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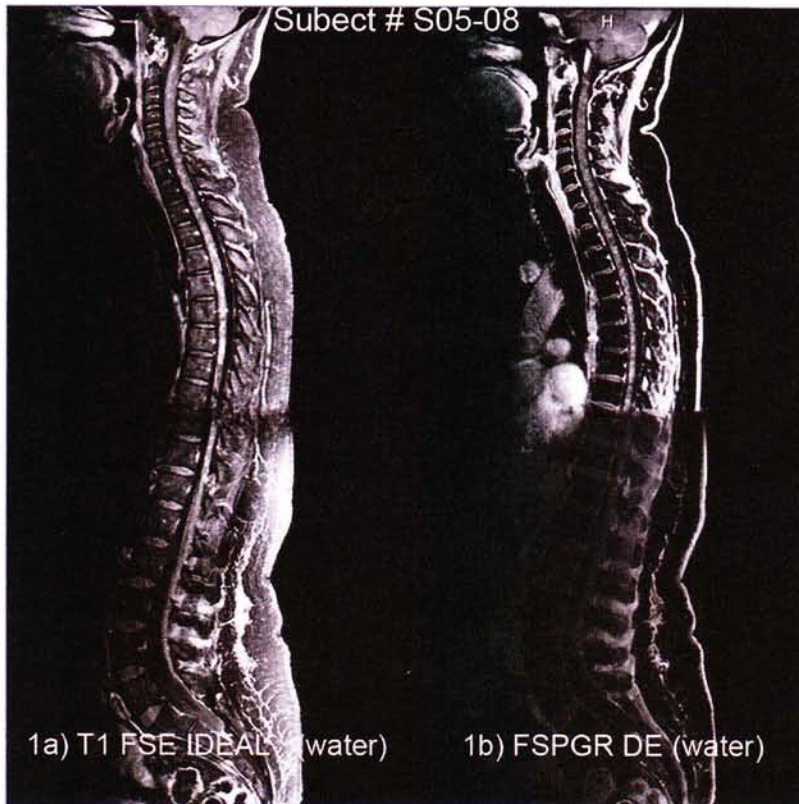
Spinal Involvement in Neurosarcoidosis: Rapid MRI Assessment

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Abstract: Purpose: Neurologic involvement is a serious complication of sarcoidosis. The frequency of spinal involvement is unclear in patients with neurosarcoidosis. We studied the frequency and extent of spinal involvement in patients with neurosarcoidosis.

Methods & Methods: In this prospective, IRB and HIPAA compliant study, 31 Interstitial Lung Disease/Sarcoid Clinic patients receiving systemic therapy with known neurosarcoidosis and symptoms suggesting spinal disease, were imaged from 3/22/08 -9/23/09. Following completion of their clinical contrast-enhanced brain MRI exam, all received a rapid Automated Spine Survey Iterative Scan Technique (ASSIST) total spine survey to include fat-water separation sequencing with 2D FSE IDEAL (Fig 1a) and/or 3D SPGR DE (Fig 1b); the latter, requiring 42 sec total scan time, and performed in 25/31 patients. Five patients were scanned twice and one three times for a total of 37 investigational spine exams. All but one was scanned at 3.0 T, the sole exception, having a programmable shunt, was imaged at 1.5T. Two neuroradiologists independently reviewed all images and scored for the presence of sarcoid-consistent medullary, intradural, dural, epidural or vertebral involvement at the cervical, thoracic, and lumbar sacral levels. Where scoring was discordant, the readings of one radiologist was used for this preliminary analysis.



Results: 8/31 patients (26%) had spine lesions consistent with sarcoidosis. Most of these (6/8) had multi-level (C, T, or LS) disease, including 8 cervical, 6 thoracic, and 3 lumbar-sacral. Five patients had multi-compartmental involvement. (see table) Epidural lipomatosis resulting from steroid therapy was incidentally noted in one patient without evidence of spinal sarcoid involvement.

Table 1. Distribution of Spinal Lesions

Subject	Age	Gender	Cervical	Thoracic	Lumbar
S01-08	58	F	m,i	m,i	
S03-08	41	F	i		
S05-08	50	F	m,i	m,i	
S06-08	64	M	m		
S10-08	29	F	v	d,v	v
S11-08	38	M	i	i	
S12-08	41	F	v	v	v
S19-08	49	F	v	v	v

m = medullary, i = intradural, d = dural, e = epidural, v= vertebral.

Conclusion: Spinal involvement was seen in more than a fourth of our patients, the majority exhibiting multilevel involvement, stressing the need for a full spinal MRI survey. Rapid post contrast fat/water separated ASSIST sequencing may be a useful adjunct to routine brain scanning in neurosarcoidosis patients.

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