A 12-year-old Girl with Sudden Onset of Numbness and Tingling Feet

Julia Whitefield, MD, PhD, FAAP

A 12-year-old, previously healthy girl presented to the Pediatric Emergency Department with back pain and decreased sensation and tingling in her bilateral lower extremities. She had back pain for the past 2 months; the initial episode lasted 2 to 3 days. At that point, she had missed 1 day of school. The pain disappeared, and

she returned to her normal activities, including playing soccer and basketball. In fact, she stated, because she was an avid soccer player, that she thought she might have hurt herself. The night before being seen, she noticed back pain between her shoulder blades, together with the decreased sensation, which started in her feet. She was seen in a pediatric urgent care center, where she was examined and discharged with the advice to “go to the Emergency Department,” should her symptoms worsen. By the time she presented to the Emergency Department via Emergency Medical Services on the evening of the next day, her pain had intensified since the morning of admission, and the numbness in her legs had now ascended to the level of her umbilicus. She denied headache, fever, chills, night sweats, and change in her weight. There was no shortness of breath, no cough, no chest or abdominal pain, no urinary or bowel incontinence, no loss of coordination or strength, and no change in her gait.

Upon arrival, she was pleasant and in no acute distress. Her vital signs were stable. Her entire exam was nor-

For diagnosis, see page 273.

Editor’s note: Each month, this department features a discussion of an unusual diagnosis in genetics, radiology, or dermatology. A description and images are presented, with the diagnosis and an explanation of how the diagnosis was determined following. As always, your comments are welcome.
normal, with the exception of her neurological examination. Her cranial nerves 2 to 12 were intact, her strength was 5/5 in all four extremities, and she had 2+ deep tendon reflexes in all four extremities. However, her sensation was decreased equally in her lower extremities, including her feet, to the level of T10. Upon thorough palpation, she did report tenderness of her upper thoracic spine.

Her laboratory evaluation showed normal values, including a complete white count with differential and electrolytes, including phosphate, magnesium, and calcium. She had a normal sedimentation rate of 6 and a C-reactive protein of less than 0.6. Her uric acid was 4.7 and her LDH 441, which were all within normal limits.

**RADIOGRAPHY**

Plain films of her thoracic and lumbar spine were obtained and showed a right apical mass with irregularity of the adjacent T2 vertebral body (see Figure 1, page 271). A computerized tomography (CT) scan of her chest confirmed a right paraspinal mass, with a soft tissue component extending into the spinal canal, causing displacement of the spinal cord. The soft tissue mass extended into the left paraspinal region, also. In addition, there was a pathological wedge compression of the T2 vertebral body (see Figure 2A and Figure 2B). The subsequent magnetic resonance imaging (MRI) of her thoracic spine expanded the diagnosis to a mixed solid and cystic right upper hemithoracic tumor with a pathologic fracture of T2, tumor extension into the left anterior epidural space and, to a lesser degree posterior epidural space, from C7-T4 causing compression and displacement of the spinal cord with resulting mildly increased signal within the cord at the lower T3 level.

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**Figure 2.** (A and B) CT of chest showing a right 3.5-cm x 4.5-cm apical paraspinal mass at the level of T2, with soft tissue component extending into the spinal canal, causing posterior displacement of the spinal cord, with a smaller component of soft tissue extending into the left paraspinal region. (C and D) MRI of T-spine showing a mixed solid and cystic right upper hemithoracic tumor with pathologic fracture of T2 and tumor extension into the left anterior epidural space (and to a lesser degree posterior epidural space) from C2-T4 causing compression and displacement of the spinal cord with resulting mildly increased signal within the cord at the lower T3 level.
Patients with the above described complaints more likely than not (greater than 50%) have serious medical problems. What pointed us to the final diagnosis was the complete history, confirmed by a complete physical examination and medical evaluation. Psychosomatic back and neck pain should be a diagnosis by exclusion only.

REFERENCES

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DISCUSSION
About 6% of all childhood malignancies are malignant bone tumors, of which the two most frequently encountered are osteosarcoma and Ewing’s sarcoma. In the United States, the annual incidence in children younger than 20 years is 8.7 per million. Ewing’s sarcoma was first described by James Ewing in 1921 as an osteolytic lesion of the radius in a 14-year-old girl. The Ewing’s family of sarcomas (Ewing’s sarcoma and primitive neuroectodermal tumor, or PNET) exists in two entities: osseous Ewing’s sarcoma and extraosseous (extraskeletal, or EES) Ewing’s sarcoma. Its incidence is 2.1 per million. About one-third of children will present with metastases. Ewing’s sarcomas seem to occur more commonly in males.1-6 Treatment consisting of a combination of surgery, chemotherapy, and radiotherapy typically offers the best chance of survival. Osseous spinal and extraosseous spinal Ewing’s sarcomas are rare.1-3,7-9

Back and neck pain in the pediatric population need to be taken seriously. Neurologic dysfunction is common in patients with cancer. It was the second most common complaint after headaches in pediatric patients with cancer. One-half of these patients will have a serious and organic cause.5,9-11 Back and neck pain, coupled with neurological symptoms, will have a predictive value of positive findings of 100%.12 Review of the literature summarizes prevalence of and the most common symptoms as back pain and/or radicular pain (100%), paresis of one or both legs (83%), sensory disturbances, and bladder and bowel dysfunction. Diagnostic delay was 5.8 months. Ominous symptoms lasted longer than 4 weeks. Solid cancers were, by far, overrepresented in the group of patients with headache, neck, and back pain.1,2,10 A systematic approach of pediatric patients with back pain is of utmost importance.4,5,12,13

CONCLUSIONS
Patients with the above described complaints more likely than not (greater than 50%) have serious medical problems. What pointed us to the final diagnosis was the complete history, confirmed by a complete physical examination and medical evaluation. Psychosomatic back and neck pain should be a diagnosis by exclusion only.