

# Surgical Repair of the Nerve Injuries in Lower Limb

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## ABSTRACT

**Objectives:** Objectives to assess the outcome of surgical repair of the nerve injuries in lower limb.

**Material and Methods:** This prospective study conduct in the Department of Neurosurgery, Bolan Medical Complex Hospital and Akram Hospital Quetta, From April 2003 to August 2007.

**Results:** There were 8 sciatic nerve injuries at different level only 4 cases (26%) showing significant outcome. In 3 cases (75%) of common peroneal nerve injury only one (20%) showing significant improvement. While in four cases of deep peroneal nerve only one shown good outcome.

**Key words:** Electro physiologically, Primary Repair, EpineuralNeuroraphy.

## INTRODUCTION

The structure of peripheral nerve is constant regardless of the location in the body. It consists of nerve fibers, fasciculi, connective tissue, blood vessels, Lymphatic and Nerveuron.<sup>1</sup> Peripheral nerve injuries are a major source of chronic disability. Advance in investigation and surgical technique the outcome has greatly improved.<sup>13</sup> Surgical repair is used to restore continuity between proximal and distal axons without which functional recovery is not occur. A direct suture repair using an epineurally placed suture is the preferred if a gap occurs between the nerve ends, it may not be possible to bring the nerve ends into close proximity for repair then Nerve graft used to bridge the gap.

## MATERIAL AND METHODS

This prospective study was conducted in the Department of Neurosurgery, Bolan Medical Complex Hospital and Akram Hospital Quetta, From April 2003 to August 2007.

## RESULTS

15 patients of both genders were included in study. Age range was 15 – 50 years 12 Males and 3 Females (Table 1).

**Table1:** Age of Patients.

Age	Number	Percentage
11 – 20 years	3	20%
21 – 40 years	8	53.4%
41 – 52 years	4	26.6%
Total	15	100%

According to mode of injury sharp injury was observed in 66.6 % while crush injury was in 20% and Gunshot injury was in 13.4% (Table 2).

**Table 2:** Mode of Injury.

Type of Injury	No. of Patient	Percentage
Sharp Injury	10	66.6%
Crush Injury	3	20%
Gunshot Injury	2	13.4%
Total	15	100%

There were 8 patients with isolated sciatic nerve injury, 4 patients with deep Peroneal Nerve injury and

3 patients with common Peroneal Nerve injury (Table 3).

**Table 3:** Types of Nerve involved.

Nerve Involves	No. of Patients	Percentage
Sciatic	8	53.4%
Common Peroneal	3	20%
Deep Peroneal	4	26.6%
Total	15	100%

All patients assessed clinically, electrophysiologically, preoperatively and post operatively.

Period of follow up was range from 6 months to 1 year. Criterion of clinical evaluation was Louisiana State University Health Grading System (Table 4).

**Table 4:** The LSUHS Grading System.

Grade	Evaluation	Description
0	Absent	No Muscle contraction
1	Poor	Proximal Muscle contract but not against gravity
2	Fair	Proximal muscle contraction against gravity but t not against resistance
3	Moderate Fair	Movement against gravity and mild resistance
4	Good	Movement against moderate resistance
5	Excellent	Movement against maximum resistance

There were 8 sciatic nerve injuries at different level only 4 cases (26%) showing significant outcome. While in 3 cases (75%) of common peroneal nerve injury only one (20%). Showing significant outcome in one. According to level of injury significant improvement was observed in distil segment of nerve injury as compare to proximal segment. Primary repair was done in 4 injuries (26%). Secondary repair was done in 11 patients (7.33%) showing significant improvement. Those patients who in which nerve injury was in continuity (60%) regained grade 3 power (50%) compare to those in which nerve injury was not in continuity

(40%) only (20%) regained power. In 60% patient that treated as anepineuralneuroraphy50% were recovered grade 3.

**Table 5:** Functional outcome in relation to type of Nerve Injury.

Type of Nerve Injury	No. of Lesion	Significant Outcome
Sciatic	8	4 (50%)
Common Peroneal	3	1 (33.33%)
Deep Peroneal	4	3 (75%)
Total	14	100

Those patients in which the nerve was not in continuity 5 (33.4%) they were grafted with sural nerve not shown satisfactory results.

Neurolysis were done in 2 patients in which one as function outcome of grade 3.

According totypes of injury, sharp injuries with primary repair were good results as compare to those who have other type of injury (Table 5).

All patients were advised for active physiotherapy after the second week of surgery and they were followed for one year clinical and physiological assessment was done in all patients.

## DISCUSSIONS

In our study age and gender not influence the outcome which is similar in most of studies<sup>4</sup>. In our study the type of injury and type of nerve involve have significant influence on the outcome for example the sharp injury have significant outcome 66.6% as compare to gunshot injury 13.4%. The distal nerves have good results as compare to the proximal. In our study the deep peroneal nerve as good results 75% identical with which our knowledge no published series argue this suggestion.

In these case in which early repair was done (8 cases) of sharp injury within 48 hour of injury with excellent outcome. In 6 cases (80%) in compare to those in which secondary repair was done.Again this correlate with other studies.<sup>5</sup>

The early surgical intervention was further supported by many Authors.<sup>6</sup> Brich and Raji demonstrated that excellent surgical outcome following early repair of nerve injuries due to sharp transaction could be

achieved in a significant proportion of patients (52 of 56).<sup>7</sup> In instances in which surgical repaired were delayed.

Beyond the nerve injury site the clinical assessment is difficult that involve a significant delay. EMG studies after produce evidence of re innervation in the nerve of affected muscle before clinical evidence of functional recovery.<sup>8</sup>

**CONCLUSION**

Surgical repair of peripheral nerve injuries as a significant outcome as compare to those in which surgical repair was not done. Sharp injury with early surgery as better results as compare to those of blast or crush injuries. Distal nerves have significant results as compare to proximal one. The outcome is assess clinically and physiologically at least for one year. After second week of surgery active physiotherapy is recommended.

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