Lesson of the Week

Prolapse of a cervical disc in elderly patients with cervical spondylosis

STEVEN YOUNG, LASZLO TAMAS, SEAN A O'LAOIRE

Compression of the spinal cord due to herniation or extrusion of a soft cervical disc is an eminently treatable condition with a favourable prognosis after excision of the disc.[1-4] By contrast, in patients in whom the compression is due to cervical spondylosis—that is, narrowing of the spinal canal at several levels by ligamentous hypertrophy and osteophytic bars—medical treatment is often unsatisfactory and the value of surgery debatable.[5-8] Cervical spondylosis is a common incidental finding in the elderly, so when older patients present with compression of the spinal cord plain cervical radiographs will often show gross degenerative changes. If these changes are then interpreted as the cause of the patient's symptoms and signs (that is, "cervical spondylotic myelopathy") a coexisting prolapse of a cervical disc, which will be radiolucent on plain radiography, may be overlooked. The problem of making an accurate diagnosis is complicated further in the elderly by the prevalence of other conditions that can mask compression of the spinal cord such as osteoarthritis of the hips, stroke, and the carpal tunnel syndrome.

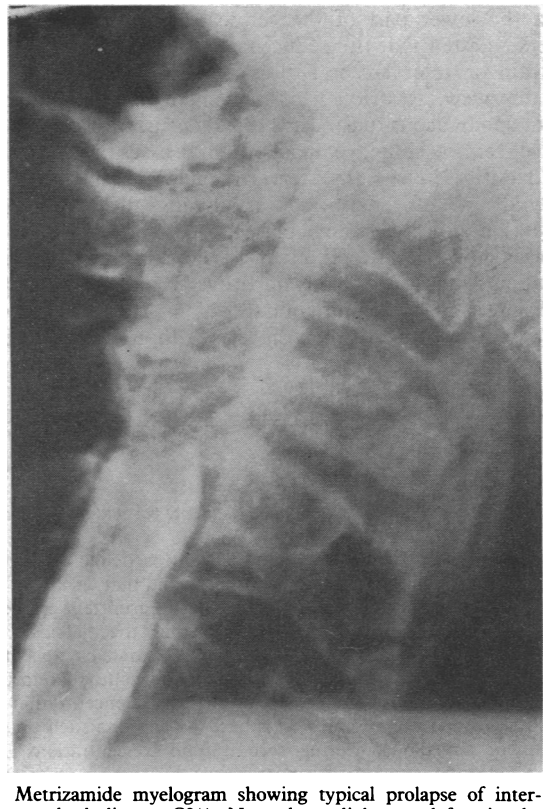
Prolapse of a cervical disc in elderly patients with cervical spondylopathy is an easily overlooked, reversible cause of compression of the spinal cord

Case report

An 82 year old woman was fit and well, living independently, until six weeks before admission, when she noticed neck pain of gradual onset accompanied by numbness and clumsiness in both hands. She found her hand symptoms particularly disabling and was unable to cope with everyday tasks such as fastening buttons and writing. She then progressively developed severe difficulty in walking because of leg weakness and unsteadiness on her feet. During the two days before admission she was unable to dress, walk, or feed herself without help.

On examination she had spastic tetraparesis of Medical Research Council grade 3 distally. There was considerable impairment of joint position sense, which was worse in the arms than the legs. Plain cervical radiographs showed severe spondylotic changes at several levels. A metrizamide myelogram, however, showed that the cause of the spinal cord compression was a typical prolapse of the intervertebral disc at C3/4 (figure).

Two days after myelography she underwent anterior cervical discectomy without fusion. This operation has been described in detail elsewhere.[4] The anterior annulus at C3/4 was incised and degenerate nucleus pulposus removed. A high speed drill was then used to open the space, disclosing a large central defect in the posterior longitudinal ligament. Several fragments of disc were removed from inside the spinal canal, which had been displacing the dura backwards.



Metrizamide myelogram showing typical prolapse of intervertebral disc at C3/4. Note the radiolucent defect in the contrast column.

Postoperatively both spasticity and joint position sense were improved within 24 hours. Three days after surgery she was walking, and when reviewed as an outpatient two months later she was leading an active, independent life.

Discussion

Degenerative changes in the cervical spine are so common in the elderly as to be regarded as an inevitable consequence of aging. It is therefore important to realise that in older patients who present with

Department of Neurosurgery, Atkinson Morley's Hospital, London SW20 0NE

STEVEN YOUNG, BSC, FRCS, registrar in neurosurgery
LASZLO TAMAS, MD, registrar in neurosurgery

National Neurosurgery Centre and Richmond Institute of Neurology and Neurosurgery, Dublin

SEAN A O'LAOIRE, MD, FRCS, consultant neurosurgeon

Correspondence to: Mr S Young, National Neurosurgery Centre and Richmond Institute of Neurology and Neurosurgery, Dublin, Ireland.

compression of the spinal cord acute prolapse of a cervical disc may accompany spondylosis at several levels in the cervical spine. Unlike spondylotic myelopathy, which has a variable and often disappointing outcome after surgery, myelopathy due to a prolapsed intervertebral disc carries an excellent prognosis after excision of the disc.

Of 86 patients aged over 60 (range 62-83) with cervical spondylotic myelopathy referred to one of us (SAO'L) from 1982 to 1986, 19 were found to have a prolapsed soft cervical disc (14 at the C3/4 level, two at the C4/5 level, and three at the C5/6 level; four patients also had a less prominent prolapse at an adjacent space). At presentation the arms showed spasticity in eight cases, weakness in 11, and loss of joint position sense in seven, while the legs showed spasticity in all 19 cases, weakness in 17, and loss of joint position sense in seven; four patients had retention of urine. Most patients gave a short history (more than 60% had had their symptoms for less than 12 weeks (range 2-78 weeks)), but a much longer history clearly does not exclude the possibility of prolapse of a cervical disc. Our study confirms the experience of others that even severely disabled patients can make a full functional recovery (outcome was good or excellent in 15 of 17 patients with moderate or severe disability preoperatively) and reinforces the claim that relief of compression of the cord by excision of a prolapsed disc carries an excellent prognosis.

Prolapse of a cervical disc may be more common in elderly patients than is generally realised. Spondylotic changes with or without spontaneous fusion of the vertebral bodies occur predominantly in the lower part of the cervical spine, and Keyes and Compere suggested that the reduced mobility that results causes added strain on intervertebral discs at higher levels.[9] Our data support this view. Restriction of movement due to spondylotic changes or spontaneous fusion (five cases) occurred predominantly in the lower cervical spine, yet in all but three cases the cervical disc protruded at the C3/4 or C4/5 intervertebral level.

The syndrome of "numb, clumsy hands" due to impaired proprioception and fine motor control, a common finding in our series, was shown by Good *et al* to be an under-recognised manifestation of high cervical myelopathy.[10] It may be the patient's only complaint, and on examination loss of joint position sense will be more severe in the hands than the legs. Although there seems to be a direct association between loss of proprioception in the arms and disc prolapse in the upper cervical spine, anterior compression of the spinal cord alone could not explain this selective impairment of posterior column function. O'Laoire and Thomas suggested that backward displacement of the cord by a herniated disc is restricted by the posterior rootlets and, because of their attachment adjacent to the cuneate fasciculus, this would lead to distortion of the posterior columns, the cuneate more than the gracile fasciculus.[4] Whatever the underlying mechanism, it is important to recognise this disabling feature of high cervical myelopathy as excision of the disc may bring about a rapid and full recovery.

We believe that prolapse of a cervical disc as a cause of compression of the spinal cord is under-recognised in the elderly. It is important to consider this diagnosis in older patients who present with leg weakness or numb, clumsy hands and vital to determine whether they have a prolapsed cervical disc or cervical spondylotic myelopathy. The common management of cervical spondylotic myelopathy by immobilisation in a cervical collar or decompressive laminectomy is inappropriate for compression of the spinal cord due to a prolapsed cervical disc.

References

1 Aronson NI. The management of soft cervical disc protrusions using the Smith-Robinson approach. *Clin Neurosurg* 1973;**20**:253-8.
2 Campbell AMG, Philips DG. Cervical disc lesions with neurological disorder. Differential diagnosis, treatment, and prognosis. *Br Med J* 1960;ii:481-5.
3 O'Connell JEA. Involvement of the spinal cord by intervertebral disc protrusion. *Br J Surg* 1955;**43**:225-47.
4 O'Laoire SA, Thomas DGT. Spinal cord compression due to prolapse of cervical intervertebral disc (herniation of nucleus pulposus). *J Neurosurg* 1983;**59**:847-53.
5 Lees F, Turner JWA. Natural history and prognosis of cervical spondylosis. *Br Med J* 1963;ii:1607-10.
6 Lunsford LD, Bissonette DJ, Janetta PJ, *et al*. Anterior surgery for cervical disc disease. Part 1. Treatment of lateral cervical disc herniation in 253 cases. *J Neurosurg* 1980;**53**:1-11.
7 Lunsford LD, Bissonette DJ, Zorub DS. Anterior surgery for cervical disc disease. Part 2. Treatment of cervical spondylotic myelopathy in 32 cases. *J Neurosurg* 1980;**53**:12-9.
8 Nurick S. The natural history and the results of surgical treatment of the spinal cord disorder associated with cervical spondylosis. *Brain* 1972;**95**:101-8.
9 Keyes DC, Compere EL. The normal and pathological physiology of the nucleus pulposus of the intervertebral disc. An anatomical, clinical and experimental study. *J Bone Joint Surg* 1932;**14A**:897-938.
10 Good CG, Couch JR, Wacaser L. "Numb, clumsy hands" and high cervical spondylosis. *Surg Neurol* 1984;**22**:285-91.

(Accepted 14 July 1986)

Should a patient with mild gout be advised to avoid any particular food or drink?

It is not necessary for a patient with gout to avoid any particular food or drink now, given that a normal diet is being consumed and that alcohol is being taken in moderation. A diagnosis of gout implies intermittent episodes of acute crystal induced arthritis and hyperuricaemia, the diagnosis being confirmed finally when necessary by the detection of urate crystals in joint fluid examined by polarised light microscopy. Mild gout, therefore, can only mean infrequent gouty attacks, serum uric acid concentrations only minimally raised, and the absence of tophaceous deposits such that long term treatment aimed at lowering serum urate concentrations is not indicated. Should the gout become more severe then long term treatment with allopurinol (or occasionally probenecid) is indicated. In either case strict adherence to a low purine diet is likely to reduce only marginally the serum urate concentration in comparison with the effect of modern potent drugs. Thus the decision in cases of mild gout is not so much one of dietary alterations as of when to start long term drug treatment to reduce serum urate concentrations.—C C BARNES, consultant rheumatologist, London.

It is advised that when yellow fever vaccination is given any other immunisation against a virus disease—for example, poliomyelitis—should be given either at the same time or at least three weeks away. Why is this? Do the same restrictions apply when immunisation against bacterial diseases such as typhoid or cholera is to be given? If not why not?

If a live virus vaccine is given shortly after another live virus vaccine has been given it is possible that the replication and "take" of the second vaccine would be interfered with by interferon or possibly other inhibitory effects of the first vaccination. This is why vaccination with live viruses should be carried out at least three weeks apart or else simultaneously. It used to be important when smallpox and yellow fever vaccines were frequently given, but the safety and effectiveness of simultaneous vaccination is well documented.[1] No live vaccine interferes with the activity of any *dead vaccine*, and for this reason it is quite possible to give yellow fever or polio vaccine at the same time as typhoid, cholera, tetanus toxoid, etc, without an interference of their activity. These are dead vaccines, and there is no need for the vaccine to replicate inside the body in order to produce the full immunogenic effect, and for this reason the production of interferon in response to the live vaccine is of no relevance. The practical importance of this is that it is seldom necessary for travellers to attend more than twice for their vaccinations.—DION R BELL, reader in tropical medicine, Liverpool.

1 Griffith AH. Immunisation for overseas travel. *Br J Hosp Med* 1977;**17**:7-10.

What drugs turn urine green?

I have been able to find only three drugs which may colour the urine green. Amitriptyline has been reported to give a blue green colour but this appears to be rare. Resorcinol can colour urine dark greenish blue. Triamterene produces a fluorescence that is usually blue but may occasionally be green. I doubt that this is a comprehensive list. Searching for the information for specific drugs would probably be more fruitful.—LINDA BEELEY, consultant clinical pharmacologist, Birmingham.

Young DS, Pestaner LC, Gibberman V. Effects of drugs on clinical laboratory tests. *Clin Chem* 1975;**21**:1D-432D.