Management of supination and pronation deformity in Obstetrical Brachial plexus Palsy

An Essay

Submitted For Fulfillment Of Master Degree In Orthopaedic Surgery

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بسم الله الرحمن الرحيم

[وَقُـلِ اعْمَلُـوا فَسَـيَرَى اللَّهُ عَمَلَكُـمْ وَرَسُولُهُ وَالْمُؤْمِنُـونَ وَسَتُرَدُّونَ إِلَـى عَـالِمِ الْغَيْـبِ وَالشَّـهَادَةِ فَيُنَبِّـئُكُمْ بِمَـا كُنْتُمْ تَعْمَلُون] صدق الله العظيم

(التوبة:105)

Abstract

Supination and pronation deformity of the forearm are common squeal of obstetric brachial palsy.

Initially, forearm deformity may be reduced passively, with time and growth – usually after 2 years of age – the interosseous membrane begins to retract and the deformity cannot be passively corrected. In the supination position of the forearm the interosseous membrane space of the forearm reduces and the interosseous becomes retracted in its strong descending radio-ulnar fibers.

Supination contracture of the forearm is a very disabling deformity. Owing to its presence, many common activities in daily life, such as dressing, eating and writing, require elbow flexion and abduction plus internal rotation of the shoulder

In these literature we review the anatomical consideration and pathophysiology of supination and pronation deformity of the forearm and their management

Key words

Obstetric brachial palsy- Supination- pronation

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Reda Ali Abd Al Hamid Sheta

TO THE SOUL OF MY brother

&

TO MY FAMILY

List of Abbreviations

OBPP	**=**	Obstetrical Brachial Plexus Plasy.
IOM	=	The Interosseous Membrane.
DRUJ	=	Distal radioulnar joint.
PRUJ	=	Proximal Radioulnar Joint.
TFCC	=	The triangular fibro cartilage complex.
C. T Scan	**=**	Computed Tomography.
ROM	**=**	Range Of Motion.
LAT	=	Lateral.
ECU	**=**	Extensor Carpi Ulnaris.
FCU	=	Flexor Carpi Ulnaris.
PT	=	The Pronator Teres.

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Aim of the work

The aim of the work is to review the literatures regarding the supination and pronation deformities in Obstetric Brachial Palsy and its management.

Introduction

Supination and pronation deformity of the forearm are common squeal of obstetric brachial palsy.

Initially, forearm deformity may be reduced passively, with time and growth – usually after 2 years of age – the interosseous membrane begins to retract and the deformity cannot be passively corrected. In the supination position of the forearm the interosseous membrane space of the forearm reduces and the interosseous becomes retracted in its strong descending radio-ulnar fibers. Under these circumstances these fibers retract and pronation is blocked. The deformity becomes fixed very quickly and with time the deformity produces a curvature of the forearm bones, especially the radius volar subluxation and dislocation of the distal end of the ulna. In severe deformities the radial head dislocates volarly.

Associated with forearm supination, the wrist hyperextends due to the paralysis of its volar flexors and the partial activity of the dorsi extensors tendons. With forearm in supination gravity increases wrist hyperextension and ulnar deviation. The frequent presence of an active extensor carpi ulnaris (ECU) muscle tends to accentuate the ulnar deviation of the dorsiflexed wrist. The power of the ECU is usually greater than that of the radial extensors of the wrist and flexor carpi ulnaris.

Supination contracture of the forearm is a very disabling deformity. Owing to its presence, many common activities in daily life, such as dressing, eating and writing, require elbow flexion and abduction plus internal rotation of the shoulder.

With this deformity the patient is not motivated to use the hand and has a functional deficit out of proportion to the real muscular and hand sensory conditions. This indicates the importance of early correction of the

deformity to improve hand function before bone deformities and joint dislocations occur.

Associated with forearm supination and deformity of the wrist (dorsiflexion and ulnar deviation) the fingers and thumb often show great weakness or paralysis, especially of their intrinsic muscles. Usually, the metacarpophalangeal joints of the fingers are stiff in extension due to contracture of their collateral ligaments.

In these literature we review the anatomical consideration and pathophysiology of supination and pronation deformity of the forearm and their management.

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