



ORIGINAL RESEARCH PAPER

Medical Science

FUNCTIONAL OUTCOME ANALYSIS OF UPPER BRACHIAL PLEXUS INJURIES AFTER SURGICAL AND PHYSICAL MANAGEMENT AND FOLLOW UP

KEY WORDS: Upper brachial plexus injuries, Functional outcome analysis

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ABSTRACT

A Retrospective Functional outcome analysis of brachial plexus injuries held at physical medicine and rehabilitation department under government Stanley medical college hospital, Chennai. The analysis are made among 32 patients, 20 patients out of 32 were upper brachial plexus injuries. Only 8 patients were operated upon. The physiotherapy and orthosis were given and followed. Post operative cases assessment are made. Outcome analysis revealed comparatively good results in surgical treatment of upper brachial plexus lesion. Road traffic accidents with two wheelers formed the majority of cases with brachial plexus injuries. Obeying traffic rules should be done especially for college students, who are the pillars of the countries for prevention of brachial plexus injuries.

INTRODUCTION

The usual mechanism of brachial plexus injury involves traction, compression, or some combination thereof. Usually, the bony skeleton protects the soft tissues from longitudinal traction. However, when fracture or dislocation violates the skeletal structure, the brachial plexus is left vulnerable to longitudinal as well as compressive forces. As Zimmerman and Weiland point out, in the assessment of brachial plexus injuries, three points need to be ascertained: whether the injury is limited to the brachial plexus, whether the plexus injury is preganglionic or postganglionic, and whether the plexus injury is supraclavicular or infraclavicular. Brachial plexus injuries are most common in young individuals and represent an unfortunate set of circumstances. Whereas the postganglionic lesion can be directly repaired or grafted, the preganglionic lesion is treated by nerve transfer or neurotization with intercostals or peripheral nerves or by reconstruction methods such as tendon transfer, arthrodesis, or amputation.

MATERIALS AND METHODS

We have clinically assessed 32 patients of brachial plexus injuries who presented at the institute of research rehabilitation of hand department of plastic surgery from September 2012 to February 2013. 20 patients out of 32 were upper brachial plexus injuries. Only eight patients were operated upon. The rest of the 12 patients were lost to follow-up. Surgical techniques include neurolysis, nerve grafting, and neurotization was done. They were followed for nearly 10 months. Postoperatively physiotherapy and orthosis were given in physical medicine and hand rehabilitation department. Postoperative improvement were assessed

RESULTS

Of the 20 patients with upper brachial plexus injuries, only 8 patients were operated upon. The rest of the 12 patients were lost to follow-up. The types of surgeries done were three in number. They were neurolysis (37%), nerve transfer of the spinal accessory (11th) nerve to the suprascapular nerve (37%), and Oberlin transfer (26%).

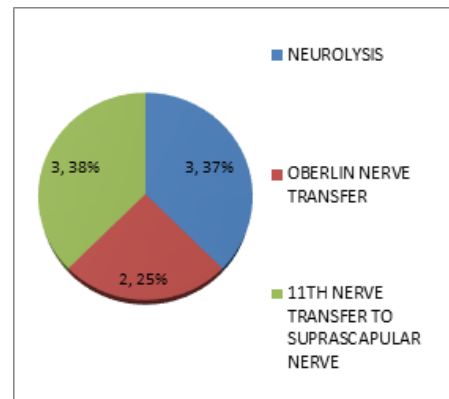
Table 1: Types of Surgeries

SURGERIES DONE	NO OF PATIENTS
NEUROLYSIS	3
OBERLIN NERVE TRANSFER	2
11TH NERVE TRANSFER TO SUPRASCAPULAR NERVE	3

Neurolysis refers to the surgery where the nerves are intact but engulfed in scar tissue, requiring a release of the scars which cause conduction blocks in the brachial plexus. The surgery of nerve transfer was done in the cases where the proximal nerve root was not available due to avulsion injury, and hence direct nerve

suturing was not possible. In these cases, transfer of the intact spinal accessory was done to the suprascapular nerve to achieve neurotization of the supraspinatus and infraspinatus which would stabilize the shoulder. The third surgery of Oberlin transfer was done for the patients who had upper brachial plexus lesion for whom the neurotization of the biceps and brachialis muscles was done with intact fascicles from the ulnar nerve and the median nerves.

Figure 1: Surgeries done for Upper Brachial Plexus injuries



As far as the results of the surgical correction were concerned, 75 % of the patients had improvement. Surgical techniques include neurolysis, nerve grafting and neurotization.

CONCLUSION

Postoperative outcome analysis revealed comparatively good results in surgical treatment of upper brachial plexus lesions, except in the Oberlin procedure of nerve transfer where the results were comparatively poorer. Management of the patient is difficult pre and post operatively. A correct evaluation of the patient pre operatively, and planning and execution of the surgical procedure and post surgical rehabilitation are essential. Nevertheless, with a highly motivated patient and a dedicated specialized surgical team, the prognosis for functional recovery is good, especially in upper brachial plexus injuries, and these patients can still lead productive and satisfying lives. Obeying traffic rules should be done especially for college students, who are the pillars of the countries, for prevention of brachial plexus injuries, which is much easier than curing these problems.

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