Intraoperative myelography

Technical note

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In this article, the technique of intraoperative myelography is described. Its indications are given, and results in two illustrative cases are reported.

KEY WORDS • intraoperative myelography • spinal stenosis

Intraoperative myelography may provide the operating surgeon with valuable information, and involves a minimum of special equipment. It is done without changing the patient's position on the operating table except by tilting the head and torso up. It requires a portable x-ray machine, a No. 25 needle, tubing, a syringe, metrizamide (Amipaque), and dural suture.

Technique

When the surgeon believes that an intraoperative myelogram is indicated, a suture is placed in the exposed dura at two sites in close proximity. Water-soluble contrast material is then injected under direct vision into the intrathecal space, using a No. 25 needle attached to a flexible plastic tube and a syringe. A cross-table film is obtained and inspected. If the exposure of the dura mater is adequate, the fine suture can be pulled tight to obliterate the puncture site and prevent leakage of cerebrospinal fluid (CSF) and contrast material. If the exposure of the dura mater is not adequate, the suturing can be dispensed with.

We have found this technique particularly helpful in cases of lumbar stenosis, in which a complete myelographic block is visualized on a preoperative myelogram performed from above. The distal extent of the stenosis is not known because contrast material cannot easily be introduced due to the stenosis (Fig. 1 left). Once the upper part of the block is removed, an intraoperative myelogram is performed to evaluate the adjacent levels and to indicate whether or not an adequate decompression has been achieved. In the case illustrated in Fig. 1 center, a satisfactory decompression of the spinal canal was seen in the intraoperative study. Figure 1 right shows an intraoperative myelogram in which a satisfactory decompression was not achieved. Accordingly, additional and more extensive laminectomy was performed. The intraoperative myelogram permits evaluation of the spinal canal, not only proximal but also distal to the operative site.

This technique may also be of value in patients with herniated disc, if there is any question as to a retained fragment, as well as in ascertaining adequate decompression in cases of neoplastic obstruction or in trauma, as noted by Jelsma, et al.

In our cases, we have encountered no complications attributable to this technique other than the headache so often associated with myelography. The possibility of leakage of CSF is minimal if a fine needle is used or if the puncture opening is oversewed.

References

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Fig. 1. Left: Case 1. Preoperative myelogram showing severe lumbar stenosis. Center: Intraoperative myelogram in Case 1. A satisfactory decompression has been achieved. Right: Case 2. Intraoperative myelogram showing an incomplete decompression. Additional laminectomy was performed based on the information obtained from this study.


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