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Case report

Index finger disability due to flexor superficialis tendon anomaly

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Abstract. *Background and aim:* We present the case of a 18 year old patient with history of two years of index disability, our purpose is to describe an atypical cause of digit dysfunction. *Methods:* An anomalous fibrous cord between the flexor superficialis tendon indicis and radius was found in a young man's distal forearm upon surgical exploration after 2 years of index disability. *Results:* The excision of the fibrous cord resulted in quick and complete recovery. *Conclusions:* We offer our experience with this case in the differential diagnosis of digit disability. (www.actabiomedica.it)

Key words: anomalous flexor tendons, index disability, digit dysfunction

Introduction

Connection anomalies between the index finger's Flexor Digitorum Superficialis (FDS) tendon and the radius was never described in anatomy or in the literature.

The purpose of this report is to describe this atypical anomaly and to present its clinical significance on index finger function.

Case report

An 18-year-old male patient was referred to a hand surgery consult for dysfunction at the right index finger; the symptoms had started almost two years before. The patient's medical history did not report previous traumatic injuries to the wrist.

A direct X-Ray revealed a dissociation of the radioulnar distal joint (RUDJ) (fig.1).

The physical examination showed a wrist flexion of 80°, but an extension of only 15°. Moreover, the degrees of flexion and extension of his right index

Figure 1. Direct X-Ray of the right wrist. Note the radio-ulnar diastasis on the right.

changed based on the wrist position. When the wrist was flexed, the index reached almost full extension (fig.2). When the wrist was in a neutral position or in slight extension, the index finger remained in a stiff flexion with failure to extend, even passively (fig. 3), in particular at the level of the proximal interphalangeal joint (PIPJ).

The differential diagnosis was the presence of an intrinsic muscle contraction (1), an anomalous flexor tendon (2,3,4,5,6,7,8), or a post-traumatic fibrosis (9) with involvement of the flexor superficialis indicis tendon.

The first option was excluded based on physical examination: the Finocchietto intrinsic Plus test (1) showed an abnormal clinical scenario with hyperflexion of PIPJ when the finger was in slight extension; an anomalous flexor tendon such as Linburg-Comstock anomaly (2), wich is an anatomical variation characterized by a tendinous connection between the flexor pollicis longus (FPL) and the FDS indicis, was excluded because of the absence of correlation with the flexion of the tumb and the interest of PIPJ instead of distal interphalangeal joint (DIPJ); in addition, the patient's medical history did not report any traumatic injury at the wrist, although radiograph shown diastasis of the RUDJ. A congenital anomaly remained a valid possibility, since it could have become symptomatic when tendon and radius started to grow at a different pace.

Figure 2. Physical examination at wrist flexion: normal extension of the index.

The X ray did not explain the limited extension of the wrist, and the hyperflexion of the PIPJ with the wrist in slight extension at full passive mobilization of the DIPJ was suggestive for some sort of restrain concerning the superficial flexor tendon.

For these reasons a surgical exploration was indicated.

A zigzag incision was used to explore the distal volar side of the forearm. The exploration revealed a short, inextensible cord of fibrous tissue (fig.4) between the radius and the superficialis tendon which limited the function of the latter.

The anomalous fibrous cord was surgically excised. Passive recovery of the finger was assessed intraoperatively. Upon awakening, the patient actively confirmed normal range of motion of the finger (fig.5 a e b).

Discussion

In the literature index finger disability is not widely described. It is however usually connected

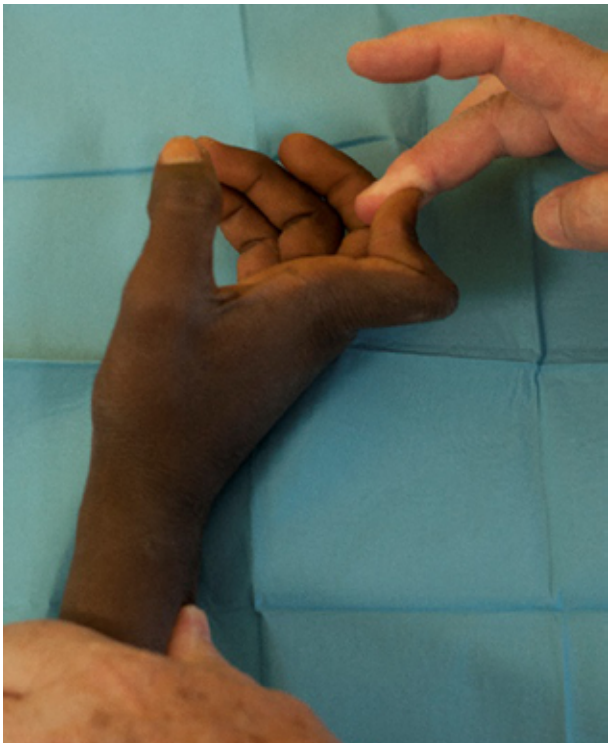

Figure 3. Physical examination at extension: the index PIJ gets locked at 90°,even against traction.

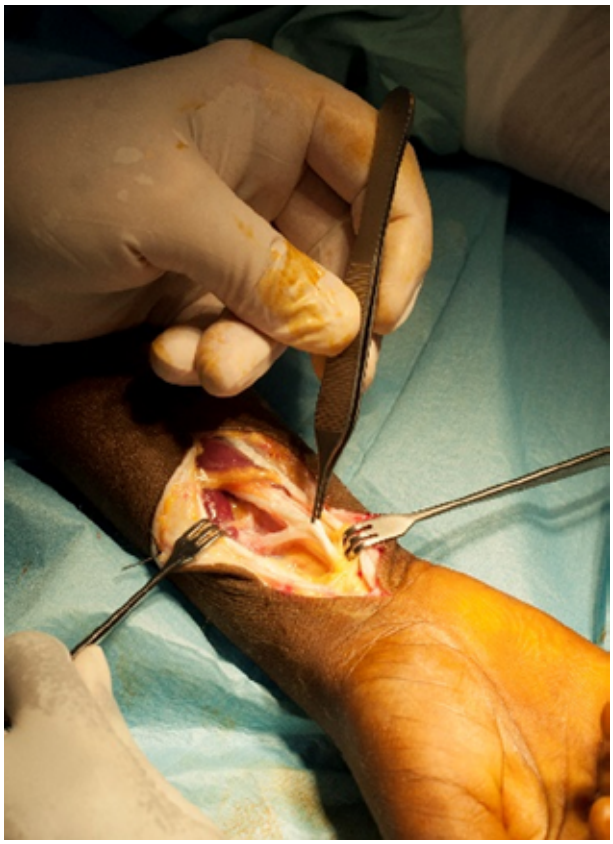

Figure 4. Surgical treatment: The vinculum between radius and superficialis flexor tendon.

to ischemic contracture of intrinsic muscle (1), to Linburg Comstock anomaly (2), or to an anomalous FDS muscle (3,4). This last occurrence yet leads to disability (5) in a very few cases. Disability connected to post traumatic adhesions (9) is also a rather common event but it usually has a different clinical presentation.

As far as we know, this is the first reported case of index finger superficialis tendon and radius connection abnormality. We could not define with certainty the etiology of this index finger dysfunction.

An explanation of this clinical scenario could be based on a congenital anomaly rather than a post-traumatic fibrosis.

The books of Human Anatomy described numerous anomaly of hand's muscles and tendons, reguarding their insertion, their absence or additional elements, in particular at the ulnar and radial side of the hand.

Sappey e Testut (10,11) described connections between flexor pollicis brevis and abductor pollicis brevis.

Figure 5. Postoperative pictures.

Cruveilhier reported a fibrous connection, similar to what we' ve seen in our patient, among the anterior border of the radial styloid and the abductor pollicis brevis (12).

Although in literature different anomalies are described (13), we have not found a clinical scenario determined by an anatomical finding such as the one we are reporting.

The post- traumatic hypothesisis suggested by the RUDJ diastasis could be explained with a traumatic hematoma resulted in fibrotic tissue and the subsequent formation of a fibrous cord wich connects the radius and the FDS indicis.

In both cases dysfunction showed up when tendon and radius started growing at a different pace at the pubertal growth spurt (14).

Conflict of Interest: Each author declares that he or she has no commercial associations (e.g. consultancies, stock ownership, equity interest, patent/licensing arrangement etc.) that might pose a conflict of interest in connection with the submitted article

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