Images in Cardiology

Cardiac magnetic resonance imaging for non-invasive diagnosis of lipomatous hypertrophy of inter-atrial septum

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\textbf{ARTICLE INFO}

\textbf{A B S T R A C T}

A 71-year-old asymptomatic woman is found to have an incidental cardiac mass on transthoracic echocardiography. Cardiac magnetic resonance (CMR) findings are consistent with lipomatous hypertrophy of the inter-atrial septum. Given the characteristic appearances on CMR, biopsy or surgery was not indicated and the patient was managed conservatively.

Lipomatous hypertrophy of the inter-atrial septum (LHIS) is a benign disorder characterized by lipid accumulation of the inter-atrial septum.\textsuperscript{1} In rare cases, LHIS can cause atrial inflow obstruction and symptoms of heart failure as well as atrial arrhythmias.\textsuperscript{2} The etiology of LHIS is unknown, and is present in up to 2% of the population, particularly in the elderly and obese.\textsuperscript{1,2} We present a case demonstrating the characteristic findings of LHIS on cardiac magnetic resonance (CMR) imaging.

A 71-year-old asymptomatic woman was admitted to hospital for investigation of an atrial mass found on transthoracic echocardiography, which revealed an echo dense structure in the right atrium with a broad base attached to the inter-atrial septum measuring 3.0 cm × 3.4 cm (Fig. 1). CMR showed enlargement of the inter-atrial septum measuring 2.4 cm × 3.4 cm × 4.3 cm, demonstrating high signal intensity similar to subcutaneous fat on steady-state free precession (SSFP) images and T1-weighted black blood...
Typical CMR findings for LHIS include high signal intensity on SSFP and T1-weighted images, and signal suppression on fat-saturated images. The signal intensity is similar to that of subcutaneous fat, which does not enhance after contrast administration. Chemical shift artifact may also be seen. A substantial percentage of LHIS may be found incidentally or missed on transthoracic echocardiography. CMR and computed tomography offer superior tissue characterization and delineation of the tumor. The differential diagnosis for a fat-containing cardiac tumor includes LHIS, liposarcoma, and lipoma. The presence of a fatty tumor within the inter-atrial septum, sparing the fossa ovalis and thus creating a dumbbell appearance, is pathognomonic for LHIS. Endomyocardial biopsy typically shows hyperplasia of mature multivacuolated fat cells, fetal fat, hypertrophied myocytes, myocardial fibres, and fibrosis.

Surgical management is generally limited to cases in which LHIS is complicated by serious arrhythmias, superior vena cava syndrome, right atrial obstruction or hemodynamic derangements leading to congestive heart failure. Most patients with findings typical for LHIS on advanced imaging images, hypointensity on T1-weighted fat-saturated and T2-weighted fat-saturated images (Fig. 2). There was no significant change after administration of gadolinium contrast. There was no evidence of atrial inflow obstruction. Given the characteristic findings of LHIS on CMR, biopsy was not required for pathological diagnosis, and the patient was managed expectantly.

**Conflicts of interest**

All authors have none to declare.
REFERENCES


OBITUARY

Prof. C.C. Kar expired recently at Kolkata. He was President of CSI earlier. An eminent cardiologist and respected teacher, he was an icon among cardiologists from India. The CSI executive pays homage to the departed soul and expresses deep condolences to his family.