

Schmorl's Node May Cause an Increased FDG Activity

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Abstract: Schmorl's node is an intraspongious disc herniation, which is formed within the vertebral body through a cartilaginous endplate. Schmorl's nodes are commonly seen at radiographic examination or autopsy. Schmorl's nodes are generally considered to be asymptomatic. In this article, we demonstrate the incidental findings of moderate FDG uptake in the Schmorl's node.

Key Words: Schmorl's node, F-18 fluoro-2-deoxyglucose, positron emission tomography/computed tomography, magnetic resonance imaging

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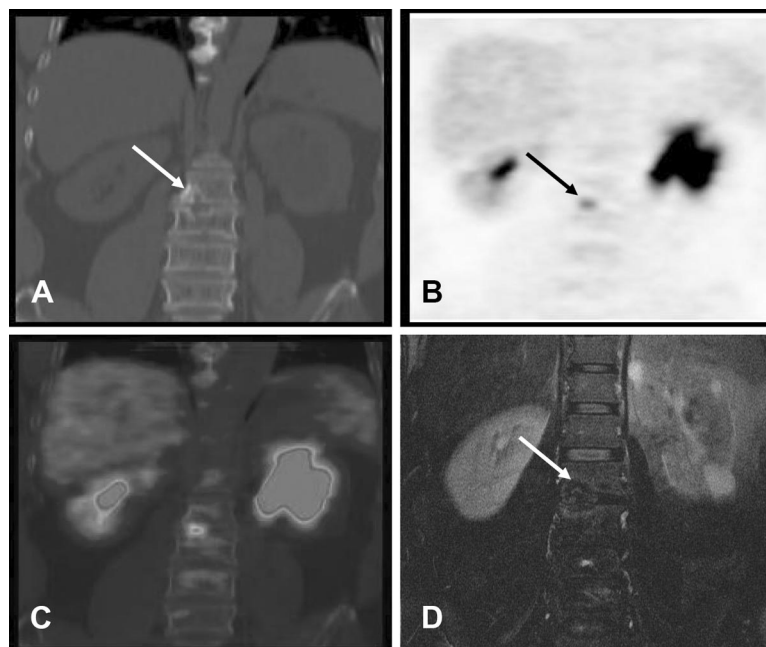


FIGURE 1. A 63-year-old man had traumatic insult causing the right ankle fracture 2 months ago. He underwent FDG PET/CT, and the PET images revealed focally moderately increased uptake of FDG (mean SUV: 3.4, maximum SUV: 4.2) in the vertebral body of L-2 level. Follow-up has been continuing for over 3 years, the patient still shows asymptomatic. Coronal computed tomography (A), coronal PET (B), PET/CT fusion (C), and magnetic resonance imaging (MRI) (D) are the images of the illustrative case. Coronal bone window CT image revealed radiolucent lesions surrounded by sclerotic margin (A, arrow) contained within the vertebral bodies of L2 and L3 with adjacent endplate disruption. Coronal fat-suppressed T2-weighted spin-echo image revealed the contour defects of inferior endplate of L2 and superior endplate of L3 with herniation of disk material into the vertebrae (D, arrow) and high signal intensity area surrounding the cartilaginous nodes, indicative of Schmorl's node with surrounding bone marrow edema. PET image showed a focal FDG activity in the region of herniation of the nucleus pulposus into the vertebral body (B, arrow). Schmorl and Junghanns¹ described the lesions known as Schmorl's node, cartilaginous node, or intraspongious disc herniation. The pathogenesis of this condition is uncertain. Schmorl's nodes are thought to be traumatic lesions caused by compressive vertebral loads and developmental defects in the vertebral endplate, due to metabolic or neoplastic disease.^{2,3} The defect or breakage of the cartilage endplate usually leads to herniation of nuclear material to a varying extent into the cancellous bone of the vertebral body. In addition, Schmorl's nodes may be the end result of ischemic necrosis beneath the cartilaginous endplate and that herniation into the body of the vertebra is secondary.² Clinically, they are usually believed to be asymptomatic. They are difficult to diagnose in the acute stage.^{4,5} The demonstration of disc prolapse by X-radiography is usually possible only after the bony reaction of the vertebral body has developed an osseous sclerotic bone casting. MRI demonstrated the affected vertebral body around the Schmorl's node as low signal intensity on T1-weighted images and high signal intensity on T2-weighted images.^{6,7} Histologic examination of the nodes revealed that the round or multicystic irregular area beneath the endplate, shown on CT scans or MR images, was a zone of osteonecrosis, separate from the herniated nucleus pulposus as described by Schmorl. The patient has the Schmorl's node may be due to traumatic insult 2 months ago.⁸ In this time, there are inflammatory process and edema in the bone marrow. Inflammatory process may increase FDG activity in the Schmorl's node.