

A COMPARATIVE STUDY OF MEDIAL EPICONDYLECTOMY VERSUS ANTERIOR TRANSPOSITION IN THE MANAGEMENT OF ULNAR NEUROPATHY, AT ELBOW IN HANSEN'S DISEASE

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ABSTRACT

Objective: The objective of the study is to know the better results after medial epicondylectomy with regards to sensory recovery and patient satisfaction.

Methods: We operated on a total of 36 patients of Hansen's disease suffering from ulnar nerve neuritis at the elbow from 1999 to 2003. They were alternately operated either by epicondylectomy or anterior transposition by the same unit. All these patients had either completed MDT or were on MDT for a minimum of 2 months before surgery.

Results: The mean age of the patient was 28.6 years (range 15–45 years). The average follow-up was 3.2 years (range 1–5 years). The male-to-female ratio was 7: 4. The patients who were operated on within 4 months of the onset of symptoms showed a satisfaction rate of 70% as compared to 50% in patients who were operated on after 4 months of the onset of symptoms.

Conclusion: Our study showed better results after medial epicondylectomy with regard to sensory recovery and patient satisfaction. There was no statistically significant difference in motor power recovery and post-operative pain, among both procedures none of the procedures had any significant effect on elbow function or stability.

Keywords: Medial epicondylectomy, Anterior transposition, Ulnar nerve, Hansen's disease.

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INTRODUCTION

The surgery has an important role in the prevention of deformities in Hansen's disease, particularly in ulnar entrapment neuropathy at the elbow. Variety of procedures have been recommended for ulnar neuritis, namely decompression by the release of cubital tunnel alone [1], anterior transposition, medial epicondylectomy [2], and a combination of these three. Review of the available literature doesn't show any good study comparing these procedures in Hansen's disease: Geutjens *et al.* (1996) performed a prospective randomized study of medial epicondylectomy and anterior transposition for a variety of lesions of the ulnar nerve at elbow [2].

We decided to perform a similar study comparing the results of both methods in patients of Hansen's disease.

METHODS

We operated on a total of 36 patients of Hansen's disease suffering from ulnar nerve neuritis at the elbow from 1999 to 2003. They were alternately operated either by epicondylectomy or anterior transposition by the same unit. All these patients had either completed MDT or were on MDT for a minimum of 2 months before surgery. 3 patients with less 1 year follow-up were excluded from the study. Hence, this study comprises 33 patients (18 in the epicondylectomy group and 15 in the transposition group). Patient's consent was taken, in a proper format, before surgery.

The inclusion criteria were included in the study:

1. Intractable and recurrent neurologic pain over ulnar nerve distribution not relieved by medical decompression. ever

2. Continuous, non-responsive progressive palsy, with anti-leprotic drugs.
3. Motor or sensory loss in the distribution of an ulnar nerve.
4. Age of the patient between 15 and 60 years
5. Slip nerve.

The exclusion criteria were excluded from the study:

1. Complete ulnar nerve palsy with gross wasting and complete loss of sensations.
2. Bilateral cases
3. Patient having a follow-up of <1 year.
4. History of old trauma around elbow leading to varus/valgus angulation.

Operation

Medial epicondylectomy was performed as described by King and Morgan (1959) [3] and anterior transposition of the ulnar nerve as described by Macnicol (1979) [4]. On finding to nerve and sheath thickened the sheath was split after the epicondyle was excised or just after rerouting in cases of transposition. In both groups, patient's elbow was immobilized at a right angle in plaster slabs for 2 weeks [4].

All the patients were subjected to detailed neurological assessment preoperatively and at 1, 3, 6, and 12 months postoperatively. Muscle strength, 2-point discrimination, paresthesia, pain, and patient satisfaction (Table 1) were assessed. The elbow function was also assessed separately.

OBSERVATIONS AND RESULTS

The mean age of the patient was 28.6 years (range 15–45 years). The average follow-up was 3.2 years (range 1–5 years). The male-to-female ratio was 7: 4.

Table 1: Assessment of elbow functions

S. No.	Assessment of elbow	Medical epicondylectomy n=18	Transposition n=15	Statistical significance
1	ROM (mean)	4–123°	3–124°	No
2	Instability	Nil	Nil	
3	Tenderness at the operation site	4	3	

Table 2: Assessment of hand functions

S. No.	Assessment of hand	Medical epicondylectomy		Transposition		Statistical significance
		Pre-operative	Post-operative	Pre-operative	Post-operative	
1	Persistence of paresthesia	18	8	15	10	p<0.05
2	2 point discrimination	10.9 MM	7.9 MM	11.1 MM	8.1 MM	No
3	Improvement in MRC grading					
	One grading	4		3		No
	Two grading	6		5		
	Three grading	8		7		

No statistical significance difference. MRC: Medical research council

Table 3: Assessment of patient satisfaction

S. No.	Patients response	Medical epicondylectomy n=18	Transposition n=15	Statistical significance
1	Pain relief in hand	17	13	No
2	Improvement in appearance	16	12	No
3	Improvement in strength	15	12	No
4	Overall satisfaction complete	15	9	No
	Incomplete	3	6	No

The Table 2 shows results of hand assessment in 2 groups.

The Table 3 summarizes results of patient satisfaction.

The Table 1 summarizes results of elbow functions.

The patients who were operated on within 4 months of the onset of symptoms showed a satisfaction rate of 70% as compared to 50% in patients who were operated on after 4 months of onset of symptoms.

DISCUSSION

These two methods have never been compared previously in Hansen's disease. Geutjens *et al.* (1996) [2] had performed a similar study for a variety of lesions leading to ulnar neuritis at the elbow. None of the cases reported by them had leprosy [5].

We also found results comparable to Geutjens *et al.* (1996) [2]. The sensory recovery as determined by relief of paresthesia and overall patient satisfaction was significantly higher in the medial epicondylectomy group [6]. There was no statistical difference between muscle grading improvement, 2-point discrimination, pain relief, or elbow functions/stability. The disadvantages of transposition may be due to the following possibilities

1. Sometimes a cicatricial contracture deep to muscles with strangulation of the nerve may occur. It may also occur due to incomplete medial intermuscular septum division (King and Morgan)
2. To transplant the nerve about four inches of the nerve has to be mobilized. This handling of nerve is likely to reduce the blood supply leading to increased pain and probably delay in recovery. Ogata *et al.* (1985) have also shown that transposition is associated with a significant decrease in extrinsic arterial supply.

It may be argued that the removal of the medial epicondyle may weaken the common flexor origin or cause instability but we could not find this in our study.

The statistically poor results in cases operated after 4 months of the onset of symptoms may be due to established fibrosis as a result of longstanding hyperemia and edema (Weisl and Osborne 1964) [7].

CONCLUSION

To conclude, for ulnar neuropathy due to leprosy not responding to medical treatment both medial epicondylectomy and anterior transposition gives satisfactory outcome, however, we recommend to choose transposition only in delayed cases or when the nerve is dislocate from the epicondylar groove.

AUTHORS' CONTRIBUTIONS

The author Dr. R. Sadh, was principal investigator of the study, and involved in the design, conduct, and analysis, and Dr. V Pal, was contributed in report writing, editing, and review of the manuscript.

CONFLICTS OF INTEREST

The author declares that they have no conflicts of interest.

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