Letters to Editor

Role of transoesophageal echocardiography in peri-operative management of cardiac hydatid cyst

Sir,

A 22-year-old man presented with atypical chest pain for the past 3 months along with the history of familial disorder of myoclonic jerks and was on anti-epileptic medication. On examination, vital signs were normal with occasional myoclonic jerks involving the upper limbs and face. Pre-operative routine investigations revealed no significant abnormality. However, computerised tomography (CT) chest showed well-defined necrotic lesion within the pericardium compressing the right ventricular outflow tract (RVOT) without pulmonary involvement. The transthoracic echocardiography (TTE) also showed heterogeneous mass with multiple hypo-echoic spaces occupying RV apex extending into the RVOT producing a dynamic obstruction.

After induction with titrated doses of fentanyl and rocuronium with large peripheral intravenous line and radial arterial line *in situ*, internal jugular vein was cannulated with quad-lumen central venous catheter. The monitors used were electrocardiogram, pulse oximetry, end-tidal CO_2, arterial blood pressure, nasopharyngeal temperature and central venous pressure. There were no significant haemodynamic disturbances during induction of anaesthesia. The transoesophageal echocardiography (TOE) probe (Philips Cx50) was placed after ruling out oesophageal disorders. Intraoperatively TOE showed a 3 cm × 3.5 cm multi-loculated hydatid cyst attached to the RVOT myocardium just below the pulmonary valve with dynamic obstruction [Figure 1a and b]. Both TTE and CT scans were inconclusive regarding the extension of the cyst into the myocardial cavity. However, TOE clearly demonstrated the intrapericardial nature of the cyst without invasion and extension into the myocardial cavity. We were able to appreciate the thinned out RV myocardium with clear demarcation between the cyst and myocardium. These findings guided the surgeons to remove the cyst from the external surface of RV without entering into its cavity and avoiding cardiopulmonary bypass. Inside

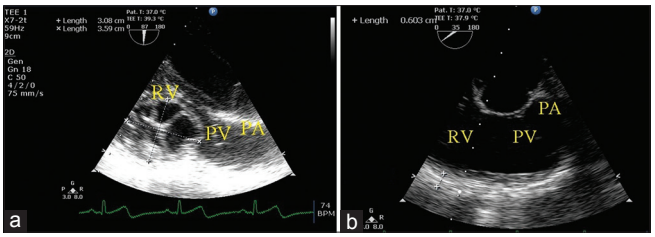

Figure 1: (a and b) Transoesophageal echocardiography–mid oesophageal RV outflow tract view before and after removal of cyst. RV: Right ventricle, PV: Pulmonary valve, PA: Pulmonary artery

the main cyst, multiple daughter cysts were seen. After careful removal of the daughter cyst, the cavity was left open with an intact posterior wall. During the removal of cyst, patient had an episode of severe hypotension, probably due to anaphylaxis caused either by the cyst antigen or by the cetrimide solution used in the pericardial and cyst cavity to prevent local invasion of parasite, but it was managed with an intravenous adrenaline bolus (10 μg). The patient was shifted to the Intensive Care Unit in a stable condition at the end of the procedure, and the post-operative recovery was uneventful. Histopathology also confirmed the diagnosis, and the patient was discharged and advised regular follow-up.

Hydatid cyst involvement in the heart is rare with an incidence of 0.5–2%[1,2]. In the heart, it mainly involves left ventricle (LV) (60%), followed by RV (10%) and the pericardium (7%).[3,4] Patients are usually asymptomatic up to 5 years until the cyst fully grows, after which they may present with chest pain, breathlessness, cough, haemoptysis anaphylactic shock, arrhythmias, valvular disorders, pericarditis, acute myocardial infarction and pulmonary embolism.[5] Extension of the cyst into LV or RV cardiac cavity can cause systemic or pulmonary embolisation that leads to sudden collapse.[6] Diagnosis is usually established by echocardiography, CT chest and cardiac magnetic resonance imaging along with the positive serological markers. In our case, serological markers were negative probably due to the well-encapsulated cyst that was not invading the myocardium. The TTE and CT chest showed the cyst size, extension, location and pulmonary involvement but failed to give a clear picture on the intracardiac invasion. On the other hand, the TOE provided a clear picture of the intrapericardial location of the cyst without invading the myocardium of the heart along with dynamic obstruction to RVOT (varying level of obstruction during systole and diastole).

Anaesthesiologist has to be aware and be ready to manage the hypotension which can be either due to anaphylaxis by the cyst antigen or mechanical obstruction caused by the cyst that can be managed by retracting the mass intra-operatively by the surgeon. All types of arrhythmias need to be anticipated and managed during the procedure. Our most important anaesthetic goal was to maintain sinus rhythm, adequate cardiac output and perfusion pressure during the entire perioperative period. We also had an episode of refractory hypotension probably due to cyst antigen or cetrimide exposure, which was managed well with adrenaline intravenous boluses.

This clearly shows the importance of TOE in delineating and demarcating the extension of cardiac masses and for checking the adequacy of excision.

Financial support and sponsorship
Nil.

Conflicts of interest
There are no conflicts of interest.

Sathappan Karuppiah, Satishkumar Dharmalingam, Raj Sahajanandan, Gladdy George
Department of Anaesthesiology, Christian Medical College, Vellore, Tamil Nadu, India

Address for correspondence:
Dr. Sathappan Karuppiah,
Department of Anaesthesiology, Christian Medical College,
Vellore - 632 004, Tamil Nadu, India.
E-mail: Karuppiah.sathappan@gmail.com

REFERENCES

1. Ibn Elhadj Z, Boukhris M, Kammoun I, Halima AB, Addad F, Kachboura S. Cardiac hydatid cyst revealed by ventricular tachycardia. J Saudi Heart Assoc 2014;26:47-50.
2. Tsigkas G, Chouchoulis K, Apostolakis E, Kalogeropoulou C, Koutsogiannis N, Koumoundourou D, *et al.* Heart echinococcus cyst as an incidental finding: Early detection might be life-saving. J Cardiothorac Surg 2010;5:124.
3. Barbetseas J, Lambrou S, Aggeli C, Vyssoulis G, Frogoudaki A, Tsiamis E, *et al.* Cardiac hydatid cysts: Echocardiographic findings. J Clin Ultrasound 2005;33:201-5.
4. Ravi R, Viswanathan RM, Vaidya S. Thoractomy and excision of right ventricular myocardial hydatid cyst - Anaesthetic management. Indian J Anaesth 2003;47:484-6.
5. Tekbas EO, Tekbas G, Atilgan ZA, Islamoglu Y, Cil H, Yazici M. Left ventricle hydatid cyst mimicking acute coronary syndrome. J Infect Dev Ctries 2012;6:579-83.
6. Bajwa SJ, Panda A, Bajwa SK, Kaur J, Singh A. Anesthetic challenges in the simultaneous management of pulmonary and hepatic hydatid cyst. Anesth Essays Res 2011;5:105-8.

Access this article online	
Quick response code	Website: www.ijaweb.org
	DOI: 10.4103/0019-5049.170039

How to cite this article: Karuppiah S, Dharmalingam S, Sahajanandan R, George G. Role of transoesophageal echocardiography in peri-operative management of cardiac hydatid cyst. Indian J Anaesth 2015;59:753-4.