Prolapsed Lumbar Disk: Value of CT in Diagnosis

M. Rovira, F. Romero, B. Ibarra, and O. Torrent

A group of 40 patients with symptoms of prolapsed lumbar disk, seven of which were recurrent after surgery, was studied by computed tomography. In all cases, the diagnosis was confirmed by myelography and posterior surgery. Computed tomography was performed after the disappearance of myelographic contrast medium. Positive herniated disk was shown by computed tomography in 88%. In postoperative cases, computed tomography after intravenous contrast enhancement favored the recognition of postoperative scar, rather than recurrent herniation. Computed tomography also facilitated the diagnosis of spondylotic lesions, which may accompany herniated disks. Computed tomography should reduce the need for myelography, which is reserved for cases with doubtful computed tomographic findings.

Despite recent computed tomographic (CT) advances, the diagnosis of herniated lumbar disks is not yet error-free [1, 2]. On the other hand, myelographic techniques are invasive and are not entirely reliable either [3–5]. We used CT without intrathecal contrast administration to locate herniated lumbar disks that were first confirmed by myelography and later proven by surgery, and compared the diagnostic efficacy of both techniques.

Subjects and Methods

We selected a group of 40 patients with sciatica in whom hernias were revealed by myelography and later confirmed by surgery. Of the 40 cases, 33 had not had previous surgery and seven were operated on previously for herniated disks and thus had a recurrence of sciatic syndrome. In all cases, CT was performed at least 24 hr after metrizamide myelography to ensure that no contrast material remained in the dural sac.

The level of the lesion was located and appropriate angles were calculated from lateral digital radiographs [5]. Sections of 4 mm were obtained, with special attention being paid to the level of the pathologic disk indicated by myelography.

Results

In 29 (88%) of the 33 nonoperated patients, herniated disk was confirmed by CT. In four patients (12%) the CT images did not show herniated disks (false-negatives), despite positive myelograms and the discovery of herniated disks at surgery.

In two of the seven recurrent cases, we were unable to find the lesions by CT. In three of the other five cases, CT showed the existence of a mass encroaching on the lumbar canal, which proved to be postoperative scarring. In the other two cases, recurrence of disk hernia was confirmed by CT. In the three cases of postoperative scarring, contrast enhancement of the scars facilitated diagnosis (fig. 1) [6].

Despite the accuracy of CT in depicting herniated disk, its 12% false-positive rate made myelography more reliable. However, in the true-positive cases, the CT images of disk hernia were so obvious that myelography could have been avoided [7, 8]. In addition to its clear demonstration, the extent of the hernias was more defined, especially in those more laterally located, which encroached on the foramina (fig. 2).
A

B

Fig. 3.—Asymmetry of epidural fat in lateral recesses facilitates diagnosis of disk hernia. A, Large left anterolateral disk hernia compresses epidural fat and lateral pouch. Dural sac is deformed by hernia. B, Hernia extends to right foramem. Epidural fat in lateral recess is not seen.

A

B

Fig. 4.—Calified disk hernias. A, Calcified right anterolateral hernia compresses right root sheath. B, Right disk hernia extends into foramina and shows calcification in its posterior aspect.

Discussion
CT without contrast enhancement is an efficient method of diagnosing herniated disks in the lumbar and lumbosacral regions and should be performed immediately after plain radiography [8]. Most myelographic studies would thus be avoided, being reserved for cases with equivocal CT findings or persistence of painful symptoms.

The advantages of CT in diagnosing herniated disks are: its greater accuracy in defining the limits and extent of the hernia; its ability to detect accompanying spondylotic pathology; its ability to distinguish between recurrent hernia and postoperative scarring; and the possible obviation of myelography.

REFERENCES