Lipomatous Hypertrophy of the Interatrial Septum
– A Case Report –

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Lipomatous hypertrophy of the interatrial septum is a rare entity, characterized by mature adipose tissue, intermixed hypertrophic cardiac muscle fibers and entrapped nerve fibers. We report here a case of lipomatous hypertrophy of the interatrial septum including clinical, radiologic and pathologic findings.

CASE REPORT

A 45-year-old man was admitted for evaluation of chest discomfort of three years duration. The patient had non-specific chest pain. His height and weight were 170 cm and 63 kg (body mass index: 21.8), respectively. The vital signs were stable. A cardiac examination revealed nothing abnormal. Electrocardiography revealed normal sinus rhythms. However, transthoracic echocardiography revealed a 1.55 × 0.86 cm sized cardiac mass that was suspected to be a myxoma. The interatrial septum measured more than 3 cm in thickness (Fig. 1). The patient underwent cardiac surgery. A resection of the tumor and repair of the atrial septum with bovine pericardium were performed. Grossly, the mass was well demarcated and not encapsulated. It measured 1.3 × 1.2 × 0.8 cm and was yellow with a soft consistency (Fig. 2). Microscopically, the mass consisted of mature adipose tissue, intermixed with cardiac muscle fibers, entrapped nerve fibers and ganglion cells. Lipomatous hypertrophy of the interatrial septum should be differentiated pathologically from tumorous cardiac mass such as lipoma and myxoma.

DISCUSSION

Lipomatous hypertrophy of the interatrial septum is a benign cardiac mass, characterized by a thickened interatrial septum.
Normally, the atrial septum is less than 1.0 cm thick. The lipo-matous hypertrophy may produce bulging of the interatrial septum and that measures 1.0 to 5.0 cm (average 2.6 cm) in thickness. This entity was first described at a postmortem examination in 1964 by Prior. The incidence is very rare and autopsy studies report a 0.8-1.2% prevalence. To our knowledge, only one case in Korea was reported previously by Lee et al. in 2005. As previous report did not describe pathological findings, the case here is the first from Korea with a detailed pathological description.

The true nature of a lipomatous hypertrophy of the interatrial septum remains unknown. Some investigators have suggested that existence of embryonal mesenchymal cells within the primitive atria forming the interatrial septum can develop into adipocytes with an appropriate stimulus. Other investigators have proposed that the association between lipomatous hypertrophy and increased body mass. However, less than 50% of patients with lipomatous hypertrophy of the interatrial septum have a high body mass index level (>30). Our case also occurred in a non-obese middle-aged man.

Although it is an asymptomatic benign tumor in most cases, the case may be associated with atrial arrhythmias, congestive heart failure, recurrent pericardial effusion or sudden death. In spite of radiological methods such as echocardiography, cardiac CT and MRI may be used to diagnose a lipomatous hypertrophy, it is often misdiagnosed as a cardiac lipoma, myxoma or malignant tumor. The characteristic feature is the specific septal location of the atrial thickening and the presence of a dumbbell or hourglass shape.

Grossly, lipomatous hypertrophy is a non-encapsulated mass confined to the atrium projecting into the right side. Microscopically, mature fat tissue represents the main component, and the fetal fat tissue has been identified in varying quantities.
Hypertrophied myocytes may look bizarre, but mitoses are absent, distinguishing the lesion from a malignant tumor. The main entities of differential diagnosis are myxoma and lipoma. Histologically, lipomatous hypertrophy is easily distinguished from a myxoma which is a common benign cardiac tumor due to the absence of myxoma cells and myxoid areas. Cardiac lipoma is a very rare encapsulated tumor that is composed of only mature adipocytes. Occasionally, multivacuolated fat cells are seen in lipomatous hypertrophy leading to a misdiagnosis of a well-differentiated liposarcoma. However, they do not show the large clear vacuoles and indented nuclei of lipoblasts.

Lipomatous hypertrophy of the interatrial septum is a rare non-neoplastic disease of the heart associated with the presence of a mass. It should be differentiated pathologically from other tumors of the heart including lipomatous tumors and myxomas.

REFERENCES