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Teaching NeuroImages: One-and-a-half Brown-Séquard syndrome

When spinal neuroanatomy helps localize the lesion

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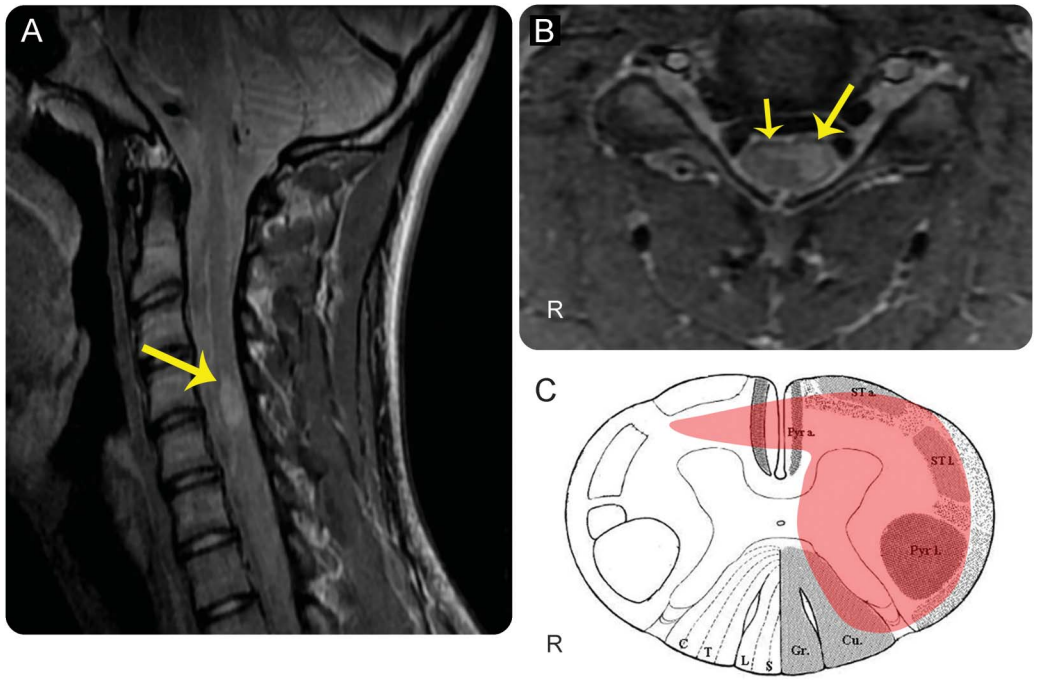
Figure Localization of the spinal cord lesion



(A) Sagittal fluid-attenuated inversion recovery MRI shows a demyelinating lesion (arrow) in the cervical cord at C4-C5 involving the left hemispine (B, arrow) and the anterior side at right (short arrow), configuring a spinal one-and-a-half Brown-Séquard syndrome. (C) Schematic representation of the spinal cord shows the neuroanatomy of the lesion (in red). C, T, L, S = cervical, thoracic, lumbar, sacral; Gr/Cu = fasciculi gracilis and cuneatus; Pyr a/l = anterior/lateral corticospinal tract; ST a/l = anterior/lateral spinothalamic tract.

An 18-year-old man presented with acute weakness of the left limbs, tingling, and reduced light touch sensation at the right side.

Neurologic examination revealed axial and left limbs weakness (Medical Research Council 3/5) with significant increase of deep tendon reflexes at lower limbs, absence of the superficial abdominal reflexes bilaterally, left Babinski sign and right indifferent response, reduced proprioception in the left upper limb, and decreased light touch, temperature, and pinprick sensation at right, with a C5 sensory level.

Spinal MRI showed a demyelinating lesion at C4-C5, involving the left hemispine and the anterior right half, configuring a one-and-a-half Brown-Séquard syndrome (figure). Treatment with dexamethasone recovered weakness and sensations.

An asymmetric pyramidal syndrome with hypoesthesia more marked on the less paretic side configures a Brown-Séquard plus syndrome,[1,2] a variant of the classic Brown-Séquard syndrome.

This case clearly demonstrates the importance of knowledge of the human neuroanatomy for the clinical neurologist.

AUTHOR CONTRIBUTIONS

Dr. G. Cirillo: drafting the manuscript, review of literature. Dr. V. Todisco: revising and interpreting the manuscript. Prof. G. Tedeschi: supervising and editing the manuscript.

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