Imaging of Rasmussen Encephalitis by MRI and PET/CT

RASMUSSEN ENSEFALİTİNİN MR VE PET/BT İLE GÖRÜNTÜLENMESİ

Metin HALAÇ, MD, a Sabri ZİNCİRKEŞER, MD, b Sait SAĞER, MD, a Doğan SELÇUK, MD, c Kerim SÖNMEZOLU, b İlhami USLU, MD a

aDepartment of Nuclear Medicine, bRadiology, Cerrahpaşa Medicine School of Istanbul University, İSTANBUL
bDepartment of Nuclear Medicine, Medicine School of Gaziantep University, GAZİANTEP, TURKEY

cDepartment of Nuclear Medicine, Medicine School of Istanbul University, İSTANBUL

Abstract

Rasmussen encephalitis is a chronic inflammation of the brain which mainly affects one side of the cerebral hemisphere and is complicated by intractable seizure disorder in previously developmentally normal children. Probably, there may be viral origin or viral-induced autoimmune mechanism. The role of neuroimaging studies in children with this encephalitis lies with early detection and monitoring of disease progression in addition to the planning of therapeutic management. Fourteen years old female patient had a 2 months history of partial seizures without any causes. Routine laboratory findings were normal. On MR images, there was cerebral cortical atrophy that localized to the frontoparietal region. The patient referred to our positron emission tomography (PET) centre for further investigation. Patient was imaged using a Siemens Biograph 6 LSO HIREZ integrated PET/CT camera. CT was used for addition of a more precise localization and attenuation correction. On FDG PET images, there was extensive region of hypometabolism that predominantly involved right frontoparietal region.

Key Words: Rasmussen encephalitis, MR, PET, FDG

Özet

Rasmussen ensefaliti genellikle serebral hemisferin bir tarafını etkileyen, dirençli epilepsi ile karakterize kronik enflamatuar bir beyin hastalığıdır. Rutin laboratuvar incelemeleri normal olan, 2 aydır parsiyel epileptik nöbet anamnezi tanımlanan 14 yaşındaki olgunun kranial MR ve beyin PET incelemeleri sunuldu. MR incelemede kortikal atrofi izlenen olgunun PET görüntülerinde özellikle sağ frontopariyetal bölgeyi tutan belirgin hipometabolizma saşandı.

Anahtar Kelimeler: Rasmussen ensefaliti, MR, PET, FDG


Yazıma Adresi/Correspondence: Metin HALAÇ, MD
İstanbul University Cerrahpaşa Medical Faculty,
Department of Nuclear Medicine, İSTANBUL, TURKEY
metinhallac@yahoo.com

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Figure 1. Coronal MR images. T1-weighted images (upper row) there was cerebral atrophy that abnormally decreased T1 signal intensity predominantly involved right frontoparietal region. The proton density weighted images (lower row) there was abnormal increased signal in the frontoparietal region. MR imaging data may be suggest a diagnosis of Rasmussen encephalitis in many cases, but, cranial MR may be normal at the initial phase of some patients with Rasmussen encephalitis.1,3

Figure 2. On the axial (upper row) and coronal (lower row) FDG PET images, there was extensive hypometabolism that predominantly involved right frontoparietal region (arrows). Rasmussen encephalitis is characterized by diffuse, unilateral cerebral hypometabolism on FDG PET images, with corresponding regions of cerebral atrophy on MR images.2,4 Although MR imaging data alone are sufficient to suggest a diagnosis of Rasmussen encephalitis in many cases, correlation with FDG PET data increases diagnostic confidence and allows the unequivocal identification of the affected cerebral hemisphere in patients whose MR imaging findings are subtle or distributed bilaterally.4,5
REFERENCES


