

Open-Ring Sign in Tumefactive Demyelination

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ABSTRACT

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A 20-year old gentleman presented with one- week history of headache and progressive left hemiparesis. There was asymmetric hyperreflexia in all four limbs (left>right), left hemianesthesia and left plantar was extensor. MRI brain showed multiple lesions in bilateral centrum semiovale, bilateral parietal and right paraventricular regions.

The open-ring sign is often present in large, contrast-enhancing demyelinating lesions and helps to differentiate them from neoplasms and infections that usually show complete ring enhancement.

Keywords: Hemiparesis, Hyperreflexia, Hemianaesthesia, Open ring sign

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A 20-year old gentleman presented with one- week history of headache and progressive left hemiparesis. The fundus examination was normal. There was asymmetric hyperreflexia in all four limbs (left>right), left hemianesthesia and left plantar was extensor. MRI brain showed multiple lesions in bilateral centrum semiovale, bilateral parietal and right paraventricular regions. These lesions were hypointense on T1WI, hy-

perintense on the T2WI and showed incomplete ring enhancement on the post contrast study (figures1-4). The ring was complete towards the white matter and broken towards the cortex-the open-ring sign. CSF examination showed normal sugar, normal cells and raised proteins (120 mg%). CSF oligoclonal bands were absent. He was treated with injection methyl prednisolone one gram intravenous once daily for five days followed by oral wysolone 1mg/kg for 2 weeks. The headache subsided and the deficits recovered in one week.

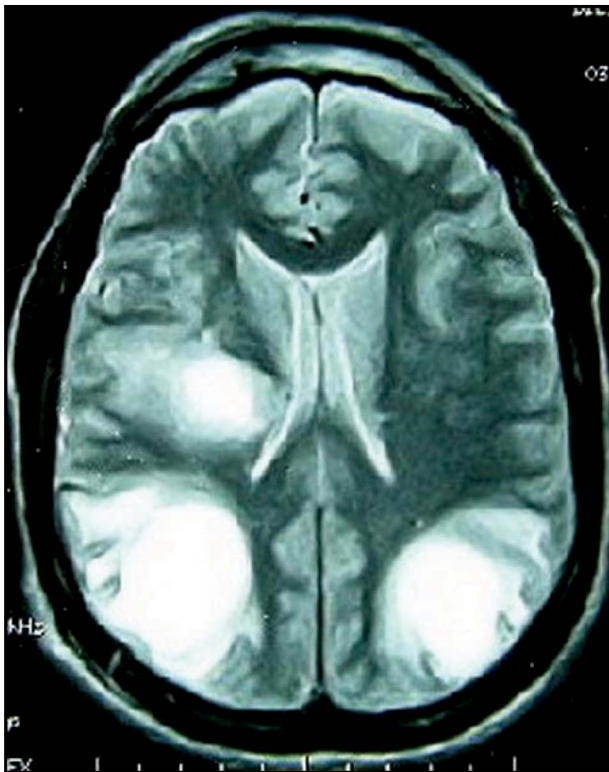


Figure 1. Axial T2 image showing hyperintense lesions in bilateral parietal and right paraventricular regions



Figure 2. Axial T2 image showing hyperintense lesions in centrum semiovale bilaterally

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Figure 3. Axial T1 post contrast image showing incomplete enhancement with central hypodensity. The ring is complete towards the white matter and open towards the cortex



Figure 4. Axial T1 post contrast image showing open ring sign

The open-ring sign is often present in large, contrast-enhancing demyelinating lesions and helps to differentiate them from neoplasms and infections that usually show complete ring enhancement. Open-ring sign is characterised by incomplete ring enhancement. The ring is complete towards white matter suggesting active demyelination.¹ This is a highly specific sign of demyelinating lesions. In the presence of an open-ring sign demyelination would be five times more likely than neoplasm and 17 times more likely than infection.²

END NOTE

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