



Unilateral Hyperhidrosis and Contralateral Horner's Syndrome Due to Syringomyelia

Siringomiyeliye Bağlı Unilateral Hiperhidrosis ve Kontralateral Horner Sendromu

Neşe Dericioğlu¹, Selçuk Palaoğlu²

¹Hacettepe University Faculty of Medicine, Department of Neurology, Ankara, Turkey

²Hacettepe University Faculty of Medicine, Department of Neurosurgery, Ankara, Turkey

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Dear editor,

A 40-year-old male patient was admitted to the neurology department due to extreme sweating on the left side of his face and body. His complaint had started four years ago and progressed slowly. Last year, he also noticed slight drooping of his right eyelid. Sixteen years ago, he had developed a headache accompanied by left upper extremity weakness and hypoesthesia. Radiological workup demonstrated a syrinx involving the C5-T9 segments of the spinal cord (Figure 1A). He underwent a syringo-pleural shunt operation at the level of T6-T7 segments (Figure 1B). His complaints largely subsided. He did not have hyperhidrosis then. Personal history revealed Erb-Duchenne palsy involving his left upper extremity. Neurologic examination demonstrated right sided Horner's syndrome, mild weakness in the left upper extremity (MRC grade 4/5) and generalized hyporeflexia. Patient photographs and starch-iodine test demonstrated increased sweating on the left side of his face and body (Figure 2). Apraclonidine test led to dilatation of the constricted pupil with elevation of the eyelid on the right side thus confirming the presence of Horner's syndrome. Cervico-thoracic spinal magnetic resonance imaging (MRI) showed syringomyelia between C2 and T8, predominantly on the right side and more cranially (Figure 3).

To the best of our knowledge, only one case with bilateral hyperhidrosis and unilateral Horner's syndrome due to syringomyelia (extending between C4-T8) was reported in the literature (1). Syringomyelia may be either idiopathic or due to spinal cord injury. It has been suggested that one of the possible mechanisms may be birth trauma leading to hematomyelia

or arachnoid scarring. Our patient had Erb-Duchenne palsy suggesting that he may have had perinatal spinal injury. In some

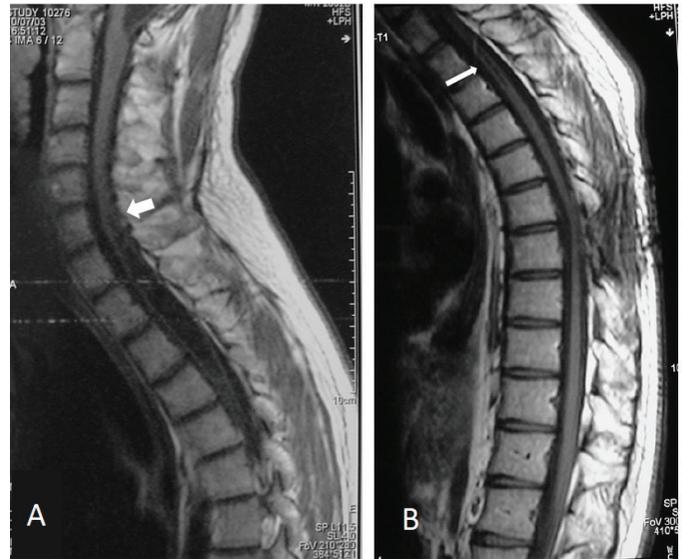


Figure 1. T1W sagittal MR imaging section of the spinal cord at cervical-upper thoracic level demonstrates the upper border of the syrinx (thick white arrow) (A); eight months later, postoperative MR imaging of the thoracic level indicates significant resolution of the syrinx cavity (thin white arrow) (B)

MR: Magnetic resonance

Address for Correspondence/Yazışma Adresi: Prof. Neşe Dericioğlu MD, Hacettepe University Faculty of Medicine, Department of Neurology, Ankara, Turkey
Phone: +90 312 305 18 09 E-mail: nesedr@hacettepe.edu.tr ORCID: orcid.org/0000-0003-2465-3017

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patients, syringomyelia is known to present years after injury, usually with pain, spasticity and motor deficits. Our patient's complaints remitted after surgery. However, 12 years later he presented with hyperhidrosis affecting the left side of his face and body, accompanied by right sided Horner's syndrome. *De novo* development of these symptoms was accompanied by progression of the syrinx cavity cranially, as was demonstrated by extension of the upper limit of the syrinx to C2 level on cervical MRI. The occurrence of right sided Horner's syndrome and left sided hyperhidrosis may perhaps be explained by the asymmetric appearance of the syrinx cavity in the upper cervical segments.

Sweat glands are innervated by the sympathetic nervous system, the fibers of which are thought to originate in the cortex

(perhaps operculum), traverse the ipsilateral hypothalamus and brain stem, cross at the spinal level and then make terminal connections with the contralateral sympathetic sudomotor neurons at segments T1-L2. Lesions of the cerebral hemispheres, hypothalamus, pons, medulla or cervical spinal cord may result in contralateral hyperhidrosis. Several mechanisms have been proposed: 1- Crossed inhibitory hypothalamo-spinal sympathetic pathway, which controls sweating of the contralateral face and body (2); 2- Increased stimulation of the ipsilateral sympathetic preganglionic neurons (3); 3- Compensatory hyperhidrosis on the contralateral side of the body (4). Our findings overall may be in favor of the presence of a crossed inhibitory input to sympathetic ganglia.

Ethics

Informed Consent: Written consent was obtained.

Peer-review: Externally peer-reviewed.

Authorship Contributions

Surgical and Medical Practices: S.P., Concept: N.D., Design: N.D., Data Collection or Processing: N.D., Analysis or Interpretation: N.D., S.P., Literature Search: N.D., Writing: N.D.

Conflict of Interest: No conflict of interest was declared by the authors.

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Figure 2. Starch-iodine test demonstrates involvement of the left side of the patient's face (more prominent on the forehead) (A); sweat droplets can be seen at the back of the head on the left (B); increased sweating on the left side of the patient's back is noticeable (C)

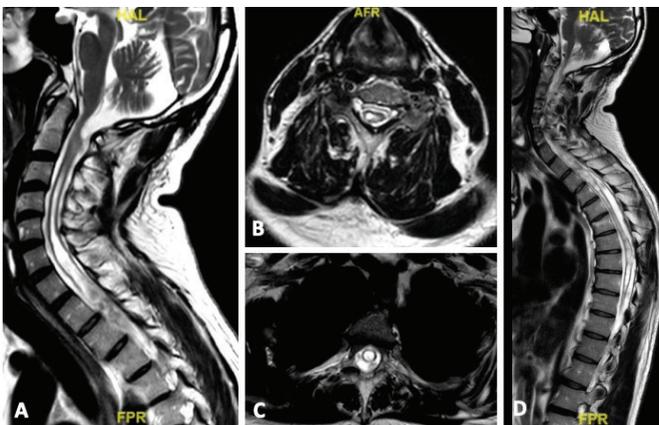


Figure 3. Sagittal T2W spinal MR imaging demonstrates the syrinx cavity at the cervical level (A); the syrinx is located asymmetrically and involves the right side of the cord between C2-C5 (B, level C5), more caudally it is quite symmetric (C, level T3); the lower border of the syrinx can be seen at the T8 level (D)

MR: Magnetic resonance