

Honeycomb in the heart : A rare case of hydatid cyst of the inter-ventricular septum

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Abstract

The hydatid disease of heart, caused by *Echinococcus granulosus* has an incidence of 0.5%-2% , in the sheep grazing areas of the developing and under-developed countries. The cyst of interventricular septum has a 5%-9% incidence with complications of conduction block and arrhythmias. Transesophageal echocardiography(TEE) is useful for intraoperative cyst localization and excision. Our image review highlights the TEE findings of our young patient with multiple hydatid cysts of interventricular septum , with the septal tricuspid leaflet adherent to the cyst membrane.

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Abstract

The hydatid disease of heart, caused by *Echinococcus granulosus* has an incidence of 0.5%-2% , in the sheep grazing areas of the developing and under-developed countries. The cyst of interventricular septum has a 5%-9% incidence with complications of conduction block and arrhythmias. Transesophageal echocardiography(TEE) is useful for intraoperative cyst localization and excision. Our image review highlights the TEE findings of our young patient with multiple hydatid cysts of interventricular septum , with the septal tricuspid leaflet adherent to the cyst membrane.

Key words : Hydatid cyst , Transesophageal echocardiography

Hydatid cyst(HC) of the heart, caused by the metacestode stage of *Echinococcus granulosus* , is a rare and constitutes 0.5%- 2% of all hydatid diseases. ¹ These are usually solitary and primary, and multiple cysts are secondary in nature and present after rupture of any primary cyst. The most common cardiac site is the left ventricle(LV) free wall (55%-60%) , embolized through the left anterior descending artery ; interventricular septum(IVS) (5-9%) ; right atrial(RA) (3-4%) , right ventricular(RV) (15%), left atrium(LA) (8%) , and pericardium (8%). ²

The symptoms that patients develop depend upon the site of the cyst. The LV cysts may cause heart failure or rupture into LV cavity resulting in pulmonary embolism. The IVS cysts presenting with conduction blocks and arrhythmias with the other non-specific symptoms like dyspnea , chest pain or weight loss.¹ Our patient , was a 25-year-old male , with symptoms of breathlessness at rest and chest pain was diagnosed with a single HC of IVS with calcified cyst of segment VII of liver and multiple lung nodules. He was treated with Albendazole and Praziquantal in the pre-operative period after the serology test turned positive for hydatid.

Transesophageal echocardiography (TEE) has an advantage over MRI and transthoracic echocardiography as an aid in intraoperative diagnosis and guiding surgical excision. The WHO informal working group proposed ultrasonic classification of cysts on the basis of wall thickness, activity, septations and presence of daughter cysts. Our hydatid cyst , as seen on TEE examination was a moderate sized (5.2*6.8cm) ,thick-walled , oval, unilocular cysts with honeycombed appearance representing daughter cysts, in the interventricular septum(Type CE2)(Figure 1, Video 1). This was seen to be obliterating both the RV and LV , (Figure 2A,B)without any outflow tract obstruction. Additionally , the septal tricuspid leaflet was found to be adherent to the cyst membrane without any significant regurgitation(Figure 3). The cysts were removed successfully with preservation of STL and IVS(Figure 4).

References:

1. Ipek G, Omeroglu SN, Goksedef D, et al. Large cardiac hydatid cyst in the interventricular septum. *Tex Heart Inst J* . 2011;38:719-22.

2. Atilgan D, Kudat H, Tükek T, et al. Role of transesophageal echocardiography in diagnosis and management of cardiac hydatid cyst: report of three cases and review of the literature. *J Am Soc Echocardiogr* . 2002;15:271-74
3. WHO Informal Working Group. International classification of ultrasound images in cystic echinococcosis for application in clinical and field epidemiological settings. *Acta Trop* . 2003;85:253-61

Figure legends :

Figure 1 : The trans-oesophageal mid-oesophageal four -chamber echocardiography showing a thick-walled multi-septate honeycombed cyst (6.9cm X 5.6 cm) ,completely occupying interventricular septum (RV : right ventricle, LV: left ventricle , IVS: inter ventricular septum)

Figure 2 : The trans-oesophageal echocardiography showing the intra-cardiac structural involvement with the cyst : mid-oesophageal four chamber view showing septal tricuspid leaflet adherent to the cyst (A); the mid-oesophageal aortic valve long-axis view showing the protrusion of the cyst into the left ventricle outflow tract without any turbulence on colour doppler(B)(RA: right atria, RV: right ventricle, LA: left atria, LV: left ventricle, IVS : inter-ventricular septum, ATL : anterior tricuspid leaflet , STL: septal tricuspid leaflet, AoV: aortic valve , LVOT: left ventricle outflow tract)

Figure 3 : The trans-oesophageal mid-oesophageal right ventricle focussed view showed no tricuspid regurgitation on colour doppler suggestive of insignificant leaflet adhesion to cyst membrane(RA: right atria, RV: right ventricle, LA : left atria, IVS: inter ventricular septum)

Figure 4 : The trans-oesophageal right ventricle focused view acquired after cyst excision showed an intact interventricular septum and no tricuspid regurgitation (RA: right atria, RV: right ventricle, LA: left atria , IVS: interventricular septum, TR: tricuspid regurgitation)

Video legend (Video 1):

The trans-oesophageal mid-oesophageal four chambered view showing a multi-septate thick walled hydatid cyst in occupying the base and mid-interventricular septum , with partially adherent septal tricuspid leaflet and also obliterating the right ventricle and left ventricle cavities(RA: right atria, RV: right ventricle, LA: left atria , LV: left ventricle, IVS: interventricular septum , STL: septal tricuspid leaflet)





