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NECK PAIN IN A 12-YEAR-OLD FEMALE: AN UNUSUAL DIAGNOSIS

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☐ **Abstract—Background: Neck pain in the pediatric population has a broad differential diagnosis, ranging from benign to imminently life-threatening causes. Trauma and infection represent the most common etiologies of pediatric neck pain in the pediatric emergency department (PED) setting. Malignancy, though a rare cause of pediatric neck pain, is important to consider in patients with acquired torticollis or focal neurologic signs. Case Report: We describe the case of a previously healthy 12-year-old female who presented to the PED with neck pain radiating down her upper extremities. The physical examination revealed diminished strength in her upper extremities compared to her lower extremities. Further evaluation revealed lymphadenopathy in the cervical and mediastinal areas and an epidural tumor in the cervical spinal column. The ultimate diagnosis was Hodgkin lymphoma presenting in an unusual manner with cervical spinal cord compression. Why Should an Emergency Physician be Aware of This?: Neck pain is a common chief complaint among pediatric patients in the emergency setting. This case of spinal cord compression caused by malignancy illustrates the necessity of detailed spinal imaging in patients with neck pain and "red flag" signs, including but not limited to an abnormal neurologic examination.** © 2016 Elsevier Inc. All rights reserved.

☐ **Keywords—Hodgkin lymphoma; neck pain; pediatrics; spinal cord compression; torticollis**

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INTRODUCTION

Neck pain is a common complaint among adult and pediatric patients alike in emergency settings. The differential diagnosis of neck pain in children presenting to the pediatric emergency department (PED) is broad. In most cases, history and physical examination alone are sufficient to arrive at the diagnosis. However, certain patients, including those with focal neurologic signs, require imaging. We describe a pediatric patient with Hodgkin lymphoma who presented with cervical spinal cord compression. While reported in rare adult cases, to our knowledge this has never been reported in a child.

CASE REPORT

A previously healthy 12-year-old female presented to the PED with a chief complaint of neck pain. The pain began approximately 1 month before presentation without a clear inciting factor. There was no preceding trauma. The pain was poorly localized, persistent, and worsening in its progression. One week before presentation, it began to radiate down her bilateral arms. She denied numbness, tingling, or decreased strength in any of her extremities. A review of systems was negative for loss of appetite, throat pain, dysphagia, fever, or night sweats. She reported weight loss during an episode of pneumonia diagnosed by her pediatrician 1 month before presentation, but had since returned to her baseline weight.

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Objectively, the patient was afebrile with a heart rate of 121 beats/min, blood pressure of 115/72 mm Hg, and a respiratory rate of 21 breaths/min. The physical examination revealed a female in moderate distress. A head, eye, ear, nose, and throat examination revealed equally round and reactive pupils and intact extraocular movements. Her nares and oropharynx were unremarkable. Likewise, her heart, lung, and abdominal examinations were normal. The patient was noted to have a few small, mobile posterior cervical lymph nodes, but otherwise no cervical, axillary, or inguinal lymphadenopathy was noted. She had tenderness to palpation of all cervical and thoracic vertebrae and the paraspinal regions bilaterally in the cervical and thoracic regions. She demonstrated elevation of the right shoulder compared to the left, and was holding her head and neck laterally tilted to the left. Flexion and extension of the neck were limited secondary to pain. Strength was 4/5 in the bilateral upper extremities, whereas lower extremity strength was 5/5. Upper and lower extremity reflexes were 2+ and symmetric. Sensation was intact throughout.

The differential diagnosis included cervical osteomyelitis, myositis, abscess, torticollis, spinal cord compression caused by hematoma or mass lesion, and malignancy within the surrounding muscular, osseous, or nervous tissue.

Initial laboratory studies were significant for a white blood cell count of 4.4×10^9/L with 59% neutrophils, 29% lymphocytes, 10% monocytes, 0% basophils, and 2% eosinophils. Hemoglobin was 13.0 g/dL, hematocrit was 37.8%, and her platelet count was 232×10^9/L. A complete metabolic panel revealed sodium 137 mEq/L, potassium 4.2 mEq/L, chloride 100 mEq/L, carbon dioxide 27 mEq/L, blood urea nitrogen 14 mg/dL, creatinine 0.6 mg/dL, glucose 83 mg/dL, calcium 10.0 mg/dL, magnesium 1.5 mEq/L, phosphorus 5.7 mg/dL (normal, 4.5–5.5 mg/dL), total bilirubin 0.6 mg/dL, alanine aminotransferase 53 IU/L (normal, <40 IU/L), aspartate aminotransferase 38 IU/L, and alkaline phosphatase 196 IU/L. Her uric acid level was 5.0 mg/dL (normal, 2.0–5.5 mg/dL) and lactate dehydrogenase was 159 IU/L (normal, <170 IU/L). Her erythrocyte sedimentation rate was elevated at 35 mm/hour (normal, 0–13 mm/hour). Epstein–Barr virus, cytomegalovirus, mycoplasma, toxoplasmosis, *Bartonella henselae*, and histoplasmosis studies were sent and were ultimately all negative.

Cervical spine films revealed reversal of normal cervical lordosis without bony or soft tissue abnormalities. A computed tomography (CT) scan of the neck with intravenous contrast revealed an enhancing 2.0 cm × 1.1 cm circular lymph node inferior to the right sternocleidomastoid muscle and an intraspinal mass in the lower cervical region with a possible widening of the foramen at C7–T1. Regarding other imaging, thoracic spine films were unremarkable with the exception of a single round opacity overlying the right pulmonary artery; a follow-up examination with a CT scan of the chest was recommended. This CT scan of the chest revealed a 2.3 cm × 1.6 cm right-sided singular hilar lymph node and a 4-mm left-sided calcified pulmonary nodule.

The patient was admitted to the hospital for further evaluation and management. On the evening of admission, she developed urinary retention and tingling in all 4 extremities. These symptoms rapidly progressed to complete paraplegia of her arms and legs with preserved sensation. An emergent magnetic resonance imaging (MRI) scan of the spine revealed a large epidural lesion extending from the paraspinal region and causing cord compression from C3–C7 (Figure 1). In addition, multiple vertebral body lesions were noted. She received intravenous methylprednisolone and underwent emergent osteoplastic laminotomy (C3–C7), miniplate fixation of the laminar arch (C3–C7), and resection of the intraspinal epidural tumor with tumor biopsy. Pathologic evaluation revealed classical Hodgkin lymphoma.

The patient was treated with multiagent chemotherapy followed by radiation. After her initial decompression surgery, she eventually required cervical laminectomy and spinal fusion. She did not have any residual neurologic deficits but has had chronic back and neck pain. Follow-up positron emission tomography scans up to

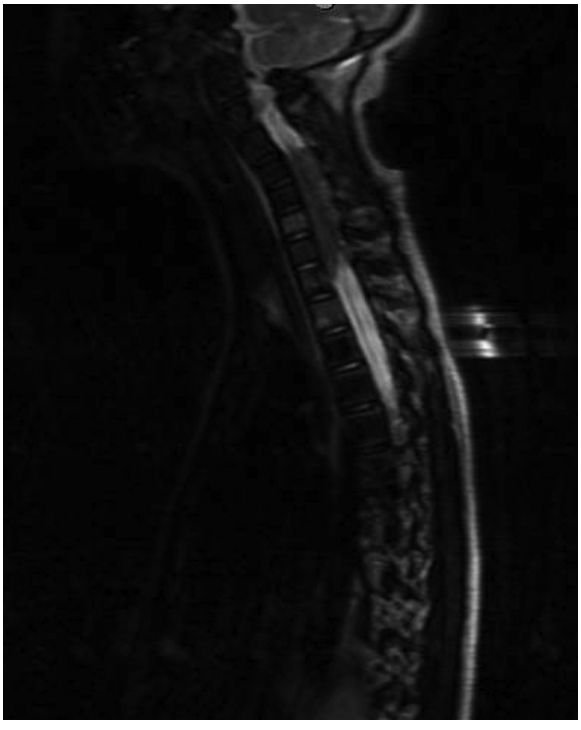

Figure 1. A magnetic resonance imaging scan of the spine, sagittal cut, revealing an epidural lesion compressing the spinal cord from C3–C7.