

A diagnostic clue in cerebellar-type multiple system atrophy: the hot cross bun sign

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Cranial magnetic resonance imaging was performed on a 67-year-old male patient who had presented with complaints of imbalance, ataxia, difficulties walking and urinary incontinence. Atrophy was seen in the brainstem and cerebellum, more prominently in the pons (**Figure 1a**). The hot cross bun sign was detected in the pons on axial T2-weighted sequence. The volume of the bilateral middle cerebellar peduncles was decreased and there was dilatation in the fourth ventricle (**Figure 1b**).

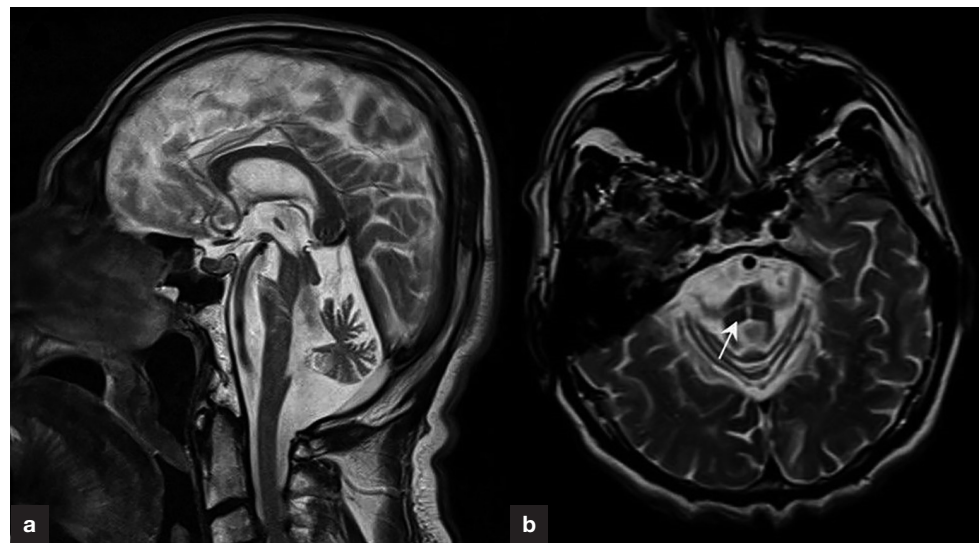


Figure 1. a. Sagittal T2-weighted imaging reveals atrophy of the brainstem and cerebellum. Atrophy appears to be more severe in the pons. b. A cruciform hot cross bun sign was detected in the pons on the axial T2-weighted sequence (arrow).

The hot cross bun sign observed in cerebellar-type multiple system atrophy is caused by damage to myelinated transverse pontocerebellar fibres and neurons in the pontine raphe. Corticospinal tracts and the pontine tegmentum are preserved. The hot cross bun sign has a low sensitivity but a strong specificity for diagnosis of cerebellar-type multiple system atrophy, and may be particularly useful in differentiating cerebellar-type multiple system atrophy from idiopathic Parkinson's disease (Shrivastava, 2007; Prasad and Rossi, 2022). In the presence of clinical findings suggestive of cerebellar-type multiple system atrophy, the hot cross bun sign can support the diagnosis.

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