

Short Report

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Short report of an intramuscular hibernoma as an incidental finding in 18F-FDG PET/CT

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Abstract

Hibernomas are benign tumours with brown adipose tissue differentiation and are one of few differential diagnoses of fat-rich masses with increased 18F-FDG PET/CT uptake. This report describes a 56-year-old patient with cervix cancer where 18F-FDG PET/CT was performed as part of the diagnostic work up. As an incidental finding a 4 cm hypodense lesion was found in the paravertebral musculature region that showed intense 18F-FDG uptake. Surgery was performed and histological testing confirmed a hibernoma.

Keywords: Hibernoma; Brown fat tumour; 18F-FDG PET/CT.

Abbreviations: 18F-FDG: 18 Fluor-Fluorodeoxyglucose; PET/CT: Positron Emission Tomography/Computed Tomography; SUV: Standardized Uptake Value.

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Description

A 56-year-old female patient with cervix cancer, staging protocol included 18F-FDG PET/CT. PET/CT showed intense FDG-uptake in the cervix without metastasis. A hypodense lesion (4 cm) with intense FDG uptake (SUVmax 11.1) in the left paravertebral musculature was incidentally found. Palpation revealed a substantial painless soft mass, complete surgical excision was performed. Hibernomas are rare adipocytic soft-tissue tumors [1], a group that ranges from lipoma to liposarcoma. Hibernomas are benign tumours with differentiated brown adipose tissue and are named hibernomas for their resemblance to brown tissue in mammals that hibernate. Hibernomas are usually asymptomatic with higher incidence between the third and fourth decade of life [1]. Treatment when diagnosed is surgical excision [2]. Hibernomas share brown fat hypermetabolism and usually present intense 18F-FDG uptake [3-6]. For this reason, they may at first sight be mistaken as malignant. The Standard

Uptake Values (SUV) may vary between different imaging time points without any treatment given in between [7], unlike malignant lesions. 18F-FDG PET/CT is recognized as a useful tool to evaluate brown adipose tissue metabolism and a reporting criteria was established in 2016 [8].

The resection specimen was partly covered by skeletal muscle and measured 40 mm, with tan-yellow and soft cut surfaces. Microscopically, the tumor consisted of brown fat cells with multivacuolated cytoplasm and univacuolated white adipocytes in equal proportions, consistent with a diagnosis of hibernoma. In the periphery, the tumor cells partly surrounded striated muscle fibers.

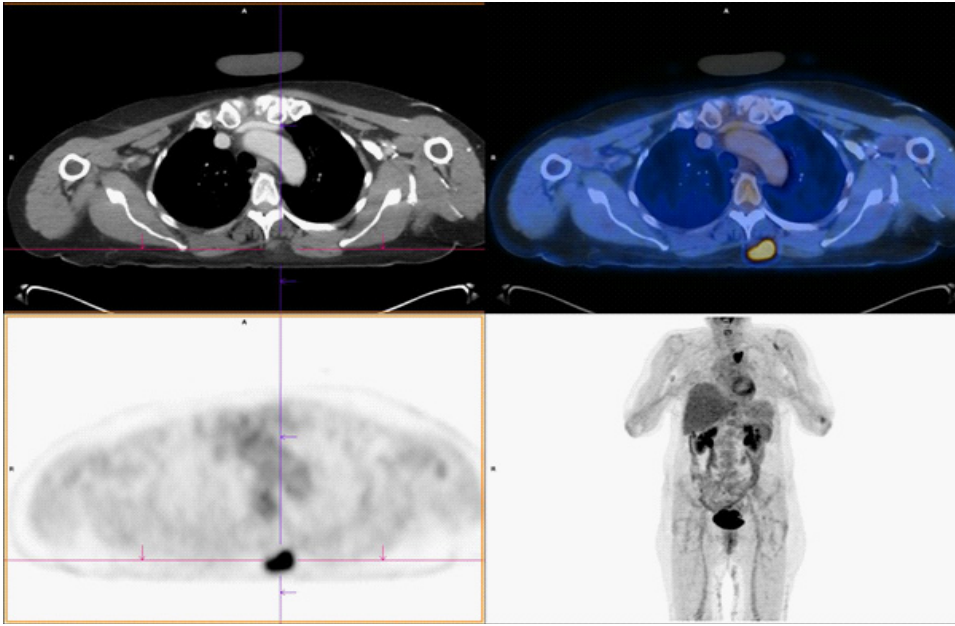


Figure 1: A hypodense lesion (4 cm) with intense FDG uptake (SUVmax 11.1) in the left paravertebral musculature.

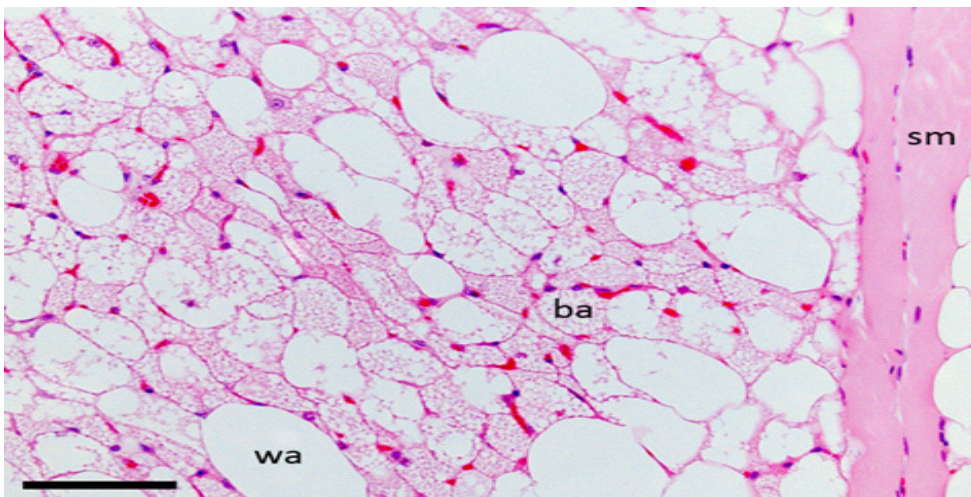


Figure 2: Hibernoma (hematoxylin and eosin stain), (ba) brown adipocyte; (sm) striated muscle; (wa) white adipocyte. Scale bar = 100 μ m.

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