IMAGE OF THE MONTH

A computed tomography scan performed at that facility showed retropulsion of L1 of 4.2 mm as well as extravasation of cement, with possible avascular necrosis of L1. On the basis of these findings, the patient was immediately transferred to Conemaugh Memorial Medical Center in Johnstown, Pa.

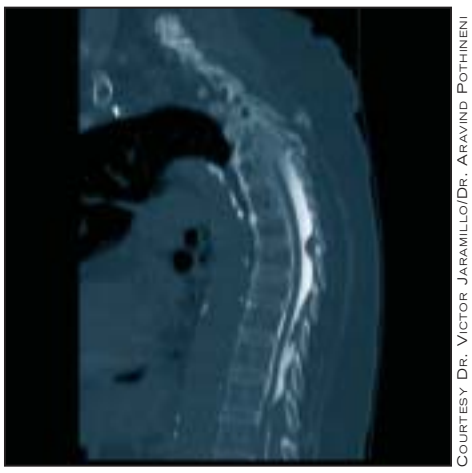
On clinical exam, Dr. Victor Jaramillo and Dr. Aravind Pothineni found the patient to be paraplegic with sensory level at T10-T11. All sensory modalities up to that level were lost. The woman had areflexia and extensor plantar response. The neurology team suspected an acute spinal cord compression or spinal shock syndrome and arranged for a lumbosacral and thoracic CT myelogram. MRI was not feasible because of the pacemaker.

The CT myelogram showed bloody CSF and epidural hematoma with compression of the spinal cord from T8 to L2. The neurosurgical team was informed of the result and the patient was taken to the OR for decompressive laminectomy. Postoperatively, the woman has had little recovery of the deficit. She was subsequently transferred to rehabilitation unit.

Spinal epidural hematoma is a rare event with an incidence of 1 per 1,000,000 in the general population. Primarily epidural hematoma occurs secondary to trauma. Spontaneous spinal epidural hematoma is described in pregnancy, connective tissue disorders, vascular malformations, hematologic malignancies, and coagulopathies (congenital or acquired).

Within the brain and spinal cord, CT may differentiate abnormal from normal soft tissues, particularly after intravenous administration of iodinated contrast agents. With contrast agents, an enhancement pattern outlining the gyral surface of the brain is seen, but rarely encountered in hematoma. Standard CT techniques still do not differentiate partial ischemia from infarction. A complete history complemented with a well-focused neurologic exam may overcome these CT technical limitations.

—Kerri Wachter



COURTESY DR. VICTOR JARAMILLO/DR. ARAVIND POTHINENI

This CT myelogram reveals epidural hematoma and cord compression.

CT Is Best for Risky Cortical Spine Injuries

ALBUQUERQUE — Computed tomography imaging with coronal and sagittal reconstructions beat conventional x-rays at diagnosing cervical spine injuries in high-risk pediatric trauma patients in a study.

Dr. Gregory A. Mencio of Vanderbilt University in Nashville, Tenn., reviewed 413 consecutive charts of high-risk patients younger than 18 years at a level I trauma center. All were evaluated by CT scan and conventional five-view x-ray of the cervical spine.

CT scanning detected 71 of 74 cervical spine injuries in the patients, who had an average age of 11 years. Only 50 injuries were detected by x-ray. Combining the two brought the detection rate to 72 cases—just 1 more than diagnosed by CT, Dr. Mencio said at the annual meeting of the Pediatric Orthopaedic Society of North America.

"A lot of these kids have multiple systems injury," Dr. Mencio said. "Do a CT of the head and neck and torso and total spine. It takes about 10 minutes to scan them from top to bottom, and you have all the information that you need."

The researchers estimated that the radiation dose was lower with CT, but the costs were higher: $1,800 for CT, vs. $500 for x-rays. For both, Dr. Mencio noted conflicting data appear in the literature.

He offered these recommendations:

► CT of the cervical spine with sagittal and coronal reconstructions is the initial imaging modality of choice for high-risk pediatric trauma patients.

► Conventional x-ray may be used to elucidate dynamic instability and follow alignment over time.

► Magnetic resonance imaging is used to evaluate patients with neurologic injuries and in obtunded patients who risk prolonged immobilization.

—Jane Salodof MacNeil