Spinal posterior rhizotomy is a justifiable operation although it is all too frequently performed as a cure for neurotic somatic conversion syndromes. White has compared it favorably to cordotomy in the treatment of intractable pain of benign origin. It is most frequently performed in the dorsal region and because of the sensory overlap should include from 3 to 5 roots. We have developed a simplified extradural approach which we believe has certain advantages.

Method

We use the lateral position and local xylocaine anesthesia so that the specific source of the pain can be tested and verified by nerve stimulation during the operation. Half of the lamina is exposed using self-retaining blade retractors with both blades placed on the same side of the spinous processes and spread laterally as far as the transverse process. The spinal root ganglion is exposed by one bite with a punch rongeur in the outer edge of the lamina just caudal to the transverse processes (Fig. 1). The sensory root is identified in its own dural sleeve; just proximal to the ganglion it is elevated by a nerve hook and cut with scissors. Occasionally some drops of spinal fluid appear at the proximal end but they can be readily stopped by coagulation and the region marked by a silver clip for postoperative X-ray identification (Fig. 2). Closure is effected with interrupted heavy and fine steel sutures. This permits the patient to be up and about on the day of operation.

Those occasional cases requiring cervical or lumbar rhizotomy can be done through the posterior "keyhole" facetectomy approach used in cervical discs (Fig. 1), or the partial laminectomy used for lumbar discs. As in the dorsal spine the large sensory and small motor roots lie within separate root sleeves. The sensory nerve root is easily cut at the intervertebral foramen just proximal to its ganglion.

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Extradural Spinal Sensory Rhizotomy

We have used this method on 12 patients since 1954. There have been 6 dorsal, 4 cervical and 2 lumbar rhizotomies, ranging from 2 to 6 root sections for each. Two cases required additional sectioning. There were no operative complications. Results, as in conventional rhizotomies, were satisfactory if a sufficient number of roots were cut and if there was a legitimate organic cause for the pain. In our series, single cases of cervical spondylitis, frozen shoulder, dorsal spine fracture, post-fusion lumbar root scarring, and two cases of carcinoma of the spine, all gave good results. On the other hand, single cases of paresthetica, intercostal neuralgia, post-sympathectomy pain, dorsal radiculitis, and 2 cases of occipital neuralgia showed psychoneurotic tendencies and gave poor results, usually because of pain in new locations.

We can confirm the observations of White regarding the extraordinary degree of sensory overlap.

Discussion

These approaches avoid opening the dura, preserve skeletal support, permit immediate ambulation without appreciable pain, and assure retention of the bridging arteriolar blood supply to the spinal cord. Regeneration is, of course, prevented by root section proximal to the ganglion.

Summary

We have described a simplified surgical approach to the sensory spinal roots by extradural exposure of the spinal root ganglia.

References