BRACHIAL PLEXUS INJURY OUTCOME FOLLOWING REHABILITATION AND NEUROLYSIS

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Background

Traumatic brachial plexus injury (BPI) is a disabling injury of the upper extremity (UE) and a devastating life-altering event, with pervasive detrimental effects on a patient's physical, psychosocial, and financial well-being often requiring prolonged rehabilitation periods. Surgical intervention is often inevitable to obtain complete restoration of the UE.

Case report

A 33-year-old male was transported to the emergency after being stabbed with a knife in the right supraclavicular region from a random attacker. Examination indicated a 3.5 cm penetrating wound which resulted in superior trunk dissection, pneumomediastinum, and subcutaneous emphysema. Immediate stitching of the gaping wound using suture patterns turned out to be malpractice. Protective posture, deltoid hypotrophy, tiny active shoulder movements were observed on the physiatrist examination. The rehabilitation encompassed the Bobath concept and PNF along with plyometric training. First four months it was performed under the physiotherapist's supervision for five consecutive days, and for the next two months once a week. Active UE abduction up to 45° in standing, hardly capable up to 90° in supine, initial elbow flexion with prone hand, and forward flexion up to 60° were measured by goniometer. Initial NMR revealed compressive edema along the course of C5 and C6 roots with its dislocation. The second revealed the disruption of right C6 in the lateral truncal aspect with nerve retraction. EMNG findings did not show a meaningful recovery. Nine months after BPI, external neurolysis of C5 and C6 roots together with subscapular nerve was performed. Three months after, elbow flexion with hand supine was obtainable up to 140°,and UE abduction up to 160°.

Conclusion

The extensive rehabilitation reached its optimal obtainable level after nine months which was still unsatisfactory in terms of biceps flexion and UE abduction respectively. Complete range of motion of the UE was manageable three months after the surgical reconstruction of BPI.

Keywords: brachial plexus injury, rehabilitation, neurolysis