Helsinki 28.-31. May 2000

The 54th Nordic Radiological Congress • The 14th Nordic congress for Radiographers

Axial loading of the lumbar spine

K. Tallroth, Invited lecturer.
Department of Radiology, ORTON Ortopaedic Hospital,
Invalid Foundation, Helsinki, Finland.

Today we have three radiological methods – MR, CT and myelography – for examining patients with lower back pain and sciatica. MR has a direct multiplanar imaging capability and the best contrast resolution of the three modalities. It gives a good picture of the intervertebral discs and soft tissues in the spinal canal. CT provides the best spatial resolution and detail of bone structures and calcifications encroaching the spinal canal. After scanning it is possible to reformat images in other planes. Myelograms show the contrast-filled dural sac and the nerve root sleeves. As a myelogram can be taken in an upright position it is the only method that demonstrates the effect of weight bearing on the dural sac. Thus, it is possible to differentiate processes that impinge on neurological elements from those that do not cause compression.

J. Willén, B. Danielson and coworkers recently reported on the effect of axial loading of the lumbar spinal canal as demonstrated with MR and CT myelography. Although both examinations are performed with the patient in a supine position a handy device, DynaWell©, makes it possible to load the patient's lower body simulating the effect of an upright position.

The results of a modification of this compression technique are presented in this paper. Using a plain CT examination in conjunction with a complementary compression examination combines the advantages of weight-bearing myelography and cross-sectional imaging. The method is non-invasive, fast and cheap.

The effect of axial compression on the size of the dural sac at the three lowest intervertebral levels was registered in 71 patients with chronic lower back problems. As the diagnosis for many of the patients with central stenosis was established only with the compression examination, this method has been welcomed by clinicians and has become a routine procedure in our radiology department.

Reference: Imaging Together 2000, ISBN 952-5325-02-4 Helsinki 2000