BRIEFLY NOTED

Potential Hazard

Traction Weights and Magnetic Resonance Imaging

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CURRENT ENTHUSIASM for magnetic resonance imaging (MRI) has provided expanding clinical applications of this noninvasive imaging technique. Particularly in the area of the spine and extremity trauma, the role of MRI is rapidly evolving. It is not difficult to envisage clinical situations where it would be advantageous to obtain an MRI scan of a patient in skeletal or spinal (specifically, cervical) traction. This case report is presented to emphasize a previously unreported hazard associated with the use of traction weights during MRI.

CASE REPORT

A 32-year-old man was transferred to the Regional Spinal Cord Injury Center of Delaware Valley from an outlying hospital with a C6–7 bilateral facet dislocation after a motor vehicle accident (Figure 1). Attempts at closed reduction with increasing cervical traction applied with Gardner-Wells tongs had been unsuccessful. The patient's neurologic examination on admission detected distal lower extremity weakness with bilateral quadriceps rated at four fifths strength, tibialis anterior at three fifths plus, and extensor hallucis longus and gastrocnemius/soleus strength of three fifths. Two further attempts at closed reduction with serially increased cervical traction were also unsuccessful. The decision was made to proceed with an open reduction. To exclude any posterior disc extrusion, an MRI was ordered of the cervical spine.[2] With the discontinuation of all traction weights, the patient complained of new onset tingling in his upper extremities bilaterally. It was, therefore, decided to obtain the MRI scan with the patient in cervical traction. The MRI-compatible traction tongs (PMT, Chanhassen, MN) were used. The contraindication for the use of ferromagnetic materials in the strong magnetic field of the MRI scanner is well known.[1,3,5–7,10,11,13–16] After the patient was positioned on the scanner gantry with cervical traction being maintained manually, the traction "sand bags" were brought into the scanner room. The bags were forcibly drawn into the scanner, striking the patient, and pinning a nurse to the side of the scanner. This necessitated discontinuation of the study and incapacitation of the scanner for 24 hours. Maintenance technologists were able to split the traction bag casings and, in piecemeal fashion, remove what turned out to be iron filings (Figure 2). The patient fortunately suffered no worsening of his injury and was taken to the operating room where open reduction and Rogers-type posterior wiring and fusion were done.

DISCUSSION

Many ferromagnetic and nonferromagnetic implants have been identified whose presence constitutes a contraindication or relative contraindication to MRI scanning—either from danger of torque and motion of the implant by the magnetic field or because of imaging artifact.[1,3–16] Current MRI scanners employ a standing magnetic field of approximately 1–2 Tesla. The force of a field of this magnitude on small ferromagnetic vascular clips is sufficient to twist such clips off

Fig 1. Cross table lateral radiograph of patient in cervical traction. Note bilateral C6–7 facet dislocation.

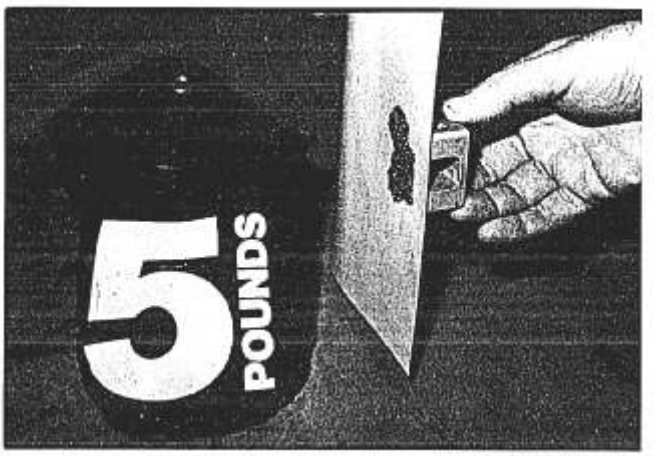

Fig 2. Traction weight bag opened. Note ferromagnetic behavior of contents at right.

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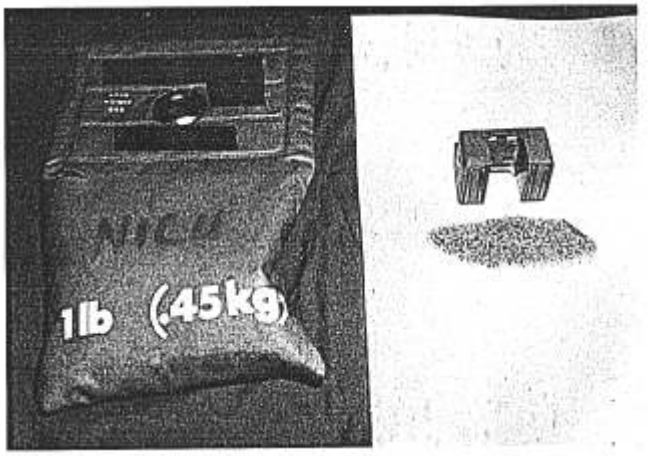

Fig 3. Different brand traction weight bag opened. Note nonferromagnetic behavior of contents.

arteries.[11] The warnings against the presence of ferromagnetic objects in the scanner room are also well known.

The particular traction weight sandbags mentioned in this case report were not labeled as to content. Many commercial traction weight bags are available which are filled with nonferromagnetic material (Figure 3). Our current recommendation is to use water-weight traction if the composition of the traction bag contents is unknown. Water bags are available commercially which can provide up to approximately 20 pounds per bag traction weight (Chick—AOA, Greenwood, SC).

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Vanished Spinal Cord in a Paraplegic Child

A Case Report

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TRAUMA to the spinal cord and various nontraumatic conditions, such as spinal infarction, inflammation, and degenerative disease, may lead to paraplegia. In such cases, the spinal cord below the injured site rarely disappears, although it can be atrophied or partially resolved. Such disappearance has been observed only in a few cases. Recently we encountered such a case in which the spinal cord below the paralyzed site was not detected by myelography and computed tomographic myelography (CTM). We report it as follows.

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CASE REPORT

The patient was an 8-year-old girl. Immediately after she hyperextended her trunk during gymnastic exercise, paraparesis of both legs occurred suddenly without pain. When she was carried to our hospital, active movement of both legs was poor. There had been no disturbance in consciousness or cranial nerve function. Paraparesis on admission progressed to flaccid complete paraplegia in several hours. Tendon reflexes were absent in lower limbs but normal in upper ones, and no pathologic reflexes were noted. The senses of pain, touch, and temperature were lost completely below the level of L1. Her temperature was 37.7 C. Signs of meningial irritation were not detected. Micturition and voluntary urination were absent.

At the onset, blood analysis showed leukocytosis of 14,100/mm^3. Blood chemistory and urinalysis were normal (Table 1). Her cerebrospinal fluid was not