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A PSEUDOTUMOUR OF THE HAND

(*An abnormal flexor digitorum sublimis*)

D. BARRIE CASE, M.B., F.R.C.S.

*Orthopaedic Registrar,
Alder Hey Children's Hospital, Liverpool*

THIS is an account of a previously unreported variety of "tumour" of the hand.

Case Report

A girl, aged sixteen years, presented with a swelling in the right palm and complained of some pain in the wrist. She gave a history of having sustained a blow on the hand with a tennis ball four years previously and dated her symptoms from that time, but stated that the pain and swelling had subsided in the interim period and had not troubled her until she had started work, a job which, at some time, involved screwing bottle tops. On examination there was a "tumour" extending proximally about one and a half inches from the region of the second metacarpal head and lying medial to the thenar eminence. Its maximum breadth was three-quarters of an inch. The "tumour" appeared to lie deep to the palmar aponeurosis and there was a dusky hue associated with it. It was of smooth outline and texture and was not adherent to skin: the emptying sign of a haemangioma was not obtainable. There was a suggestion of contracture of the index tendon when the finger was forced passively into extension. Exploration was advised upon a diagnosis of a tendon sheath tumour.

Operation. Through a palmar crease incision, the tendon of the flexor digitorum sublimis (N.T. superficialis) to the index finger was found to be interrupted by a small fusiform muscle belly, the tendon ending at the proximal pole of the normal-looking muscle and commencing again at its distal pole. (see Fig. 1). The muscle twitched when it was pinched with forceps but the nerve supply was not isolated: it did not appear to arise from the digital branches of the median nerve to the first and second web spaces. A vascular pedicle entered the deep (dorsal) surface of the muscle from the depth of the palm, but nerve fibres were not obvious in this.

A superficial portion of the muscle was shaved off to decrease the bulk of the swelling and the skin was closed.

There was no similar "tumour" in the left palm.

Discussion

No mention of this anomaly has been found in the text books, anatomical or surgical, of the English-speaking world.

FIG. 1.—View from radial aspect showing the muscle belly and tendon which have been lifted up—the tendon of flexor digitorum profundus to the index finger and its lumbrical muscle are shown deep.

Gaisford (1960) classified tumours of the hand into three groups, benign, malignant and pseudotumours. This condition would, without doubt, fall into the third category. Gaisford does not include it in his list of pseudotumours nor is this anomaly reported by other authors. (Bunnell, 1956; Byrne, 1954; Clarkson and Pelly, 1962; Howard, 1951; Mason, 1937; Pack, 1939; Posch, 1956; Stack, 1960, 1964). Clearly it must be included in the differential diagnosis of hand tumours.

The flexor digitorum sublimis is a mammalian innovation, having several morphological components. The muscle belly arises by cleavage from the intermediate portion of the superficial brachio-antebrachial muscle mass. The proximal portions of the tendons are either split off from the profundus tendons, or are perhaps formed *de novo* by local condensations of mesenchyme. The distal portions of the tendons, including their insertions, are thought to develop from the primitive (reptilian) superficial short digital flexors, a view which may have some bearing on this case.

Bunnell (1956) states that in the amphibia the intrinsic muscles of the manus are the motive ones for the digits, for there are no active long digital flexors. In reptiles the flexor digitorum profundus becomes effective and is associated in the manus with two layers of short muscles, a dorsal one, forming the lumbricals, and a ventral one — the flexores breves superficiales — which take origin mainly by slips from the transverse carpal ligament. The flexores breves superficiales are bicapital muscles, with radial and ulnar heads for each finger, the tendons from each head embracing the profundus tendon and uniting dorsally to become inserted into the middle phalanx.

In mammals the flexores breves superficiales probably become continuous with the flexor digitorum sublimis beneath the flexor retinaculum forming the new long flexor tendons. Occasionally, either normally or abnormally, one or more of the small palmar muscles persists (flexor brevis manus) and may take the place of its associated flexor digitorum sublimis. A homologous formation is the flexor digitorum brevis in the primate foot. Rarely the flexor digitorum sublimis and flexor brevis manus may coexist, being inserted by a shared tendon, and, presumably on this evidence, Straus (1942) states that the flexores breves superficiales do not become completely incorporated during ontogeny.

In the case reported above a muscle belly completely replaced a portion of the flexor digitorum sublimis tendon to the index finger. When the tendon was pulled upon, it was felt moving above the carpal tunnel and was not attached to the flexor retinaculum. If this "pseudotumour" is in fact an atavistic flexor brevis manus it appears to contradict Straus's generalisation.

An alternative explanation of this anomaly is the trigastric structure of the deep portion of the flexor digitorum sublimis motivating the index and little fingers (Wood Jones, 1920; Grant, 1948; Henry, 1959; Last, 1959). There may have been a distal shift of the lower index belly into the palm, with elongation of the intermediate tendon. This was not confined as it was undesirable to inflict unnecessary trauma on the patient. It is, however, an unlikely explanation as in a vestigial muscle the diminishing belly tends to migrate proximally. Van Demark (1955), however, has reported an inverted palmaris longus presenting as a tumour at the wrist, and Reimann, Daseler, Anson and Beaton (1944) found a 4.5% incidence of abnormally situated bellies in 510 post mortem specimens of palmaris longus. No record can be found of similar findings in the flexor digitorum sublimis, and this muscle is in its ascendancy rather than its eclipse.

Summary

An anomalous muscle belly replacing part of the flexor digitorum sublimis tendon to the index finger and presenting as a palmar "tumour" is reported.

Its morphological significance is discussed.

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