Reappraisal of the Cervical Myelogram

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The appearance of the normal cervical myelogram is well known. The cervical myelogram of “normal” people, however, has not as yet been thoroughly described. In this paper we report the myelographic findings in a group of patients who were entirely free of signs or symptoms of cervical spine, cord, or nerve root disease. By so doing, we hope to provide data that will help assess the clinical significance of deviations of the cervical myelogram from the accepted norm.

Method

Patients who were to be subjected to Pantopaque myelography for evaluation of complaints unrelated to the cervical region were specifically questioned and examined so as to exclude from the study anyone who had signs or symptoms of cervical spine, cord, or nerve root disease. The overwhelming majority of these patients, as might be anticipated, were being evaluated for low back and leg pain.

If the history and physical examination failed to disclose evidence of cervical spine, cord, or nerve root disease, the patient was admitted to the study group. Myelography, using not less than 12 cc of Pantopaque, was then performed in a routine fashion. In addition to the routine spot films, both postero-anterior and across-the-table lateral radiographs were taken of the column of Pantopaque in the cervico-dorsal region. The cervical lordosis was minimized by neck flexion.

The myelograms were then examined for the presence of common abnormalities such as filling defects in the Pantopaque column caused by osteophytes, bony ridges, or protruded intervertebral discs. Cord size and shape were also assessed. A myelogram was judged to be abnormal if its appearance would have prompted surgical treatment had the patient manifested corresponding clinical evidence of disease (Fig. 1).

The relation of the posteroanterior (PA) projection of the cord silhouette to the width of the subarachnoid space (C/SAS) at multiple vertebral levels was also calculated, and the actual width of the cord in this projection was determined. This was accomplished by placing a metal rod, calibrated in centimeters, beside the neck in the plane of the spinal cord during myelography. A factor that corrected for magnification could be obtained and then applied to the apparent cord width to permit determination of the actual cord width.

Results

A total of 144 patients who were entirely free of clinical manifestations of cervical spine, cord, or nerve root disease were studied. There were 90 males and 54 females, and the ages ranged from 19 to 54 years. There were 31 individuals (22%) who had “abnormal” myelograms as previously defined. The abnormalities consisted of prominent bony ridges, or protrusions of osteophytes or intervertebral discs into the spinal canal. No instance of an intradural or intramedullary abnormality was encountered in our study.

As one might expect, the incidence of “abnormal” myelograms increased sharply with advancing age and followed closely the age-related incidence of degenerative spine changes. We found that 41% (24 of 58) of those 40 years old or over and 62% (8 of 13) of those 50 years old or over had “abnormal” myelograms. These and related statistics are summarized in Table 1.

Table 2 records the ratio of spinal cord width to the width of the subarachnoid space (C/SAS), on PA projection, at multiple vertebral body levels. The widths of the spinal cord at multiple vertebral levels as measured from myelograms and corrected for magnification are recorded in Table 3.
Discussion

We had anticipated that the cervical myelograms in the study group would show encroachment into the spinal canal and neural foramina by degenerative spine changes commonly associated with advancing age, but the prevalence and magnitude of these encroachments surprised us. Moreover, the characteristics of the myelographic filling defects in the asymptomatic subjects were indistinguishable from many of those encountered in our symptomatic patients who underwent surgery for their disease (Fig. 1). One seems justified, therefore, in concluding that, unless the clinical findings permit a clear-cut diagnosis of cervical