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### **MR in spinal tuberculous abscess.**

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# CORRESPONDENCE

## Abbreviated Reports

### Use of a Cervical Spine Collar During MR Studies

MR studies are highly sensitive to patient motion, which can, at the extreme, render them completely uninterpretable. In particular, MR exams of inherently poor signal, such as T2-weighted images or surface-coil images, suffer demonstrably. Many techniques have been attempted to minimize and to limit motion caused by the patient during these studies. While tape and velcro straps can restrict head motion, in some cases its application does not prove beneficial; moreover, a small patient may not provide the correct leverage for a velcro strap. Respiratory motion may be transferred to the head and spine as a consequence of the patient's interacting with the contour of the table. Attempts to completely restrict and secure the patient with pads or even vacuum cushions create an environment that increases the patient's anxiety and produces a higher risk that the exam will be terminated as a consequence of claustrophobia.

We report here our favorable results with a soft cervical spine collar. These collars have several advantages: they come in different sizes for different-size patients; they are readily applied with a velcro

fastener; they do not add to the "enclosed" feeling the magnet bore produces; they moderate and dampen any head motion; and they are useful for head exams as well as for cervical spine exams.

For cervical spine exams the collar is positioned so that the velcro strap fastener is placed between the surface coil and the patient to minimize distance between the surface coil and the anatomy of interest (Fig. 1). Image artifacts from swallowing and jaw movement, as well as from respiration and gross head turning, are reduced with the use of the soft collar. Other methods of patient immobilization have not met with as much success.

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### MR in Spinal Tuberculous Abscess

MR imaging is a valuable tool for demonstrating various pathologic conditions. It is now in widespread use and, especially with spinal lesions, has shown distinct advantages over CT scanning [1, 2]. In this instance, a 23-year-old man presented with minimal neurologic signs (weakness of left opponens pollicis, hypothenar wasting, and bilaterally upgoing plantar responses) and unexplained weight loss, over a 3-month period. Initial diagnosis, after routine plain films,



Fig. 1.—Soft cervical spine collars provide an inexpensive and quick way to immobilize patients for MR exams of the cervical spine and head in a manner that achieves a large degree of patient compliance.

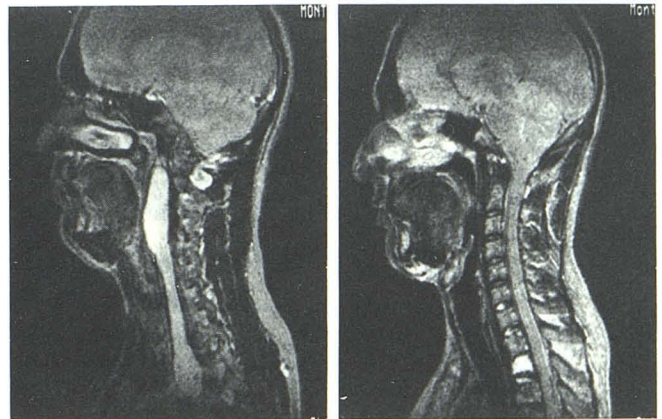


Fig. 1.—MR imaging with SE 1200/50 showing high-intensity prevertebral lesion extending from upper thoracic to nasopharynx.

Fig. 2.—MR imaging 5 months after aspiration in SE 1200/50 demonstrating high-intensity signal from T2 vertebral body and no prevertebral abscess.



tomography, myelography, and CT metrizamide myelography (CTMM), was lymphoma. These investigations had revealed a mediastinal mass with bony destruction of the body of the second thoracic vertebra and mild extradural compression at the same level. None of these techniques revealed the true extent of the lesion. MR clearly showed this mediastinal mass to be an abscess extending from the upper thoracic region to the nasopharynx (Fig. 1). Furthermore, because MR showed the lesion as nonlocal, we decided to aspirate it through its dependent (thoracic) portion. This procedure, with subsequent antituberculous treatment, produced a complete resolution of the abscess as documented by the follow-up MR scan (Fig. 2).

We feel MR is definitely superior to CT scanning for diagnosing osteomyelitis and abscess [3]. In our patient, it not only delineated the extent of the disease and its relation to normal anatomy, but facilitated treatment.

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#### Air in the Cavernous Sinus: A New Sign of Septic Cavernous Sinus Thrombosis

Several articles have documented the importance of CT scanning in the diagnosis of cavernous sinus thrombosis [1-4]. A recent article

by Ahmadi et al. [1] reviewed the CT literature on this subject and presented four cases of their own in which multiple irregular filling defects were seen in the enhancing cavernous sinus. We report an apparently unique case of air within the cavernous sinus bilaterally in a patient with proven septic cavernous sinus thrombosis.

#### Case Report

An 18-year-old black man presented with primary complaints of headache, symptoms of upper respiratory infection, and right eye pain. A diagnosis of right otitis media was made and treatment with amoxicillin was begun. The patient returned to the emergency room 2 days later with a fixed right pupil, total right ophthalmoplegia, and left sixth nerve paresis. He was transferred to North Carolina Memorial Hospital.

Examination at the hospital revealed a diaphoretic man with clear sensorium, temperature 39.2°C, and markedly decreased vision in the right eye as well as a fixed dilated right pupil and total ophthalmoplegia. There was no proptosis of either eye. Left sixth nerve palsy was also noted. There was slight nuchal rigidity and a positive Brudzinski sign, but no other neurologic findings. Lumbar puncture revealed xanthochromic fluid with 780 RBC/mm<sup>3</sup> and a total nucleated cell count of 4200/mm<sup>3</sup>; 80% of the cells were neutrophils, and macrophages and atypical lymphs were also present. The CSF glucose was 6 mg/dl and protein was 560 mg/dl. A CT scan on the day of admission showed opacification of the right maxillary, ethmoid, and sphenoid sinuses, as well as air within both cavernous sinuses (Figs. 1A and 1B). No brain abscess was identified. Cultures of both blood and sinus grew *Peptostreptococcus anaerobius* and *Fusobacterium nucleatum*.

Two days later, the patient developed a left hemiparesis. Cerebral angiography revealed bilateral severe stenosis of the cavernous internal carotid arteries bifurcation and a right intracavernous carotid artery aneurysm (Fig. 2). The cavernous sinuses did not fill. The patient died 3 days later.

Gross examination of the base of the skull revealed diffuse hemorrhage; the clot distended both cavernous sinuses. Microscopic examination of the base of the skull showed an acute osteomyelitis of the bone extending from the paranasal sinuses to the dura. In both

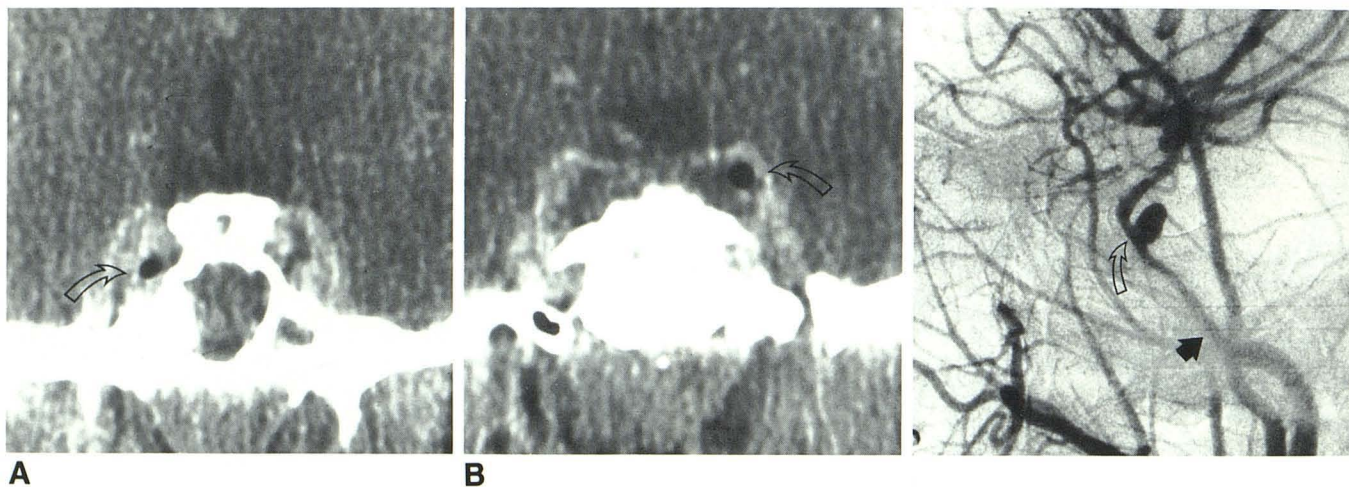


Fig. 1.—A, Coronal CT scan with contrast infusion shows air within right cavernous sinus (arrow), bulging of sinus walls, and opacity of sphenoid sinus.

B, Another section more posterior shows air in left cavernous sinus (arrow), as well as irregular low-density areas within sinus, representing thrombus.

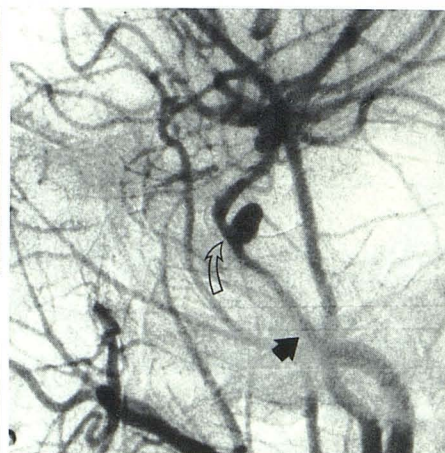


Fig. 2.—Right common carotid arteriogram reveals narrowing of internal carotid beginning at base of skull (solid arrow) continuing up cavernous carotid where 5 x 3 mm aneurysm is seen (open arrow).