



Neurolymphomatosis with Spinal Nerve Root Involvement Demonstrated on ¹⁸F-FDG PET/CT

¹⁸F-FDG PET/CT'de Spinal Sinir Kökü Tutulumu Olan Nörolenfomatozis

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Abstract

A 56 years old woman with a diagnosis of diffuse large B-cell lymphoma had dyspnea, weakness in the left upper extremity and vocal cord paralysis after chemotherapy. She underwent cervical, thoracic and lumbosacral magnetic resonance imaging (MRI) however findings on MRI could not entirely explain the symptoms of the patient. Therefore, the patient underwent ¹⁸F-fluorodeoxyglucose (FDG) positron emission tomography/computed tomography and the scan revealed focal symmetrical ¹⁸F-FDG uptake on the cervical, thoracic and lumbar spinal nerve roots. Considering the symptoms of the patient and cerebrospinal fluid cytology findings, hypermetabolic spinal nerve roots were interpreted as lymphoma involvement.

Keywords: Neurolymphomatosis, ¹⁸F-FDG PET/CT, MRI, lymphoma, spinal nerve root

Öz

Diffüz büyük B-hücreli lenfoma tanılı 56 yaşındaki kadın hastada kemoterapi sonrası dispne, sol üst ekstremitede güçsüzlük ve vokal kord paralizisi izlendi. Hastaya servikal, torakal ve lumbosakral manyetik rezonans görüntüleme (MRG) yapıldı ancak MRG bulguları hastanın semptomlarını tam olarak açıklayamadı. Bu nedenle hastaya ¹⁸F-florodeoksiglukoz (FDG) pozitron emisyon tomografisi/bilgisayarlı tomografi yapıldı ve taramada servikal, torakal, lumbal spinal sinir köklerinde fokal simetrik ¹⁸F-FDG tutulumu izlendi. Hastanın semptomları ve beyin omurilik sıvısı sitolojik bulguları dikkate alındığında, hipermetabolik spinal sinir kökleri lenfoma tutulumu olarak yorumlandı.

Anahtar kelimeler: Nörolenfomatozis, ¹⁸F-FDG PET/CT, MRG, lenfoma, spinal sinir kökü

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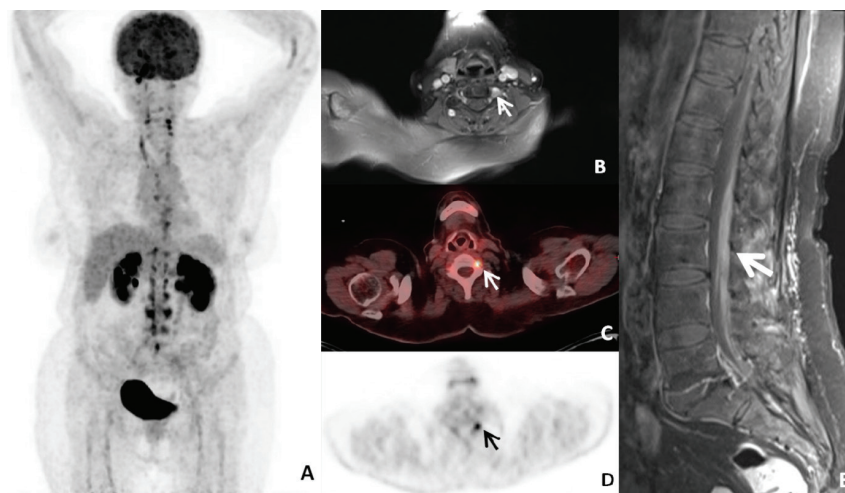


Figure 1. A 56 years old woman diagnosed with diagnosis diffuse large B-cell lymphoma had dyspnea, weakness in the left upper extremity and vocal cord paralysis beginning one month after 4 cycles of chemotherapy. She underwent cervical, thoracic and lumbosacral magnetic resonance imaging (MRI) revealing diffuse thickening and contrast enhancement on cauda equina and filum terminale (E, T1 weighted fat sat postcontrast sagittal image, arrow), also asymmetric contrast enhancement on cervical 5-6 left spinal nerve root (B, T1 weighted fat sat postcontrast axial image, arrow) suspicious for lymphoma involvement, however these findings could not entirely explain the symptoms of the patient. Four days after MRI, the patient underwent ¹⁸F-fluorodeoxyglucose (FDG) positron emission tomography/computed tomography (PET/CT) for treatment response evaluation and the scan revealed focal symmetrical ¹⁸F-FDG uptake on the cervical (C, axial fused PET/CT; D, axial PET with maximum standardized uptake value: 8.95, arrows), thoracic and lumbal spinal nerve roots (A, MIP yerrine maximum intensity projection). Cerebrospinal fluid (CSF) cytology examination was done two days after PET/CT and it was reported as consistent with lymphoma involvement. Considering the symptoms of the patient and CSF cytology findings, hypermetabolic spinal nerve roots were interpreted as lymphoma involvement.

Neurolymphomatosis (NL) is a rare entity defined as the infiltration of the nervous system by lymphoma. NL can lead to the development of symptoms of neuropathy, including pain, hypoesthesia, paresthesia and palsy. NL is most frequently associated with B-cell non-Hodgkin's lymphoma (NHL), though there are reported cases of non-B-cell NHL (1,2). Generally, NL present after several courses of treatment, it is uncommonly a primary presentation of lymphoma (1,2). Diagnosing NL is challenging due to the variable symptoms and the large number of differential diagnosis. Nerve biopsy result is the gold standard, however it is invasive with the risk of permanent nerve damage and blind biopsies have high false-negative rates. Therefore, imaging can play an important role in diagnosis, can also guide nerve biopsies and help avoid unnecessary biopsies. NL is increasingly being recognized with the increasing use of MRI and ¹⁸F-FDG PET/CT in the evaluation of peripheral nervous system disorders (3). NL on ¹⁸F-FDG PET/CT can be seen as the involvement of cranial nerves (1,4,5,6,7), peripheral nerves (1,3,6,7,8), neural plexuses (1,3,5,6) or -as in this case- spinal nerve roots (1,3,5,6,7). We should be familiar with the appearance patterns of NL on ¹⁸F-FDG PET/CT and consider this entity while evaluating the lymphoma patients with neurological symptoms.

Ethics

Informed Consent: Consent form was filled out by the patient.

Peer-review: Externally peer-reviewed.

Authorship Contributions

Surgical and Medical Practices: A.A., G.G.B., U.Ş., Concept: A.A., G.G.B., Design: A.A., G.G.B., Data Collection or Processing: A.A., G.G.B., U.Ş., Analysis or Interpretation: A.A., G.G.B., U.Ş., Literature Search: A.A., Writing: A.A.

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