Absent Flexor Pollicis Longus: Case Report with Review of Literature

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Abstract An asymptomatic absence of flexor pollicis longus without association with any other anomaly or hypoplasia of the thenar muscles in a 28-year-old patient is reported due to its rarity. The inability to flex the interphalangeal joint of the thumb and the absent flexor crease of the thumb led us to identify the absent tendon, and the tendon could not be palpated in the flexor crease of the thumb. Routine X-rays, ultrasound scans, and a computed tomography with soft tissue enhancement was used to confirm and document the condition. The patient was not referred for a magnetic resonance imaging, facilities for which are not available in the center where the author is working, as he was not keen in surgical interference.

Keywords Tendon · Flexor pollicis longus · Thumb · Oman · Congenital anomaly

Introduction

Congenital anomaly and hypoplasia of the thumb can be quite a disabling disability, the thumb being the most important member of the upper extremity. An absent flexor

pollicis longus (FPL) is reported rarely in the literature [2, 7], and its association with normal thenar muscles are even rarer [8]. Patients are usually brought earlier in life as parents notice inability on the part of the child to flex the interphalangeal joint of the thumb. Most of the case reports are in children [7]. The absence of the flexion crease of the thumb along with absent flexion makes one suspicious of the condition [2]. Rarely, patients present late [3] or are noted when they present for some other unrelated conditions, as in our case. Adults who present are reluctant to undergo the surgical procedure and the rigorous rehabilitation as they already are accustomed to the deformity. In our case, the patient refused any surgical interference as he already is settled in life, and the deformity is of little functional significance to him.

Case Report

A 28-year-old right-handed gentleman presented in the orthopedic clinic with trauma to the left middle finger. He was diagnosed to have a sprain of the medial collateral ligament of the proximal interphalangeal joint. He was found unable to flex the interphalangeal joint of the right thumb as an incidental finding.

The patient was aware of the deformity ever since he was a child but was not concerned about this. He works for the army in a sedentary job and could even write with decent handwriting though with difficulty. The patient denied any injury in the past. There was no ligamentous laxity in other joints examined.

There was no active flexion at the interphalangeal joint. The patient could hold a pen, but the interphalangeal joint went into hyperextension while holding objects (Fig. 1). The flexion crease of the interphalangeal joint was absent

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Figure 1 Functional limitation in holding a pen, note absence of active flexion of the interphalangeal joint of the right thumb.

on the right. The thenar muscles were normal. On palpation, the prominence of the flexor tendon was not felt over the flexor crease of the thumb (Fig. 2). There was no active flexion at the interphalangeal joint, and the passive flexion was 10°.

The patient was subjected to an ultrasound scan and a computed tomography (CT) scan of the thumb, and both investigations revealed an absent FPL tendon. His routine X-rays of the hand did not show any hypoplasia of the first metacarpal or the phalanges. He was offered arthrodesis of the interphalangeal joint of the thumb in a functional position, which he refused. A facility for magnetic resonance imaging (MRI) is not available in this center, and the patient was not referred for an MRI scan as he was not keen on the treatment (Figs. 3, 4, 5, and 6).

Figure 2 Comparative photograph showing the absent flexor crease of right thumb.

Figure 3 X-ray of both hands showing normal morphology of the bones.

Discussion

The most important part of the human upper extremity is the thumb. Sir Isaac Newton quoted that “in the absence of any other proof, the thumb alone would convince me of God’s existence” (http://en.wikiquote.org/wiki/Isaac_Newton, as quoted by Des MacHale, in “Wisdom” [2002]. Accessed on 26th Feb 2008). Yet, one can have an anomaly in the thumb that could be quite disabling. FPL is thought to be a recent acquisition in evolution of the hand and is not found in some primates [4]. Most of the case reports are in the pediatric age group [1,3,7], and long-term results are not available. Congenital absence of FPL without hypoplasia of the thenar muscles is a very rare anomaly with very few case reports in the English literature [2].

The diagnosis is made when the patient presents with the inability to flex the interphalangeal joint of the thumb. The deformity also could be due to anomalous insertion of the FPL, congenital tenovaginitis of the flexor tendon sheath, partial anterior interosseous nerve palsy, traumatic rupture of the FPL, and interconnection between FPL and EPL [2,7,8]. The flexor crease of the thumb is absent, and the patient would not be able to actively flex the interphalangeal joint [7]. The dorsal wrinkles may also be less prominent [2] as in our case. Skeletal hypoplasia of the thumb has been reported in a case report [2].

Only very few cases of absent FPL without aplasia of the thenar muscles have been reported [2]. Lutes and Tumurian discussed in a paper about a patient aged 43 years who modified his life style in spite of the bilateral aplasia [3]. The transfer of the flexor digitorum superficialis of the ring finger is reported to give functional flexion of the thumb [3,7,8]. Most of the reports of tendon transfer are in children, and none of the case reports that the author

Figure 4 Ultrasound scan showing the FPL on the *left* (figure on the left) and absent FPL on the *right*.

reviewed discussed the management in adults. As time goes on, patients get accustomed to the deformity and, most of the time, are reluctant to go for surgical correction [2]. The fusion of the interphalangeal joint of the thumb in a functional position is the preferred surgical option in an adult with weak or painful movements of the thumb [3].

Ultrasound scans, routine X-rays, and MRI have been mentioned in various reports as the investigations [1, 2]. In our case, the ultrasound scan showed aplasia of the FPL, and the comparison was done with the normal side.

Another advantage we got, as in the case of Alicioglu, was that the structures in the hand were analyzed dynamically by

moving the thumb. The ultrasound scan is recommended as the initial diagnostic modality [1]. Radiographs of the hand did not show any abnormality. There are no reports of a CT scan being done to diagnose this. Congenital absence of thenar muscles may be due to failure of differentiation of the dermatofascial structures or failure of development of the recurrent branch of the median nerve [5, 6]. The specific cause of the aplasia of FPL is not documented so far. The only other case report of an adult was in a 43-year-old serving soldier who was not functionally incapacitated as in our case [3].

Figure 5 CT scan showing the intact FPL on *left* and its absence on the *right*.

Figure 6 CT scan axial cut showing the absent FPL on the right thumb.

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