

Post traumatic brachial plexus paralysis in children : a case report

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I. INTRODUCTION :

Brachial plexus paralysis are very rare in children.

Among the pathologies of the brachial plexus, trauma is the most severe of all peripheral nerve injuries because of the difficulty of its treatment and the frequency of its sequelae as paralysis.

II. OBSERVATION :

A child aged 4 years and 8 months, admitted to the paediatric emergency, following a trauma to his left upper limb (falling from a height, landing on the elbow on flexion, with sudden lowering and stretching of the shoulder).

The initial clinical examination found total paralysis of the limb with complete loss of sensitivity. The patient was put on vitamin therapy and corticosteroids with elbow immobilization.

Standard X-ray was normal, MRI showed diffuse thickening of the middle and distal trunks of the left brachial plexus, with a small cavity of focal cervical medullary syringomyelia.(Fig 1)



Fig 1 : MRI image

The patient benefited from a nerve grafting: intraoperative exploration revealed a neuroma between C5, C6 and C7 with avulsion at C8D1.

Using the external saphenous nerve, we connected C5 with the supra scapular nerve and with the posterior trunk, then C6 with the anterolateral trunk and with the anteromedial trunk, and finally C7 with the anteromedial trunk.(Fig 2)

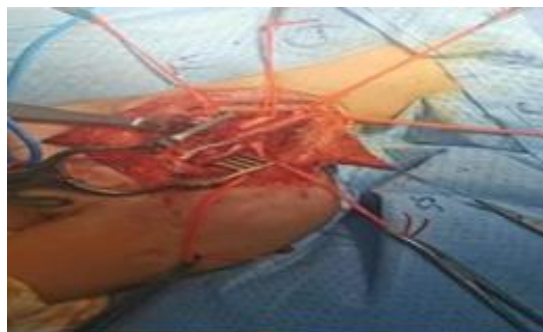


Fig 2 : Per operative image

At three months post-operatively, clinical examination found antepulsion of the shoulder at 30 deg, abduction at 45 deg, flexion and extension of the elbow were barely present, wrist in flexion with hand drooping and fingers in claw. Sensitivity was present in the arm and the proximal half of the forearm.(Fig 3)



Fig 3 : Per operative result

III. DISCUSSION :

Brachial plexus injuries (BPI) occur in 0.1% of pediatric multitrauma patients. Motor vehicle accidents and pedestrians struck by a motor vehicle are the most common reasons for BPIs in this population.

Classification of brachial plexus damages has been historically developed in relation to traumatic etiologies causing upper limb traction. Sequelae of traction injuries can be subdivided into rootlet avulsion or rupture.

Two possible types of avulsion are peripheral and central. In peripheral type, traction forces overcome the resistance of the supports that keep rootlets attached. On the other hand, in central avulsion, the movement of the spinal cord leads to spinal bending and therefore rootlet avulsion. Ruptures can be located both at a pre- or postganglionic level.

The techniques most often used are nerve surgery (grafts, nerve transfers) and palliative surgery. The results of this surgery are very encouraging as in some neurotizations, recovery of elbow flexion is obtained in 60 to 86% of cases. The delay between injury and direct surgery on the plexus is not as critical as in adults. Some children had nerve grafts 30 months after injury and yet had fair recovery (Boome).

IV. CONCLUSION :

The main goals in the rehabilitation of BPIs are prevention of muscle atrophy, prevention and restraint of secondary deformities, pain suppression, recovery of somatosensory deficits, and postoperative care.

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