Diaphragmatic Schwannoma Mimicking Hydatid Cyst Depicted by FDG PET/CT

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Citation

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Abstract

Schwannoma is generally a benign, slow-growing, encapsulated tumor originating from the nerve sheath most commonly located in the head and neck regions and extremities. Present study aimed to report FDG PET/CT findings of an extraordinary located schwannoma arising from the right diaphragm. Thoracic CT of a 39-year-old male showed an encapsulated, well-defined round, heterogenous cystic lesion on the right hemithorax which was falsely diagnosed as a hydatid cyst. FDG PET/CT was requested for the metabolic characterization of this mass and revealed mild to moderate hypermetabolism at the solid components of this lesion. Surgical excision was performed and histological examination revealed schwannoma.

INTRODUCTION

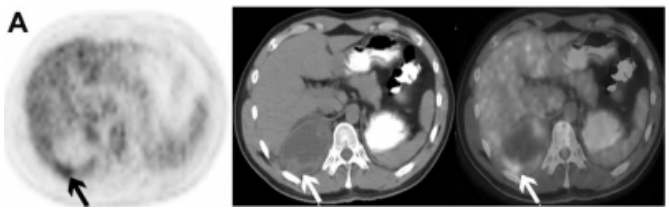
Schwannoma is a benign tumor that originates from the Schwann cells surrounding peripheral and cranial nerves. It has a predilection for the head and neck and flexor surfaces of the upper and lower extremities (1).Schwannoma most frequently present in patients aged 20 to 50 years, more frequently in men than in women (2). They comprise 5% of all benign soft tissue tumours (3). Schwannoma of the chest wall and diaphragm are rare. Schwannoma is often found incidentally or present with vague, non-specific symptoms. This benign tumor is almost invariably slow growing, non-aggressive neoplasm and it is solitary in the vast majority of cases. Of 5% to 18% schwannomas are associated with neurofibromatosis type I (4), in which case lesions may be multiple and often plexiform. Malignant transformation is very rare. On gross appearance, schwannoma is usually seen as solitary, well circumscribed, encapsulated lesion (5). The definitive diagnosis remains histologic. Histologically, typical schwannomas are composed of intermixed Antoni A components (cellular and arranged in short bundles or interlacing fascicles) and Antoni B areas (less cellular and organized with more myxoid components). The cellular variant (which includes most large retroperitoneal and pelvic schwannomas) has a uniform spindle cell appearance without Antoni A or B areas. Characteristically, all schwannomas show uniform and intense staining for S100 protein (6).

It is important for the radiologist to consider the diagnosis of benign schwannoma when presented with a retroperitoneal or pelvic mass, to avoid unnecessary surgery, because these lesions can be managed conservatively (3). In this case report we aimed to report FDG PET/CT findings of an extraordinary located schwannoma arising from the right diaphragm.

CASE REPORT

A 39-year-old man suffered from cough and sputum was referred to the outpatient clinic of chest medicine. Diagnostic computed tomography (CT) was performed. It showed encapsulated, well-defined, round, heteregenous cystic soft tissue mass that arised from the right diaphragm. The lesion was measured approximately 10 cm in diameter and extended from right dome of the diaphragm to superior pole of the right kidney. Since Turkey is an endemic country for Echinococcus infestation, it was initially misdiagnosed as a hydatid cyst according to its CT pattern. F-18 flourodeoxyglucose (FDG)PET/CT was requested to exclude possible malignancy. (A) Axial, (B) coronal, (C) saggital PET, CT and combined PET/CT images demonstrated mild to moderate FDG uptake [maximum standardized uptake values (SUVmax): 4,1] at the solid components which were located in the peripheral and central zones of this cystic lesion.The total resection was perfomed and histological examination revealed a benign schwannoma.

A



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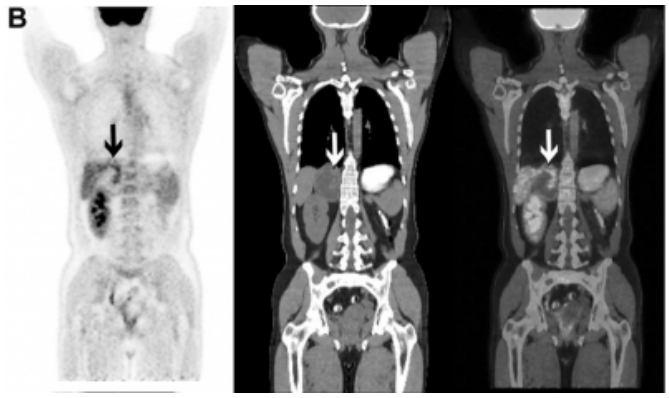
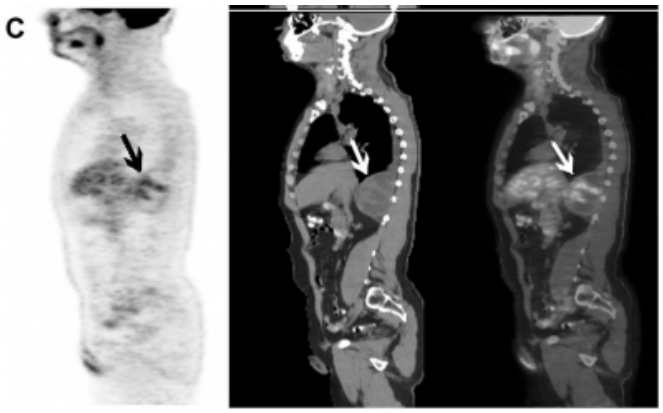


C



DISCUSSION

Conventional imaging methods such as computed tomography and magnetic resonance imaging have been used to characterize schwannoma. On CT images, schwannoma typically reveals encapsulated, well-defined round, solid or cystic soft tissue mass. On T1-weighted MR the lesion showes a round mass of homogeneous low signal intensity. However, on contrast-enhanced T1-weighted MR imaging the characteristic pattern is a soft tissue mass that shows a high signal intensity in the central zone, with multiple degenerative areas and very low signal intensity in the peripheral zone of the tumor. The tumor has a characteristic target appearance on unenhanced T2-weighted image, with non-homogeneous decreased signal intensity in the central zone of the tumor and with markedly increased signal intensity in the peripheral zone (7). In FDG PET/CT, a few reports have indicated that schwannoma has a diffuse and wide range of SUV uptake on PET imaging depending on the degree of its cellularity (8). Schwannoma may also show with markedly increased FDG uptake in the peripheral and central zones as in our case. Schwannoma can rarely be almost entirely cystic, in which case they may resemble benign entities such as retroperitoneal pseudocyst, abscess or lymphocoele. When schwannoma is mostly solid, the differential diagnosis includes neuro□broma and lymphoma. The latter can often be distinguished by the presence of separate lymphadenopathy (7). In case of the similarity of their clinical and radiological □ndings, schwannoma should be included in the differential diagnosis of hydatid cysts especially in endemic countries as in our case (9).

In conclusion, this is the first report of a primary diaphragmatic schwannoma which was evaluated with F-18 flourodeoxyglucosePET/CT.

References

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