Abnormal Myelograms in Asymptomatic Patients

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In the evaluation of the patient with back, neck, arm, or leg pain, great reliance has been placed on the results of myelography. Occasionally, difficulties arise in the correlation of the results of this study with the clinical examination. The myelogram may be normal in the face of a clear-cut clinical syndrome, or defects in the positive contrast column may be found at levels other than those thought to be involved. Accordingly, more information has been needed relative to the incidence of myelographic abnormalities in the asymptomatic patient.

This paper reports the incidence of myelographic abnormalities in 300 patients who were studied by posterior fossa myelography to establish a diagnosis of acoustic tumor. Myelograms of the spinal axis were obtained even though these patients had no symptoms of cervical or lumbar nerve root compression at the time of the examination.

Methods

Each patient underwent iophendylate myelographic examination* of the posterior cranial fossa for evaluation of clinical and laboratory findings consistent with acoustic neurilemmoma. All examinations were done in the Department of Radiology at St. Vincent’s Hospital, Los Angeles, California, between August, 1963, and February, 1966. Each examination included anteroposterior films of the cervical and lumbar areas. When an abnormality was seen in the contrast column on fluoroscopic examination, additional views were obtained to further delineate the defect. In addition, when a myelographic defect was found, the patient was questioned concerning past history of back injuries and back pain. If there was such a history suggesting a radicular syndrome due to degenerative disc disease, the patient was excluded from this study. The ages of the patients ranged from 18 to 76 years, with the average being 51; 53% were men and 47% women.

We found defects in the contrast column in both the lumbar and cervical regions. From these we selected only x-rays showing defects at L-4, and graded the defects from 1 to 5 as follows:

Grade 1. Deformity in the nerve root sleeve not associated with other defects in the contrast column (Fig. 1).

Grade 2. Localized narrowing of the contrast column in addition to a root sleeve defect (Fig. 2).

Grade 3. More marked abnormality than in Grades 1 and 2. Cases with evidence of a ruptured disc fragment such as a defect in the contrast column removed from the level of the disc space. (Fig. 3 left).

Grade 4. Defect causing partial obstruction to the flow of contrast medium (Fig. 3 right).

Grade 5. Defect causing complete, or nearly complete, obstruction to the flow of contrast medium (Fig. 4).

Results

Findings consistent with varying degrees of disc abnormality were revealed in 110 examinations (37%). The defect was single in 56 examinations (19%) and multiple in 54 examinations (18%). A lumbar abnormality was present in 71 examinations (24%), and a cervical abnormality in 63 (21%). Defects were found in both the lumbar and cervical areas in 23 examinations (8%). Table 1 shows the incidence of defects in patients according to age and grade of defect.

Discussion

Postmortem examination of the spines of patients presumed free of symptoms of disc protrusion during life would seem to be a way of corroborating results. McRae (1956)† has reported on the examination of the spines of 18 such patients. Seven of the patients in this small series showed posterior protrusion of the
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Fig. 1. Grade 1 defect. Anteroposterior and lateral views showing incomplete filling of the nerve root sleeves on the right, and mild indentation of the contrast column anteriorly at the L-4 level.

Fig. 2. Grade 2 defect. Anteroposterior and lateral views showing more marked anterior deformity, narrowing of the transverse diameter of the contrast column at L-4, and of the intervertebral disc space.

Fig. 3. Grade 3 defect. Left: Anteroposterior view showing more marked compression of the contrast column. Multiple nerve roots are seen in the compressed contrast column. Right: Grade 4 defect. Anteroposterior view showing severe compression and partial obstruction of the contrast column at L-4.

Fig. 4. Grade 5 defect. Anteroposterior and lateral views showing nearly complete obstruction of the subarachnoid space at the L-4 level.

disc into the spinal canal (39%). This figure correlates quite well with the 37% figure which we have found in evaluation of asymptomatic myelographic defects.

Neurosurgeons, orthopedic surgeons, and radiologists are well acquainted with the problem presented by a patient with a clinical syndrome suggesting a spinal level other than that at which the myelographic defect has been found. Our observation that myelographic defects occurred in 37% of 300 asym-

TABLE 1

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<thead>
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<th>Defect Grade</th>
<th>No. of Patients</th>
<th>%</th>
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