

Congenital Syndactyly of the Fingers : A Report of Two Cases

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Abstract

Syndactyly is defined as the failure of separation of the digits during early gestation. It is one of the most common congenital anomalies. The incidence of syndactyly is uncertain, but estimates range from 1 in 2,500 live births. During development, the fingers are webbed. This remains so, until apoptosis and skin recession allow for formation of the digital interspaces. Full inter-digital spaces are usually present by the end of the 6th week of gestation.

Here we present two patients and three hands who presented to us with syndactyly of the fingers. The first patient who was a 13 year old girl, had complete complex syndactyly between the ring and middle fingers of both hands. She underwent complete release with full thickness skin grafting in the first sitting. Six weeks later, she was reviewed and was noted to have developed scar contracture of the middle finger for which she underwent contracture release and z-plasty as a secondary procedure. In the final review at four months after the second surgery, the child was noted to have only terminal restriction of movements of the involved fingers of both hands with 'fair results' (as per the criteria of Cortez et al).

The second patient was a two years old boy, who presented to us with incomplete simple syndactyly of the ring and index finger of the left hand. He was managed with percutaneous release of the syndactyly. He was reviewed after 4 months and there was full range of movement of the involved digits. He was also noted to have 'fair results' (as per the criteria of Cortez et al).

As we had two different cases with a heterogenous presentation of two different types of syndactyly and who underwent different modalities of management, we are presenting it as an interesting case report in our article.

Key words: Webbing, reperfusion abnormality, Apert's syndrome, congenital hand anomaly.

Introduction

Syndactyly is the second commonest congenital hand anomaly and occurs in about 1:2500 live births, more commonly in males, and is most often seen in the third web space¹. The condition has a strong familial tendency and is usually bilateral in presentation. It can be either primary or secondary, the former being due to a failure of differentiation or separation. Secondary syndactyly is a result of antecedent events and is produced by refusion

abnormality². Syndactyly may present as the sole abnormality or may be associated with other syndromes like Poland's, Cleft hand or Apert's¹. The anomaly can also be classified as either complete

or incomplete, depending on the extent of fusion of adjacent digits. Complete syndactyly is the type where the fingers are joined from the web to the tip. Incomplete syndactyly denotes a type where the fusion of the web spaces occurs only at a point between the web and the tip. Simple syndactyly defines a subtype in which only the skin is involved while complex syndactyly involves bone, the neurovascular bundle and nail structure.³

Case report

A 13 year old girl presented to us with complaints of deformity of both hands since birth. Clinical and radiological evaluation suggested a complete complex syndactyly between middle and ring finger of both hands [Figures 1(A), 1(B)]. Radiographs revealed a bony fusion between the terminal phalanges of the middle and ring fingers [Figures 2(A), 2(B)]. A complete clinical evaluation

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showed no association with any syndrome or any underlying systemic disease.

She underwent a complete bony release with secondary skin grafting as a primary procedure. Six weeks later she was reviewed and was noted to have a scar contracture [Figure 3] with restriction of finger movements. Z-plasty was performed and scar contracture release was done as a secondary procedure. Four months after the second surgery she was reviewed and she was noted to have acceptable range of motion of all the digits and she was able to do all daily activities comfortably with 'fair results' as per the criteria of Cortez et al.⁴ No other complications were noted.

The second case was of a two year old male child, who presented with complaints of deformity of the left hand since birth. Clinical and radiological evaluation led us to a diagnosis of a simple type of syndactyly between the index and ring finger of left hand [Figure 4 (A), 4(B)]. Clinical

assessment and detailed evaluation showed no association with any systemic illness or association with any syndrome.

He underwent a percutaneous release of the syndactyly with a zig-zag incision. He was followed up at regular intervals and during the final follow up after 4 months of surgery, he was noted to have full range of motion of the digits with an acceptable hand function [Figure 5]. He was noted to have 'fair results' as per the criteria of Cortez et al.⁴ No complications were noted.

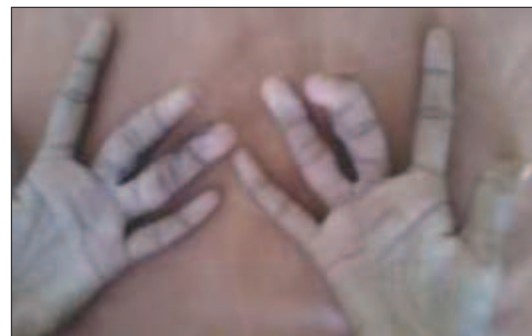


Fig. 3 : After the primary syndactyly release of both hands. Note the flexion contracture of right middle finger at distal interphalangeal joint with malrotation in right middle and left ring finger.



Fig. 1 (A)



Fig. 1 (B)

Fig. 1(A) and 1(B) : Image showing complete and complex syndactyly between the 3rd and 4th digits of both hands



Fig. 4 (A)



Fig. 4 (B)

Fig. 4(A): Simple incomplete syndactyly of left hand between index and ring fingers.

Fig. 4(B): AP, Lateral and oblique views of the left hand showing no bony fusion between index and ring fingers confirming a simple type of syndactyly.



Fig. 2 (A)



Fig. 2 (B)

Fig. 2(A) and 2(B): AP views of both hands showing bony fusion of terminal phalanx of both ring and middle fingers of both hands (Complex type of syndactyly).



Fig. 5 : After surgical release of syndactyly. Note the left hand is nearly similar to the digits of the right hand after release.

Discussion

Most published studies regarding the surgical reconstruction of syndactyly include heterogeneous populations of patients with simple, complex, and complicated syndactyly. Previous authors have noted that complex syndactyly has poorer outcomes with worse function, increased finger deformity, and a higher rate of revision surgery.^{5,6,7,8} The purpose of this investigation was to evaluate a homogeneous group of complete, complex syndactyly patients, using both objective and subjective outcome measures, in an effort to better understand the specific challenges of reconstruction.

The aim of treatment in syndactyly is to separate the fused digits, provide cutaneous cover and create a normal web space. In the past, there have been numerous techniques described for syndactyly correction. The methods have differed in respect of separation of the digits and reconstruction of the web space. It is accepted that long-term stability of the newly created web space is best achieved when the web space is reconstructed using a flap.⁹

Traditional surgical approaches to syndactyly repair have used flaps from the dorsum of the involved fingers and dorsal and palmar interdigitating flaps. Surgical correction of syndactyly needs to be simple and have a minimal rate of secondary correction.^{10,11,12}

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