

## **ISMRM syllabus submission**

### **Clinical abnormalities in patients with low back pain, not detectable on MR images.**

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Morphologic abnormalities of the spine are a common finding in asymptomatic patients. A normal MR examination, that is one without evidence of a morphologic abnormality may also be seen in patients who present with functional limitations or pain thought to be related to spinal disease. The explanation for this phenomenon is usually related to three broad categories.

First, symptom complex without a definable abnormality by available technology. Examples of this would include intrinsic neural disorders where existing imaging technology is unable to detect an abnormality. Another example would include so called "discogenic pain" where the key diagnostic feature is the provocative rather than the imaging aspect of the diagnostic examination.

The second category would include those who present with a symptom complex where no morphologic alteration is detectable by the employed technology. This might include intrinsic cord or neural disease in a patient examined by CT or a cortical bony abnormality not readily detectable by MR. Other examples might include soft tissue, bony or neural abnormalities that were not evident on the pulse sequences utilized or in the absence of contrast administration.

The third broad category includes patients who present with a symptom complex referable to the spine, where the true abnormality is not within the field of view. The most common examples of this include patients with neck and arm pain where the abnormality is a rotator cuff abnormality rather than cervical disease, thoracic outlet syndrome not included within the field of view and entities such as avascular necrosis of the femoral head that presents as low back and leg pain.

This presentation will address the most common neurological abnormalities associated with spinal disease. The signs and symptoms of neurological disease referable to the spine will be reviewed and the most common disorders which inhabit the above three categories will be discussed.