. xylocard 1g in 500 ml of normal saline infused at 1 mgmin⁻¹ flow rate, inj. heparin 25,000 units in 500 ml of normal saline at 1000 unitshr⁻¹, inj. sodium bicarbonate 50 ml, tab. nitrazepam 5 mg 1/2-1/2-1, tab. diacetyl salicylic acid 150 mg od, tab. amiodarone hcl. 200 mg bd. But ventricular tachycardia reappeared on 3rd and 4th day during her stay in ICCU which was reverted with cardioversion.

Her chest-X ray showed cardiomegaly, echocardiography revealed a cystic mass in the right ventricle, CT scan of thorax reported a cystic mass in the region of right ventricle of heart with few faint septa suggestive of hydatid cyst. Other routine investigations were within normal limits.

Patient was then referred to the cardiothoracic surgeon and was posted for thoracotomy and excision of the cyst.

She was premedicated with inj. pethidine 50 mg and inj. phenergan (promethazine) 25 mg I.M. one hour before the procedure.

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Anaesthetic management

I.V. lines were secured and all monitors were connected. Base line readings were recorded. Xylocard infusion continued at the rate of 1 mgmin⁻¹. Patient was preoxygenated with 100% oxygen for 5 min and was induced with inj. thiopentone sodium 250 mg after premedicating with inj. glycopyrrolate 0.2 mg I.V. Inj. 2% xylocard 2 ml was given to attenuate the pressor responses. Intubating dose of inj. vecuronium 8 mg was given I.V. Inj. pethidine 50 mg and inj. midazolam 2 mg were given for analgesia and sedation. After confirming adequate relaxation, intubation was performed with 7.5 no. cuffed portex endotracheal tube. Anaesthesia was maintained with 66% N₂O, 33% O₂ and intermittent doses of vecuronium. The patient was put in right lateral position and a left inframammary incision was taken. A white cystic mass was noted over the region of ventricles beneath the pericardium. Pericardium was opened and the mass was noted to be over the right ventricle sparing the interventricular groove. Cyst was aspirated and a clear fluid was noted. Cyst wall was opened; fluid was drained completely keeping pack around the cyst. Cyst wall was excised and cavities were sterilized with sodium chloride solution. Pericardectomy was done. A drain was kept in the pericardium and was sutured in layers. There were episodes of ventricular tachycardia during intraoperative period at 20th, 35th and 62nd min. They were treated successfully pharmacologically with 3 ml of 2% inj. xylocard and did not require cardioversion.

There was an episode of AV block at 42nd min, which was treated with inj. atropine 0.6 mg. Sinus rhythm was restored. Patient was reversed with 2.5 mg of inj. neostigmine with 0.4 mg of inj. glycopyrrolate. Extubation was uneventful. All the vital signs were monitored throughout the procedure.

Postoperatively patient's haemodynamic status was maintained within normal limits. She received inj. augmentin (amoxicillin+clavulanic acid) 1.2 g bid, inj. tramadol 50 mg bid, tab. ranitidine 50 mg bid, tab. amifru 40 mg od, inj. amitax 500 mg bid, tab. amiodarone 200 mg bid, tab. praziquantel 10 mgkg⁻¹ tid for 2 weeks. ECG showed rSr pattern in lead 2, 3, aVR, V1, 4, in the entire preoperative period.

Discussion

Hydatid disease involving the heart is rare (<2%)³ and usually hydatid cyst develops in the left ventricle.⁴⁻⁷ There are very few reports available in literature of the involvement of right ventricle by the hydatid disease.

Pressure effects of the cyst over the surrounding tissues viz. vessels supplying heart, valves,⁸ conducting system, (A.V. node, chambers,) which might result in myocardial ischemia,⁹ conduction defects,¹⁰ pericarditis, CCF¹¹ ventricular rupture or embolism,¹² cardiac tamponade,⁴ arrhythmias (VT)¹³. Anaesthesiologists has to be aware of and be ready to manage the challenges like anaphylaxis due to leakage of cyst fluid into the surrounding tissues. One should be pharmacologically and electrically (cardioversion) well equipped to tackle arrhythmias. Our most important anaesthetic goal was to maintain sinus rhythm, adequate cardiac output and perfusion pressure, during the entire perioperative period.

Although diagnostic value of trans-thoracic echocardiography in cardiac Echinococcosis is well established, the role of transesophageal echocardiography in both diagnosis and management of this condition is not well known.¹⁴⁻¹⁹

Complications of Hydatid cyst must be kept in mind when dealing with sudden deterioration and death in patients who are residents of regions where Echinococcosis is endemic.²⁰

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BOOK REVIEW

1. HANDBOOK OF MANAGEMENT OF PAIN AND RELATED SYMPTOMS IN CANCER:

By Dr. Pramod Kumar

This is a comprehensive account of pain management in cancer patients. The book in addition provides useful information about the treatment of symptoms related to other body systems of cancer patients, often encountered by the pain therapist. An account of morphine availability in India and regulation governing the same is quite appropriately discussed. Special problems of paediatric patients are also presented. There is invaluable information about cancer therapeutics and protocols.

Hence the book must be read by all the specialists involved with management of cancer. The book has been published by Indra Prastha Apollo Hospital New Delhi for free distribution to doctors and is dedicated to ISSP and ISA.

Dr. P.F. Kotur
Editor, I.J.A.

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Dr. P.F. Kotur
Editor, I.J.A.

Thoracotomy and excision of right ventricular myocardial hydatid cyst-Anaesthetic management. Jan 2003. Indian J Anaesth. Hydatid disease of the heart is rare. We report a case of hydatid cyst of left ventricle in a forty year old lady where the diagnosis was made intra-operatively. The transthoracic and transesophageal echocardiography showed a mixed echogenic mass arising from the left ventricle. The diagnosis of hydatid cyst was confirmed by the demonstration of scolex and hooklets in the cyst fluid. Hydatid cyst is an endemic infectious disease. Various modalities have been provided to approach hydatosis. This article reports a 20-years-experience of a new minimally invasive technique for the management of solitary pulmonary hydatid cysts using video-assisted thoracoscopic surgery (VATS) with mini-thoracotomy. We reviewed the medical records of patients who underwent unilateral or bilateral single pulmonary hydatid cyst excision using VATS with mini-thoracotomy. All patients were managed by the same surgeon over the period from January 1996 till January 2015. The study involved 120 patien