Case of the Month

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FIGURE 1
MRI of the cervical spine

CASE

The patient is a 27-year-old female who presented with progressive neck pain and extremity weakness. She described the pain as a constant, dull ache that radiated to her shoulders (the left more than the right). The patient also complained of progressive weakness in her left arm and both legs and of numbness in her left arm.

HISTORY The pain began 2 years ago. The patient denied any trauma or cervical manipulation. The pain had waxed and waned over time but had become increasingly severe in the past 3 months. She took ibuprofen, but it did not relieve her pain. She denied fever or recent infections. She had no significant medical history and was right hand dominant.

PHYSICAL EXAMINATION The patient's pain on a verbal analog scale was 8/10. On physical examination, she was found to be awake, alert, and oriented. The cranial nerves were intact. The cervical spine was tender to palpation in the left paraspinal region and trapezius muscle. On motor examination, the right arm was 4/5 throughout; left arm, 1/5 distal, 2/5 proximal; left leg, 2/5 throughout; right leg, 4+/5 throughout. Sensory examination revealed markedly diminished sensation to the left arm. Reflexes were 3+ in the left brachial and patella tendons and 2+ on the right. An MRI of the cervical spine was obtained (see Figure 1).

WHAT IS YOUR DIAGNOSIS?

- *Epidural abscess*
- *Herniated disk*
- *Schwannoma*
- *Meningioma*

DISCUSSION

The MRI revealed a 2-cm × 2.5-cm enhancing extramedullary mass on the left at the C3-4 level, resulting in spinal cord displacement. The mass was noted to exit the neural foramen and abut the left vertebral artery. These findings are consistant with a schwannoma of the C4 nerve root.

TREATMENT A neurosurgeon was consulted. The patient was started on IV corticosteroids and scheduled for surgical resection. She underwent a C3-4 laminectomy, left facetectomy, and removal of the tumor. The patient started a physical therapy program on the second postoperative day. She progressed rapidly and was soon able to ambulate without an assistive device. On discharge, she had a residual sensory deficit and 3+/5 motor function in the left arm. She continued physical and occupational therapy as an outpatient.

COMMENT Nerve sheath tumors account for 25% of intramedullary spinal cord tumors. Schwannomas comprise 65% of all nerve sheath tumors; the remainder are neurofibromas. Schwannomas, considered benign and slow growing, are caused by the proliferation of Schwann cells. Because of their origin, schwannomas have a distinct point of attachment to the nerve. Their gross appearance is smooth and globular. Approximately 15% of schwannomas extend though the dorsal nerve root sheath resulting in a dumbell or hourglass appearance, thus having an intradural and extradural component. Peak incidence is in the fourth to sixth decades, without predilection of sex.

The clinical presentation varies, depending on the location of the tumor. After reaching a critical mass, schwannomas begin to compromise a significant amount of the spinal canal. The most common symptom is pain, usually radicular in distribution. Weakness is the most common finding on physical examination.[1] In patients presenting with progressive neurologic symptoms and physical findings thought to be central in nature, a space-occupying lesion of the spinal canal should be included in the differential diagnosis. The diagnostic test of choice is MRI of the spine with gadolinium contrast. Schwannomas commonly appear as isointense to somewhat hypointense lesions on T1-weighted images and have some degree of enhancement with constrast administration.

The treatment for schwannoma is surgical removal via laminectomy and unilateral facetectomy. The facetectomy allows access to dumbbell-shaped lesions without causing structural instability. The schwannoma is removed along with its point of origin, which is usually the dorsal sensory root itself.[2] The patient will have minor postoperative residual sensory deficits as a result. The procedure is well-tolerated and followed by occupational and physical therapy to maximize recovery. JAAPA

Frank Eisinger practices in the Division of Neurosurgery, Department of Surgery, at the New York Hospital Queens, New York City. He has indicated no relationships to disclose relating to the content of this article.

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