Case Report

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Leiomyosarcoma in the Posterior Mediastinum Presented as Dumbbell Shape Demonstrated on ^{18}F-FDG PET/CT Imaging

Liu Xiao#, Wenjie Zhang#, Xiaohong Ou and Lin Li*

Department of Nuclear Medicine, China

***Corresponding author:** Lin Li, Department of Nuclear Medicine, China

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ABSTRACT

A 63-year-old man complained of the back pain for 2 years. The MRI and ^{18}F-FDG PET/CT demonstrated the mass located in the left posterior mediastinum and invaded the spinal canal through the adjacent intervertebral foramen caused the dumbbell shape. The metabolism of the lesion was low with a SUV_{max} as 3.59 on ^{18}F-FDG PET imaging. The pathology examination revealed the leiomyosarcoma. This case demonstrated that high-grade leiomyosarcoma in the posterior mediastinal can have low ^{18}F-FDG metabolism and dumbbell-shaped tumor in the posterior mediastinal should consider leiomyosarcoma as differential diagnosis.

Keywords: Leiomyosarcoma; Dumbbell Shape; Posterior Mediastinum; PET/CT

Case Report

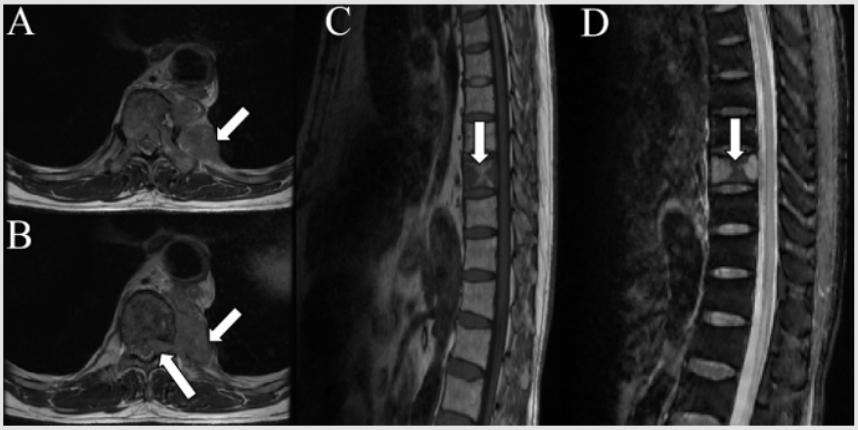

Figure 1: A 63-year-old man complained of the central back pain 2 years. MRI of the throactic vertebre showed the there was a mass located in the left posterior mediastinum with slightly hypointense in T1 weighted image (T1WI) (short arrow in A and B) and invaded the spinal canal through the intervertebral foramen caused the dumbbell shape (long arrow in B: T1WI). The adjacent T10 vertebral body has bone destruction (arrow, C: T1WI, D: T2WI). A malignant tumor was suspected.

The lesion invaded the spinal canal through the intervertebral foramen with adjacent T10 vertebra bone destruction with sclerosis (arrow in E: PET/CT bone fusion imaging), which was diagnosed as suspected malignant neurogenic tumor. In addition, no extra-lesion involvement was observed. Surgical excision of the lesion and vertebral body of T10 was performed. The tumor cells were immunohistochemically positive for desmin and Caldesmon and negative for SMA, myoD1 and S-100. These findings confirmed the diagnosis of leiomyosarcoma with FNCLCC grade of 3. Primary leiomyosarcoma of the posterior mediastinum is a very rare malignant mesenchyma tumor, which come from the soft tissue of the mediasti-

num or the great vessels [1]. Dumbbell-shaped tumor is a type of the inner and outer spinal canal tumor and most of these tumors are neurogenic tumors [2] (Figure 1). Some non-neurogenic dumb bell-shaped tumors occurred in posterior mediastinum including angioma, angiolipoma, chondrosarcoma [3], desmiod tumor [2], lymphoma [4], castleman disease [5]. The posterior mediastinal of leiomyosarcoma caused dumbbell-shape is very rare and there was only one case reported in the literature [6]. Intense ^{18}F-FDG uptake with SUV_{max} from 5 to 28 observed in leiomyosarcoma had been reported in the literature [7-13] and high-grade leiomyosarcoma may correlated with high SUV_{max} [14]. However, minimal ^{18}F-FDG uptake in leiomyosarcoma is noteably rare [1]. Interestingly, our patient had the highest FNCLCC of grade 3 but the SUV_{max} was 3.59. This case demonstrated that high-grade leiomyosarcoma in the posterior mediastinal can have low ^{18}F-FDG metabolism and dumb-bell-shaped tumor in the posterior mediastinal should consider leiomyosarcoma as differential diagnosis (Figure 2).

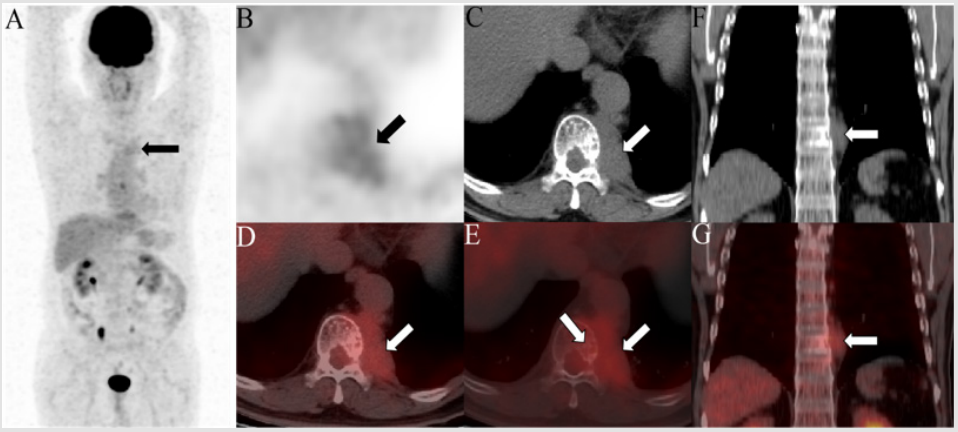

Figure 2: The patient underwent the 18F-FDG PET/CT for tumor staging. The maximum intensity projection (MIP) image (A) demonstrated a minimal radioactivity (arrow) in the left mediastinum. The axial (B: PET, C: CT, D: PET/CT fusion imaging), coronal (F: CT and G: PET/CT fusion imaging) images of the chest displayed a lesion (arrow) with the biggest size of 62×43mm and a SUVmax of 3.59 in the left posterior mediastinum.

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