Surgical Correction of Congenital Superior Radioulnar Synostosis

Systematic review and meta-analysis

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Abstract

Background: Synostosis, or osseous union represents a failure of differentiation of parts of any two adjacent bones and can involve any part of the upper extremity. Synostosis between the radius and ulna can be congenital or post-traumatic.

Objective: To review various methods of surgical treatment in management of congenital superior radioulnar synostosis to know which of them is more efficient and had better results

Methods: Our study is asystematic review of different surgical options in managment of superior radioulnar synostosis which included four methods of treatment as we classified them into four groups.

Results: We analysed the results found in our included papers and founded that : Mean age of operation at single and double osteotomy was less than other two groups but with no significant difference. Mean Range of motion improvement was the best with double osteotomy with mild changes in comparison to other groups with no significant difference .

Conclusion: According to the study the best method and the more save with more satisfactory results for correction of congenital superior radioulnar synostosis is double osteotomy distal to synostosis mass**.**

Introduction

Congenital radioulnar synostosis is a rare problem and is thought to be a failure of longitudinal segmentation between the radius and ulna at the 7th week of gestation. Because it is due to a defect in utero, it may be associated with some musculoskeletal anomalies and congenital syndromes such as polydactyly, syndactyly and thumb deformity[(1)].

Congenital radioulnar synostosis was first described by Sandifort in 1793. Congenital radioulnar synostosis is one of numerous components of malformation syndromes in children with chromosomal aberration .It is believed that this malformation is related to chromosome X aberrations. Some cases of congenital radioulnar synostosis was found in chromosome Y aberrations [(2)].

Deformity occurs equally in both males and females and bilateral involvement occurs in 60% to 80% of patients. In addition, family history has also been positive in some cases. Because of the fusion of the proximal radioulnar joint, patients always presented with a fixed degree of pronation, and the degree of pronation determine the degree of the disability and age of presentation ,the more the degree of deformity the more degree of disability and the more early age of presentation [(1)].

Congenital radio-ulnar synostosis is the most frequent congenital anomaly around the elbow joint. Some disabilities in daily activities occurs such as failure to scoop up water in the hands, to use a table knife, fork or chopsticks, or to drink water from a glass. In older children, the main complaint is often difficulty in sport [(3)].