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PET-CT appearance of benign lipomatous hypertrophy of inter-atrial septum

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INTRODUCTION

Lipomatous hypertrophy of inter-atrial septum (LHIS) is a rare incidental finding characterized by presence of benign mesenchymal fat in the myocardium, typically in inter-atrial septum. Patients, usually elderly females,[1] are mostly asymptomatic. However, few reports of atypical clinical presentation[2,3] like atrial fibrillation, supraventricular arrhythmia, congestive heart failure, and undue mass effects have been reported. When detected, diagnosis is made by correlative imaging.

CLINICAL HISTORY

A 67-year-old female with known squamous cell carcinoma of the larynx presented for PET/CT staging. The patient reported no known cardiac disease. PET CT scan revealed localized FDG avid laryngeal cancer. However, incidentally noted was a moderately intense focal FDG uptake in the mediastinum (Figure 1) localizing to the inter-atrial septum on fused PET CT images (Figure 2). Corresponding CT image demonstrated fat density in the same region (Figure 3), suggesting benign LHIS.

DISCUSSION

In this case, diagnosis of LHIS was made on correlative PET and CT imaging. FDG is a glucose analog which localizes in the metabolically active tissues. Potential mechanism of uptake in LHIS is synonymous to brown adipose tissue activation.[4,5] However, diagnosis cannot be made on FDG uptake alone, and has to be correlated with anatomical imaging. CT scan best complements PET scan by demonstrating fat density. MRI is characterized by homogeneous signal intensity, similar to subcutaneous soft tissue, localized to the inter-atrial septum. Echocardiography findings are usually non-specific and may reveal solid mass like lesion in the myocardium.

Correlative imaging may also be of help in differentiating LHIS from other lesions such as

1. Benign fat containing lesions: Rhabdomyoma, Myxoma.
2. Malignant fat containing lesions: Liposarcoma, Rhabdomyosarcoma.
3. Infection/inflammation: Granulomatous disease like sarcoma, tuberculosis.

TEACHING POINTS

This case report helps in characterization of LHIS and differentiating it from other possible benign and malignant lesions in the myocardium. Increased awareness of such lesion will help in avoiding misdiagnosis and undesired interventions[6] and thus mortality and morbidity.

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Figure 1. FDG PET/CT whole body MIP image demonstrating incidental focal tracer uptake in the mediastinum (LHIS). Additionally seen is pathologic FDG avid known laryngeal cancer.

FEATURE RESULTS

There were 37 responses which included: LVAD, metastatic tumor, oropharyngeal and left lung cancer, cardiac sarcoidosis, metastatic gastrointestinal tract neuroendocrine tumor, abdominal PET scan, mediastinal and possibly cardiac malignancy, hypo-pharyngeal cancer, FDG PET in diabetic patient on Metformin, endocarditis, cardiac amyloid, radioactive iodine scan, gastric empty study of a patient that has had gastric bypass surgery, enlarged thyroid gland with hypermetabolic upper and lower mediastinal, morbid obesity, F-FDG avid Head and neck carcinoma, carcinoid tumor, testicular malignancy with chest metastases, Hashimoto's thyroiditis, infection of Heart Mate or similar device, multiple myeloma, extra-pulmonary tuberculosis, Ga-67 whole body imaging showing abnormal cardiac uptake and bowel activity, and F18 FDG PET/CT- most likely oncological with primary site of disease in nasopharyngeal area.

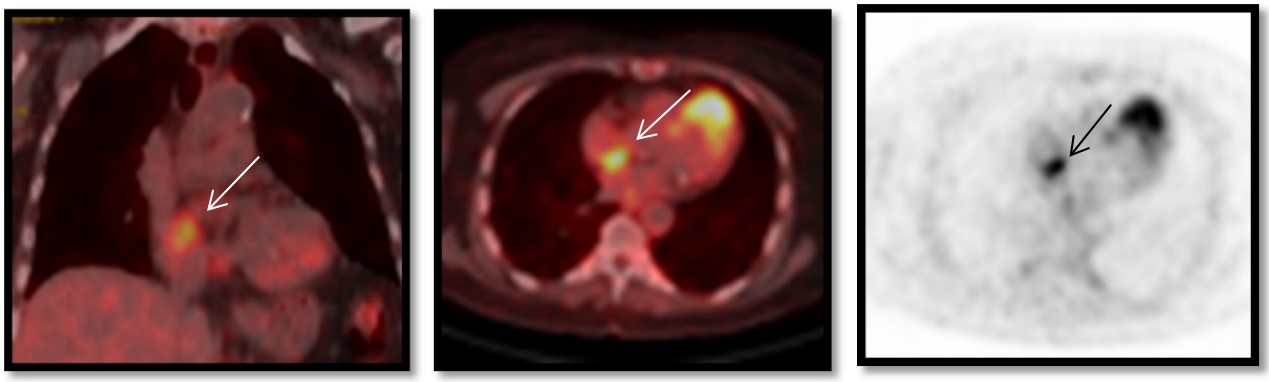

Figure 2. FDG PET/CT fused image (Coronal and axial) and PET axial image demonstrating focal uptake in inter-atrial septum.

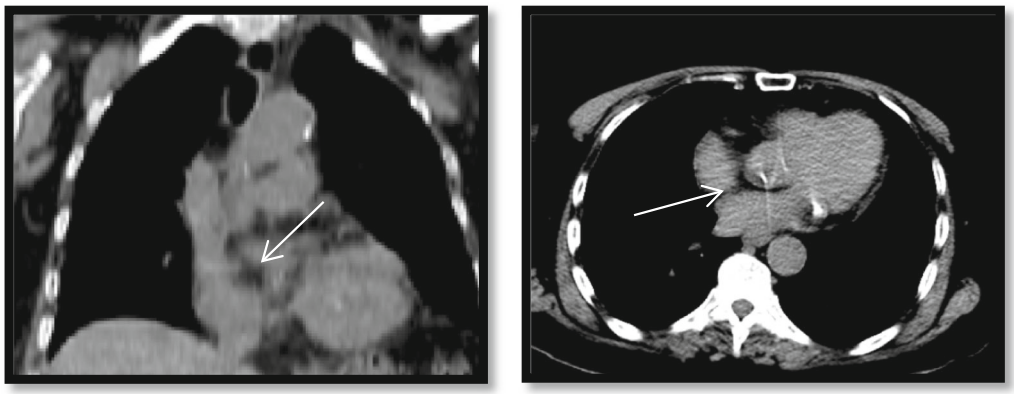

Figure 3. CT coronal and trans-axial image demonstrating fat density in inter-atrial septum corresponding to focal FDG uptake on PET scan.

The correct diagnosis was lipomatous hypertrophy of inter-atrial septum, which was submitted by:

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Disclosures

The authors declare no conflicts of interest.

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