Syndactyly: Celebrating Diversity in Hand Formation

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Abstract

Syndactyly describes a variable fusion of the soft tissue, skeletal, or both elements of adjacent digits, and it occurs when the normal processes of digital separation and web space formation fail to some degree. Isolated syndactyly is a common congenital anomaly of the hand with an incidence of approximately 1 in 2000. In this pictorial essay, we aim to highlight the beauty and uniqueness of syndactyly, showcasing individuals who embrace their diverse hand formations and move along in life with help of a plastic surgeon.

Keywords

1. Syndactyly
2. Syndactyly surgery

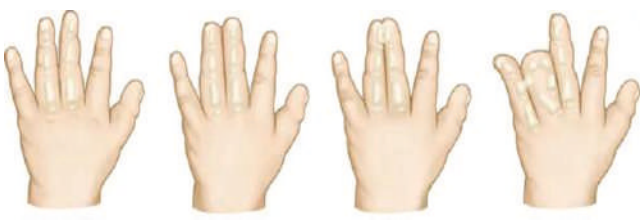
Introduction

The distal end of the "normal" web lies on the palmar side roughly at the mid-level of the proximal phalanx.1 A more distal web is called syndactyly. Syndactyly is one of the most common congenital hand malformations with an incidence of 1 in 2000 live births. Familial syndactyly is reported in 15–40% of syndactylies.2,3 About 50% of patients have bilateral involvement. Males are more affected than females varying from 46–84%. It can appear isolated or in association with other deformities in the upper or lower extremity or as part of a syndrome (like Poland syndrome or Apert syndrome). Syndactyly can be associated with polydactyly and/or clefting (like in synpolydactyly, Greig syndrome, oculodentodigital syndrome and cleft hand).

Syndactyly can be classified as incomplete (soft tissue only, not extending to the tip), complete (soft tissue only, extending to the tip), complex (with distal bone union) or complicated (with more than only distal bone fusion). Early indications for surgery are syndactylies between fingers of acrosyndactyly especially if the thumb is involved. These early indications are to prevent asymmetric growth and/or to unequal length; and/or distal bone fusions; and in complex or complicated create a possibility to grasp.4Simple Syndactyly: Celebrating Diversity in Hand Formationsyndactyly release can be performed from 6 months onwards. Most plastic surgeons will operate on these children between 1–2 years to prevent anesthesia problems.5

Rehabilitation and Support:

Following surgical intervention, rehabilitation is crucial to maximize functional outcomes. Physical therapy, occupational therapy, and specialized interventions help individuals develop dexterity, strength, and coordination. Custom orthotic devices may also be prescribed to aid in finger or toe alignment and mobility.



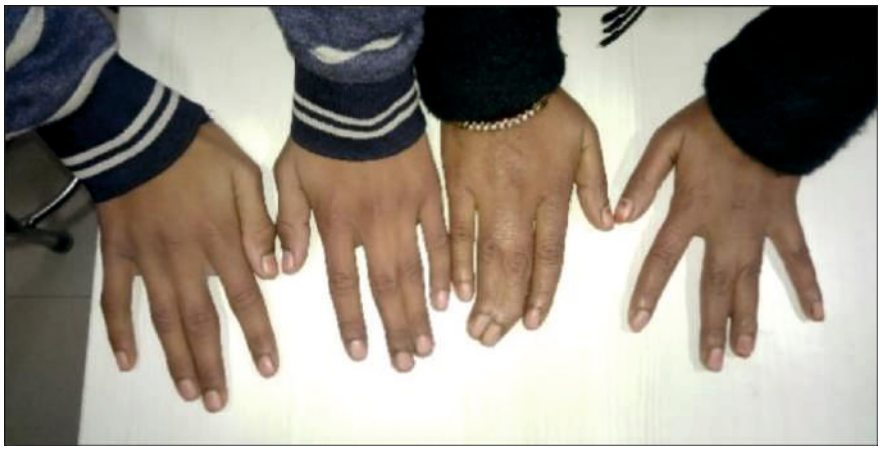


Fig 1 Familial Syndactyly

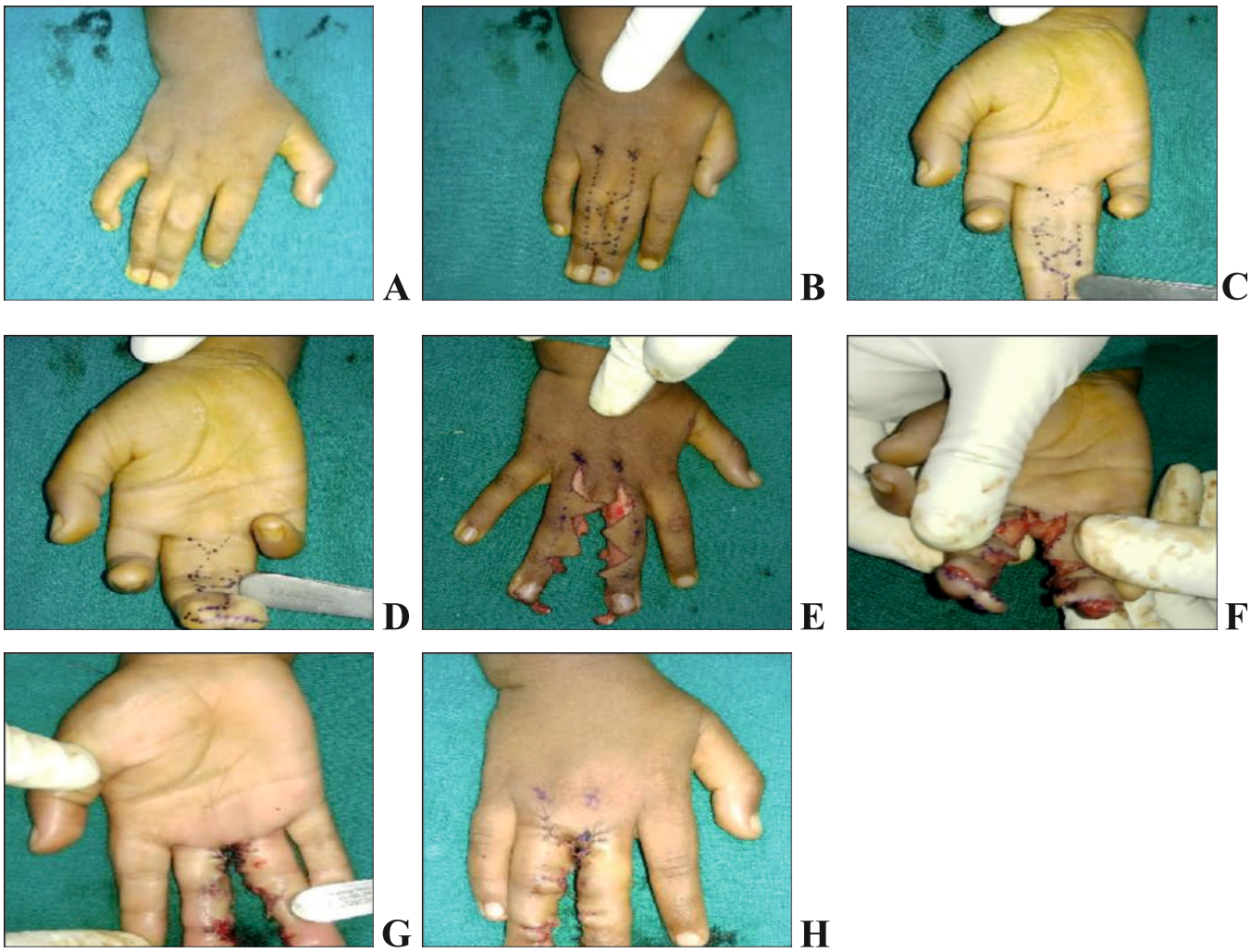


Figure 2. Serial photographs showing- left to right- (A) simple complete syndactyly (B) with dorsal markings (C) With ventral markings (D) With fingertip markings (E) After finger separation dorsal view (F) After finger separation Ventral view (G) After suturing ventral view (H) After suturing dorsal view

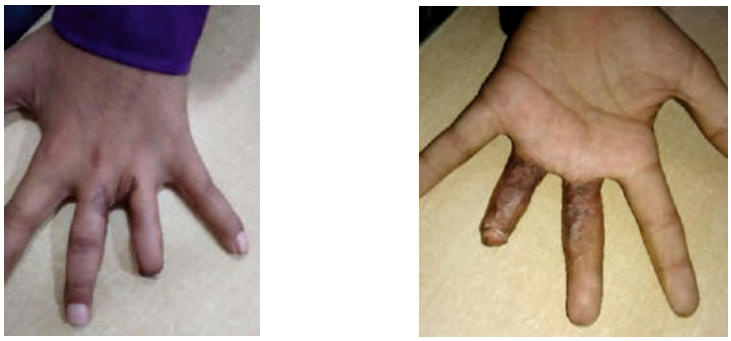


Figure 3. Long term result showing maintained web spaces

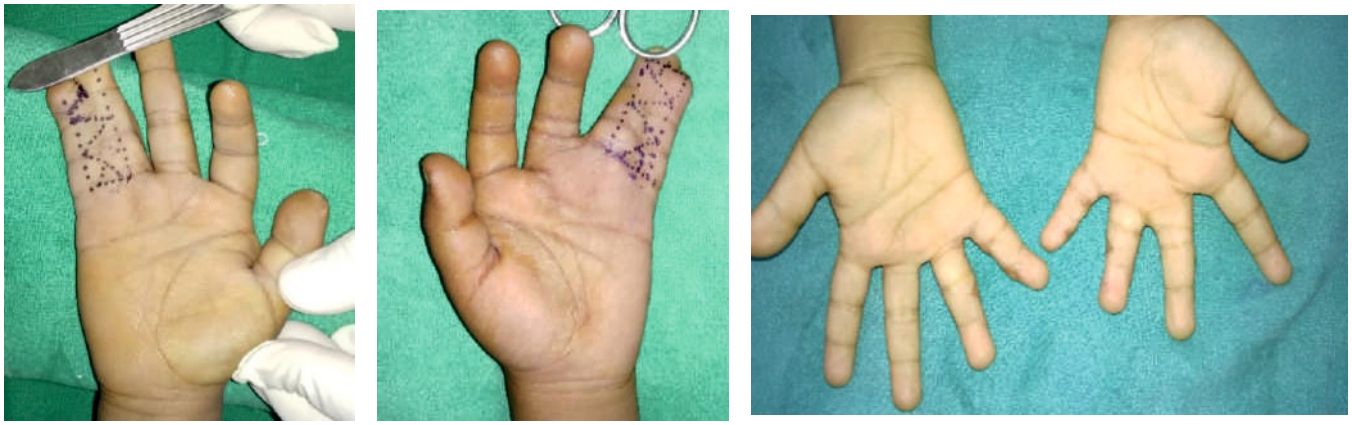


Figure 4. A patient having bilateral syndactyly of 4th web space with well settled web space-long term result

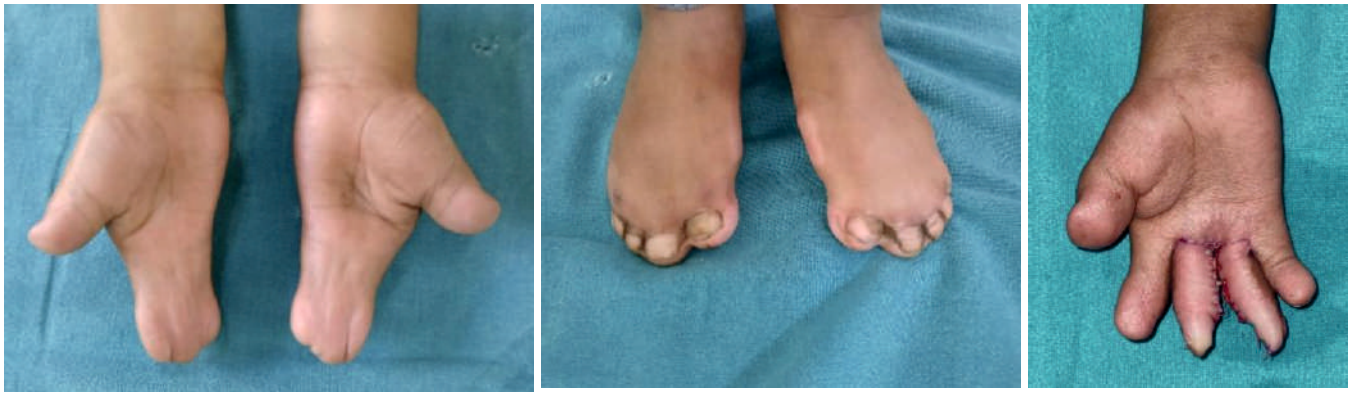


Figure 5. Severe complex syndactyly of hand and feet in Apert Syndrome

Discussion

Syndactyly is a common congenital hand deformity that can manifest in an isolated or syndromic form. Patients can present with simple syndactyly, which occurs when the web space moves distally and there is a fusion of the soft tissue and skin but not of the nail bed, or with complex syndactyly, where there is bone involvement in addition to skin and soft tissue involvement. Patients can also present with either complete syndactyly, which occurs when there is the involvement of the entire digit, or with incomplete syndactyly, where only a portion of the digit is involved. Generally, syndactyly release will occur during school-going age (and typically between the ages of 12 to 18 months). There should be several separate surgeries if one digit is involved in multiple fusions, as performing both

releases in one surgery can lead to neurovascular compromise. Several techniques have been used to separate the syndactylous digits, including the use of the graft, not using a graft, using synthetic dermal substitutes, or application of an external fixator to stretch the skin and soft tissue. Gauze will be placed between the digits post-surgery, which may or may not be reinforced with a POP cast. Complications such as contraction, hematomas, and necrosis may occur after the syndactyly release. If complications such as web creep occur after surgery, another surgery may be indicated. The surgeon must maintain strong communication with parents to explain the surgical plan, postoperative care, and signs that complications are occurring. The Patna journal of medicine: Vol (92) No. 1 I July 2023Through this pictorial essay, we have explored different types and variations of syndactyly, emphasizing the impact on both appearance and function. Early diagnosis, proper evaluation, and timely surgical intervention are crucial for improving the quality of life for individuals with syndactyly, enabling them to lead fulfilling and functional lives.

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