A Clinical Assessment of Neurolysis for Leprous Involvement of the Ulnar Nerve[1]

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Neurolysis continues to be a somewhat controversial procedure for the management of certain ulnar nerve problems in leprosy. There are several reasons for this. First of all, the procedure is not always beneficial, and one can never be certain that it in any way altered the natural course of the lesion in that particular patient. Secondly, it is difficult today to obtain a large enough series with at least ten years' follow-up for adequate evaluation of the procedure, and even more difficult to have a valid control group for comparison. Finally, different surgeons have undertaken a variety of approaches to the problem so that results are not strictly comparable between reported series. Unfortunately, these problems are unlikely to be completely overcome by any prospective series, so retrospective studies will continue to be a valuable source of data on this subject.

MATERIALS AND METHODS

All cases having an ulnar neurolysis at Carville between 1960 and 1972 were reviewed. A total of 103 procedures had been performed on 63 lepromatous patients. Twenty-two of the cases are still hospitalized here and were evaluated by the authors. The current status of the operated extremity in 11 others was assessed via a questionnaire mailed to the individual and by data available in their charts. Eight of the remaining 30 had died, and 22 did not respond to the questionnaire so only the data in their charts were available for follow-up evaluation.

Fifty-six of the patients had active disease, two-thirds of these were having *erythema nodosum leprosum* (ENL), and in five cases of ENL nerve abscesses were encountered ([1]). The discrepancy between the total number of procedures and the number of patients is accounted for by the fact that 27 patients had procedures on both ulnar nerves, and 9 required a total of 13 secondary procedures either because the first procedure had been inadequate or because new problems developed in a previously operated nerve.

Ulnar neurolysis as done at Carville has consisted of mobilization with either incision or more often excision of the sheath, coupled with complete transposition of the nerve placing it between the biceps and brachialis muscles, along the side of the median nerve. In general, the procedure is not difficult, and complications are few.

RESULTS

Ninety-eight of the 103 procedures were done because the patient was experiencing severe, persistent neuritic pain in the nerve in question. The five remaining procedures were performed prophylactically because the ulnar nerves in these cases were enlarged and tender, though no pain was present except during palpation or trauma to the area.

Response was measured in terms of relief or prevention of pain. Wherever feasible, the possible effect of the surgery on prevention or progression of a motor deficit was also evaluated.

Table 1 summarizes the results of the surgery in terms of elimination of pain.

It is apparent from a review of this table that in only 12 of the 41 procedures (29%) performed on Group 1 was permanent relief of the pain obtained. Groups 2 (11/15=73%) and 3 (31/47=66%) seemingly fared better, but follow-up in these cases (especially Group 3) is inadequate. One might speculate that Group 3 as a whole had little in the way of further pain, and therefore felt no need to either return to the hospital or answer the questionnaire, but we have no way of proving this. Where pain recurred or remained after surgery, it apparently was, in most cases, less severe than it had been

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TABLE 1. *Results of surgery.*

Information obtained from	No. of patients	No. of procedures	Permanent pain relief	Pain later recurred	No relief
Interview	22	41	12	25	4
Correspondence	11	15	11	4	0
Records	30	47	31	8	8

before surgery, but the difference is difficult to quantify. In the 13 instances where the pain persisted or the recurrence was severe enough to necessitate reoperation there were multiple precipitating factors, for example, progression of the patient's disease, recurrent acute ENL, the development of nerve abscesses, and inadequate surgery during the primary procedure.

Ulnar paralysis developed in only one patient where it had not existed prior to surgery among the 33 patients in Groups 1 and 2, and in this individual it was associated with progression of his leprosy. In four other cases a preexisting paralytic deformity was aggravated by absorption and shortening of the digits due to repeated injury and infection in the hand in question. No instances of progressive deformity were noted in Group 3, but follow-up is inadequate.

DISCUSSION

It is clear that the immediate results of neurolysis and transposition of the ulnar nerve are good, i.e., the pain which necessitated the operation is relieved in the great majority of cases. The long-term results, however, are more difficult to assess. In most cases where follow-up is available, the pain recurred, albeit less severe than it had been originally, and in 13 instances reoperation was necessary. Unfortunately, no control group exists, and although the immediate results were good, one cannot be certain that the long-term results were really much better than they would have been without surgery. At the time of evaluation most of the patients no longer had ENL, and in many their leprosy had become inactive. After reviewing the case histories of many patients with similar ulnar nerve involvement who did not have surgery, we believe that overall the surgery was beneficial in terms of lessening the problem of chronic neuritic pain and preventing further paralysis and deformity, but at present this can be nothing more than an impression for the reasons already discussed. Calloway, Fite and Riordan ([2]) reached essentially the same conclusion after their review of 100 cases published in 1964. In general, the patients also felt that the surgery had been beneficial, but this subjective evaluation likewise has no controls.

One finding of particular interest relates to the number of procedures performed each year. Ninety-four of the procedures were done in the years 1960-1965, and only nine in the years 1966-1972. In 1965, thalidomide was first used at Carville for control of ENL ([3]), and B663 was introduced for the treatment of patients infected with sulfone-resistant bacilli and also management of various types of reaction ([4]). Nearly all problem cases with reaction are now controlled by one of these two drugs, and most sulfone-resistant cases are on either B663 or rifampin. It is our belief that these medications and the occasional judicious use of corticosteroids have in effect reduced the need for a procedure such as neurolysis with transposition to the point where it is only rarely employed.

Today ulnar nerve surgery is undertaken at Carville only for the following indications:

1. Severe, persistent pain or a progressive deficit in the ulnar nerve in spite of chemotherapy.
2. If a nerve abscess is suspected.
3. Prophylactically for severe, recurrent neuritis, which although for the most part controlled by chemotherapy, is necessitating frequent and prolonged hospitalizations and thereby interfering with the individuals' ability to lead a normal life.

SUMMARY

Neurolysis with or without transposition of the ulnar nerve was performed 103 times on 63 patients at Carville during the period 1960-1972. The results of the surgery were good in terms of immediate relief of pain, and a neural deficit seldom developed or

progressed after the procedure. However, the pain often recurred albeit usually less severe than it had been originally. Although the immediate results of the surgery are, in general, good, one cannot be certain that the long-term results were any better than they would have been without surgery since we have no valid controls. A finding of particular interest is that the procedure has seldom been necessary since 1965 when B663 and thalidomide were first used at Carville for control of reactions, suggesting that a severe ulnar neuritis is a less likely occurrence in patients receiving these drugs.

RESUMEN

En Carville, durante el período que va desde 1960 a 1972, se efectuó neurolisis con o sin transposición del nervio cubital 103 veces en 63 pacientes. La cirugía dió buenos resultados en el aspecto del alivio inmediato del dolor y sólo en ocasiones hubo desarrollo o aumento de déficit neurológico después de la intervención. Sin embargo, a menudo el dolor reapareció, aunque generalmente menos severo que lo que había sido originalmente. Aunque los resultados inmediatos de la cirugía fueron en general buenos, no se puede tener la certeza de que los resultados a largo plazo fueron en nada mejores que lo que habrían sido sin cirugía, ya que no tenemos controles valederos. Un hallazgo de especial interés es que la intervención ha sido necesaria sólo en contadas ocasiones desde 1965, cuando se utilizaron por primera vez en Carville B663 y talidomida para controlar las reacciones, sugiriendo que la neuritis cubital grave es una complicación menos frecuente en los pacientes que reciben estas drogas.

RÉSUMÉ

Au cours de la période 1960-1972, on a procédé à 103 reprises au total, à une neurolyse avec ou sans transposition du nerf cubital, chez 63 malades de Carville. Les résultats de cette intervention chirurgicale ont été satisfaisants en ce qui concerne le soulagement immédiat de la douleur. Ce n'est que rarement que l'on a pu observer l'apparition ou l'aggravation d'un deficit nerveux après l'intervention. Toutefois, la douleur est souvent apparue à nouveau, encore qu'elle ait été alors généralement moins prononcée qu'elle ne l'était avant l'intervention. Malgré que les résultats immédiats de cette intervention chirurgicale puissent être considérés en général comme satisfaisants, on ne peut être certain que les résultats à long terme soient d'un avantage quelconque par rapport à ce qu'ils auraient été sans le recours à la chirurgie. En effet, on manque de témoins valables. Il est particulièrement intéressant de constater que ce procédé chirurgical s'est rarement révélé nécessaire depuis 1965, époque à laquelle le B663 et la thalidomide ont été pour la première fois utilisés à Carville pour le traitement des réactions. Ceci suggère qu'une névrite cubitale grave est moins susceptible d'apparaître chez les malades traités par ces produits.

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