Lumbosacral myelography with Dimer-X

Report of 100 cases

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The authors report the use of the water-soluble spinal contrast medium Dimer-X in 100 cases of suspected lumbar disc disease. It was particularly valuable in delineating small laterally-placed protrusions causing root compression, which are often difficult to demonstrate with oily contrast media. Side effects were mild and transient, and no serious complications were encountered.

KEY WORDS · lumbar myelography · Dimer-X · protruded intervertebral disc

Myelographic demonstration of laterally situated protruded lumbar discs causing root compression may be difficult and hence lead to confusion concerning the indications for surgical intervention. The difficulty is due in part to the oily contrast media in general use. Failure to implicate a particular root may lead to an unnecessarily extensive laminectomy in the search for the damaged disc.

This communication confirms\textsuperscript{1,6,8,11} the usefulness of the watery contrast medium Dimer-X\textsuperscript{*} (ioacarmic acid) in 100 such cases.

Material and Methods

In nearly all cases, no premedication is needed to achieve the cooperation of the patient. A light early breakfast may be taken. The puncture should be performed above the suspected level, usually at the L3-4 space. Immediately after injection of the contrast medium, the patient should be placed in a 20° to 30° anti-Trendelenburg position to avoid possible toxic effects on the conus medullaris area. Then 5 cc of Dimer-X are diluted with 3 to 5 cc of cerebrospinal fluid (CSF) and injected under fluoroscopic control. Anteroposterior, oblique, and lateral films are made. At the end of the examination the patient is returned to the ward in a wheelchair and should remain in bed in a sitting or semisitting position for 6 to 8 hours, the time required for absorption of the contrast material. Check films have shown that in most cases half of the injected amount has left the subarachnoid space in 2 hours.

Valium 5 to 10 mg intravenously may be given to relieve the occasional complaint of pain or heaviness in the legs.

**Results**

The medium has proved to be an effective means of illustrating the finer details of nerve root position and displacement and in diagnosing disc protrusions that would probably not have been picked up by the more viscous oily media (Fig. 1). It shares the advantages of spontaneous absorption common to other watery agents and has so far been innocuous and generally well tolerated.

No serious complications were encountered. Mild reactions included increased leg pain (four patients), headache coming on several hours after the examination and disappearing within 24 hours (15 patients), and vomiting (two patients). No patient had seizures, although this was recorded on one occasion in another series.3

**Discussion**

Air as a contrast medium is, of course, entirely nontoxic and has been advocated for this purpose. However, the technical difficulties of film interpretation and the need for tomography make the procedure time-consuming, and the associated headache is very unpleasant for the patient.
The widespread use of water-soluble contrast media has so far been restricted by toxic side effects. The first substance used, methiodal (Abrodil), caused severe pain and could be used only in conjunction with spinal anesthesia\(^2\).\(^9\) Its rapid absorption in the course of some 20 minutes made for hasty and perhaps inaccurate interpretation. Furthermore, it proved to be responsible for occasional irreversible damage to the conus medullaris and cauda equina. Another preparation, the meglumine salt of iothalamic acid (Conray) can be injected without anesthesia and remains some 6 to 8 hours before absorption, but again has some degree of toxicity, particularly with regard to the spinal cord,\(^1\),\(^4\),\(^5\),\(^10\),\(^12\) roots, and meninges, giving rise to convulsive jerkings of the legs, pain, fever, nausea, and headache.

Dimer-X (iocarmic acid), compounded of two molecules of iothalamic acid and a side chain, has the same radiological properties as Conray but is notably less toxic. Animal experiments carried out by Gonsette and André-Balisiaux\(^7\) showed that the suboccipital intraspinal injection of 1 cc of methiodal or Conray invariably resulted in convulsions, which did not appear, however, when Dimer-X was injected in the same way. Amounts in excess of 1 cc caused much less histological evidence of damage in the case of Dimer-X than with the other two agents. It therefore seems that Dimer-X is the present water-soluble contrast medium of choice in all respects.

References

2. Arnell S: Myelography with water-soluble contrast, with special regard to the normal roentgen-picture. Acta Radiol Suppl 75, 1948

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