Hypoplastic thumb type IIIB: An alternative method for surgical repair
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ABSTRACT
Hypoplastic thumb is the second most common congenital deformity of the thumb. Thumb hypoplasia is characterized by diminished thumb size, metacarpal adduction, metacarpophalangeal joint instability, and thenar muscle hypoplasia. In the literature, different classification types of hypoplastic thumb have been used and different treatment methods described. In this case we presented an alternative palliative treatment method for a ten-year-old patient with modified Blauth’s classification type IIIB hypoplastic thumb and one-year follow-up results.

Key words: Blauth’s classification, congenital hand deformity, hand deformity, hypoplastic thumb

Introduction
Hypoplastic thumb can be observed as an isolated malformation or in combination with any radial deficiency [1,2]. After duplicated thumb, hypoplastic thumb is the second most common thumb abnormality [3]. Thumb hypoplasia is characterized by diminished thumb size, metacarpal adduction, metacarpophalangeal joint instability, and thenar muscle hypoplasia. Many different classification types of hypoplastic thumb have been used but the modified Blauth’s classification is the most commonly used one [4]. Treatment methods for type I, II, IIIA and V are widely accepted by most authors, but there are different approaches for type IIIB and IV hypoplastic thumb. The main reason for the controversies is due to the differences in parents’ expectations because of the different cultural effects.
Case Report

A ten-year-old boy was consulted to our clinic with left-side type IIIB hypoplastic thumb deformity. Hyperflexion deformity of the first metacarpophalangeal joint, overemphasized adduction deformity and thumb hypoplasia were observed. There was no carpometacarpal joint on anterior-posterior and lateral plain x-ray (figure 1). Amputation of the hypoplastic finger and pollicization operation were explained to the parents. The parents of the patient refused the amputation of the hypoplastic thumb.

Reconstruction of carpometacarpal joint was planned for a further date after skeletal maturation completed and as a palliative operation to create wide and deep thumb-index web space, web space was released and fascia of the first dorsal interosseous and adductor were incised. The proximal based wide flap was planned and elevated over the index finger dorsal site. Two kirschner wires were placed between the first and second metacarpal bone to prevent the collapse of the first web space along the postoperative period (figure 2). The flap was adapted to the first web space. After web space release, for stability of carpometacarpal joint stability, ulnar side collateral ligament and dorsal capsule of

Figure 1. X-ray of the hands demonstrated left-side hypoplastic thumb type IIIB.

Figure 2. Early postoperative view. First web space widened with a flap preparing dorsum of the index finger. Two kirschner wires fixed between first and second metacarpal bones to prevent web collapse.

Figure 3. Preoperative (a,b) and postoperative 12th months (c,d) view.
first metacarpophalangeal joint were plicated with 5/0 polydiaxone suture. Short arm splint was used after the operation for three weeks and the kirschner wires were removed at the end of the third week. The patient used thermoplastic splint for six months to prevent the web collapse and to protect the thumb position.

At the end of the one-year follow-up period, improvements in both hand and thumb functions were observed. Hyperflexion deformity at the metacarpophalangeal joint and adduction deformity of the thumb was reconstructed (figure 3). Improvement in thumb opposition and grasping function of the hand were observed (figure 4-5). Hand appearance and functions were obtained close to normal.

Discussion

Especially in delayed form of type IIIB hypoplastic thumb deformity reconstruction choices can differ because of the both socio-cultural effect and parents’ expectation. Although underdeveloped appearance of a finger, decision of the amputation is more difficult for parents. Because of these reasons; we preferred an alternative reconstruction way in this delayed case and we obtained an acceptable result at the end of the follow-up period. This reconstruction method is not ideal for type IIIB hypoplastic thumb according to classic knowledge but can be an option in the absence of proper alternatives and as a palliative approach till definitive treatment.

References