EXTENSOR DIGITORUM BREVIS MANUS MUSCLE - A DIAGNOSTIC RED HERRING

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SUMMARY: Extensor digitorum brevis muscle is an atavistic muscle occurring rarely in the dorsum of hand. The anomaly is so rare that it is usually diagnosed as a ganglion. In the case presented one hand was explored and the presence of the muscle on the other side was confirmed by electromyography.

CASE REPORT

A young adult male doctor was diagnosed to have bilateral dorsal wrist ganglion during a routine pre-entry medical check up to the Armed Forces Medical Services. Though they were asymptomatic, he was considered as temporarily unfit and was advised excision of the lesions. Since he was keen to join the services, he requested excision of the 'ganglions'.

On examination, there were identical swellings on the dorsum of both the hands over the distal carpal row and extending between second and third metacarpals (Fig. 1). Each measured 1.5 cm x 0.5 cm. It was more prominent on resisted extension of the index finger and disappeared on active flexion. There was little side to side mobility and it was non tender. Though it was not typical of a ganglion,

(Fig-1) The swelling on the dorsum of the unoperated left hand.

(Fig-2) Sketch of the operative finding showing the origin and insertion of EDBM.

(Fig-3) The excised muscle belly over the dorsum of right hand.
it was decided to explore in order to satisfy the requirement for entry to the Armed Forces. On exploration of the right hand it was found to be a short single muscle belly arising from capitae and adjacent part of trapezoid. It ended in a thin tendon which fused with the extensor digitorum communs to the index finger just proximal to the second metacarpophalangeal joint (Fig.2). The muscle along with its tendon was excised (Fig.3). Post-operatively he complained of significant weakness of the index finger. Gradually he regained full strength. Electromyography confirmed the presence of the muscle in the left hand and it was not operated.

DISCUSSION

Extensor digitorum brevis muscle occurs normally in the foot. It was first reported in the hand by Alvinus. In his patient the extensor indicis proprius muscle was absent and its function was presumably taken over by a short muscle originating from the dorsum of hand. Bingold also reported similar cases. The extensor digitorum brevis muscle is regarded as an atavistic structure and may be present in various forms. When fully developed it has four slips, one for each finger but never for the thumb. The muscle has been seen to take origin from capitate, trapezium, trapezoid, hamate and very rarely from metacarpals. The muscle is supplied by the radial nerve.

In its most common presentation there is a single muscle belly for the index finger (also called as extensor indicis brevis). The muscle presents as a fusiform swelling on the dorsum of hand. Some people may have discomfort or pain aggravated by increased hand movements. The muscle feels firm on extension of the fingers and disappears or feels soft on flexion of the fingers. This clinical finding should raise the suspicion that a swelling on the dorsum of hand could be this muscle.

Most of the time, it is asymptomatic. The symptoms are attributed to muscle hypertrophy and majority of the patients are in the second or third decade. As the proximal part of the muscle is under the extensor retinaculum, the unyielding nature of this structure has been thought to give rise to pain on muscle contraction. Division of the retinaculum has been suggested to relieve pain. However, the patient mentioned in the article by Ross was not relieved of symptoms after division of the retinaculum. He was re-operated after 4 months and the muscle was excised. Though Reordan and Stokes have written against excision since they encountered post-operative peritendinous fibrosis, most reports favour excision in symptomatic patients. Surgery is not advised in asymptomatic individuals. In the case reported, since the patient was a doctor, who was advised excision of the "ganglion" before joining the Armed Forces, the surgery was done on his right hand, and the correct diagnosis of a rare muscle arrived at. Presence of a similar muscle was confirmed on the left hand by electromyography and surgery was therefore not needed on that side.

Considering the paucity of its description in standard text books, extensor digitorum brevis manus is often wrongly diagnosed clinically as dorsal ganglion or tenovaginitis. The correct diagnosis depends on exercising a high index of suspicion, particularly when dealing with patients who have identical swellings on the dorsum of both the hands. If the swelling becomes more prominent on extension of the finger and gets reduced on flexion, chances of it not being a ganglion are higher. The muscle becomes symptomatic only in very few individuals when it gets significantly hypertrophic. Only such individuals require surgery and surgery is not indicated in asymptomatic individuals.

References


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