Neurosurgical forum

segments. In patients in whom a fusion is being considered or a suspected pseudarthrosis evaluated, lumbar discometric assessment is invaluable. It is also useful to determine whether or not there is a communication between the nucleus and the epidural space prior to chemonucleolysis; however, it should be added that the two procedures should be separated by 24 hours because of potential toxicity when they are combined as well as the probable inactivation of the enzyme.

I can only presume that the disparaging comments of Clifford and Shapiro are made from lack of personal involvement with the value of the procedure and from follow-up evaluation in a cohort fashion; I would refer the writers to the work of Macnab, et al. I am disappointed to see such remarks made about a valuable tool in the diagnosis and treatment of spinal pain.

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St. John’s, Newfoundland, Canada

Reference

I disagree with Mr. Perkins. It is my opinion that reproduction of pain by injection of an intervertebral space has little correlation with results of either the excision of that intervertebral disc or fusion of that “motion segment.” — Editor.

Chemonucleolysis for Lumbar Disc Disease

To The Editor: Maciunas and Onofrio have concluded that the long-term results of patients with low-back syndromes treated by chemonucleolysis “compare favorably with those of similarly selected patients undergoing open surgical procedures” (Maciunas RJ, Onofrio BM: The long-term results of chymopapain chemonucleolysis for lumbar disc disease. Ten-year follow-up results in 268 patients injected at the Mayo Clinic. J Neurosurg 65:1–8, July, 1986). Review of their article and data reveals the following information. The patients being treated had “intervertebral disc disease.” The myelograms demonstrated “focal disc protrusion.” Discography and myelography agreed “totally in 146 patients and disagreed in 77.” Twenty percent of the 268 patients required subsequent surgery (open back surgery). Eighty-six percent of all patients “had less leg pain than preoperatively.” I find these statements and the article not to be consequential.

Nowhere in this study do the authors discuss the size of the disc protrusion relative to the size of the patient’s bone canal, or indeed if they were dealing with true disc herniation. Surgical treatment of any type for disc protrusion is a gray area. It is arguable but generally accepted that no patient should have an invasive procedure for a disc protrusion in a canal that is not stenotic. Additionally disquieting is the absence from their article of a thorough description of the nonoperative care, such as the modes of therapy and the time interval involved; they only mention “conservative measures.”

The authors’ statement that postoperatively 86% of their patients had “less leg pain than preoperatively” fails to sufficiently address the degree of therapeutic success. Experienced back surgeons operating on true disc herniations anticipate a higher degree of modification of radicular symptoms after a 10-year period.

Whereas the 20.8% incidence of chemonucleolysis patients who eventually required back surgery appears at odds with their conclusion that “86% were judged as being successfully treated,” almost half of their surgical patients were operated on for “separate and distinct acute events.” This accurately translates into a good result of approximately 80% (75% based upon employment activity). This is a laudable result if one is dealing with significant disc herniations that result in a compromised neural canal. However, without further in-depth clarification of the length and type of nonoperative treatment, the degree of disc herniation, canal dimensions, and neurological status, all we really learn is that a large number of patients with low-back syndromes that are treated aggressively eventually obtain a significant degree of satisfaction.

The use of chymopapain for lumbar disc herniations is not in fashion at the current time. A number of studies addressing the efficacy and safety of chemonucleolysis1–6 and the experience of most neurosurgeons have resulted in a severe reduction in the use of this treatment modality. Perhaps chemonucleolysis with chymopapain is safe and effective in treating intervertebral disc disease, but invasive intervention of any type should be limited to those patients with true disc herniation or extrusion and/or with stenotic lumbar canals. This study by Maciunas and Onofrio does not demonstrate an advantage of chymopapain over nonoperative treatment in patients with lumbar disc disease characterized by bulging discs and apparently no true herniation or stenosis.

MICHAEL H. SUKOFF, M.D.
Santa Ana, California

References
RESPONSE: We appreciate Dr. Sukoff's comments, as they are an indication of the continuing controversy surrounding chymopapain chemonucleolysis. It was the intention of our study to provide a rational basis for future discussions about this alternative to surgery in selected cases of radicular complaints referable to intervertebral disc disease. We have always restricted chemonucleolysis to those patients deemed appropriate candidates for an open surgical procedure by the evaluation of both a neurologist and a neurosurgeon in the presence of a significantly abnormal myelogram. Additional restrictive criteria are further detailed in our article. If Dr. Sukoff in fact intended to suggest that stenosis of the canal be included as an indication for chemonucleolysis, then we must disagree based on our results as well as on the mechanism of therapeutic action for chymopapain. Eight percent of our patients undergoing operative management for disc pathology were offered and received chymopapain; 92% of our patients did not fit our rigid criteria for inclusion in the chymopapain group, and they underwent formal open surgery for disc removal with or without fusion.

The overall success rates at 10 years for the total group of patients who underwent chymopapain injection were reported as 80.1% based upon relief of presenting radicular leg pain and 75% based upon employment at the same or a more vigorous level as compared to before injection; all patients who initially failed chemonucleolysis were deemed ultimate failures despite the fact that some improved with subsequent open surgical intervention. These data compare favorably with the analysis by Uihlein, et al.,\(^1\) of a similar patient population undergoing laminectomy and followed for 8 years. In the 8% of our patients undergoing chemonucleolysis, the results approached what we would have expected if the patients had been offered an open surgical procedure instead.

To reiterate, no one with any experience in treating spinal disorders would intimate that there is only one effective treatment modality for all patients; chemonucleolysis is but one tool in the surgeon's armamentarium.

ROBERT J. MACIUNAS, M.D.
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Neuroanatomy of the Pyramidal Decussation


None of the papers cited in the references offers a glimpse of valid neuroanatomical or neuropathological evidence in man or beast to justify the thesis that the corticospinal fibers concerned with the upper extremity decussate more rostrally than do those headed for the lower extremity. Coxe and I have reported that monkey corticospinal fibers from upper extremity and from lower-extremity motor cortex are both diffusely distributed in the medullary pyramidal tract, and that there is no evidence of resegregation at the decussation.\(^2\) I know of no pertinent results to the contrary.

WILLIAM M. LANDAU, M.D.
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St. Louis, Missouri

RESPONSE: I am pleased that Dr. Landau enjoyed our cover illustration. Although it is true that a complete neuroanatomical description of the area in question is needed, great caution must be exercised in extrapolating findings in various animal species to man. The references cited explain quite adequately what we and others have observed clinically, and we stand by them.

DANIEL DUMITRU, M.D.
JAMES LANG, M.S.
The University of Texas Health Science Center
San Antonio, Texas

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