

# Unilateral variant origin of first lumbrical

Bhingardeo A V<sup>1\*</sup>, Khambatta S<sup>2</sup>

<sup>1</sup>Registrar, <sup>2</sup>Additional Professor, Department of Anatomy, TNMC and BYL Nair Hospital, Mumbai, Maharashtra, INDIA.

Email: [dralkabhingardeo@gmail.com](mailto:dralkabhingardeo@gmail.com), [drseema\\_ojha@yahoo.co.in](mailto:drseema_ojha@yahoo.co.in)

## Abstract

lumbricals, the wing tendons are the intrinsic muscles of hand. They perform flexion at metacarpophalangeal joint and extension at interphalangeal joint. During routine dissection of an adult male cadaver, we observed unilateral variation in the origin of first lumbrical in the left hand. This variant first lumbrical got composite origin from the first tendons of flexor digitorum profundus (FDP) and flexor digitorum superficialis (FDS). Rest all lumbricals were normal taking origin solely from FDP tendons.

**Key Words:** lumbrical

## Address for Correspondence

Dr. Alka Bhingardeo, Mahalakshmi Society, Block No. 207, Near KEM Hospital, Parel Mumbai-400012, Maharashtra, INDIA.

Email: [dralkabhingardeo@gmail.com](mailto:dralkabhingardeo@gmail.com)

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## INTRODUCTION

Lumbricals are small four intrinsic muscles of hand numbered from lateral to medial side. They resemble like earthworms hence named so. The lumbricals take origin from the four tendons of flexor digitorum profundus (FDP), pass distally along the radial side of corresponding metacarpo-phalangeal joint and joins the radial margin of dorsal digital expansion as distal wing tendons<sup>1</sup>. First and

second lumbricals are unipennate and arise from the radial side of profundus tendons for index and middle fingers. Third and fourth lumbricals are bipennate and arise from the adjacent sides of profundus tendons for the middle, ring and little fingers. Lumbricals insert on dorsal surface of the bases of the middle and distal phalanges as distal wing tendons<sup>2</sup>. Variation in the attachments of lumbricals is common.<sup>2</sup>

## CASE REPORT

During routine dissection of an adult male cadaver, we observed variation in origin of first lumbrical. First lumbrical got composite origin from first tendon of flexor digitorum profundus (FDP) and flexor digitorum superficialis (FDS). The variation was unilateral, on the left side only. Right sided lumbrical was normal, taking origin from radial side of first tendon of FDP.



Figure 1:



Figure 2:

## DISCUSSION

There are many studies describing variations of first lumbrical. Mehta and Gardner<sup>3</sup> described the anomalous origin of first lumbrical in 2.7% cases. They have reported additional origin of first lumbrical from flexor digitorum superficialis, the first metacarpal, third metacarpal and also in forearm from flexor pollicis longus.<sup>4</sup> S. nayak<sup>5</sup> also found an additional muscle belly of the first lumbrical muscle which took origin from the FDS tendon within the carpal tunnel. Hosapatna M *et al.*<sup>6</sup> observed bifid 1st lumbrical in 3.3% of cases in his study. Guiyun Zhang<sup>7</sup> found bifid origin of first lumbrical bilaterally. He named bifid heads as radial and ulnar heads. Out of the two heads, the radial one was continuous with and originated from the tendinous fibers of the accessory flexor tendon which was an extra flexor tendon found in flexor compartment while the ulnar head originated from the FDP tendon to the index finger. Vrushali S. Kolte<sup>8</sup> in her study found a sinuous curve of first lumbrical. This finding was unilateral and was associated with an incomplete superficial palmar arch. The presence of an additional muscle belly for the first lumbrical has a phylogenetic significance and may compress the median nerve in the carpal tunnel.<sup>9</sup> Awareness of such variations of lumbricals is necessary to avoid complications in hand surgeries like lumbrical release operation.<sup>10</sup> The lumbrical muscles, especially the 1st and 2<sup>nd</sup> lumbricals, are used as muscle flaps for the coverage of the median nerve and its palmar branches. Hypertrophy of the lumbrical muscles causes compression of the radial and ulnar collateral arteries, leading to chronic ischemia. Hypertrophied lumbricals can cause compression of the radial and ulnar digital arteries leading to chronic ischemia. Hence, a complete knowledge of lumbricals is essential. Proper knowledge about anatomy and variations prevalent in intrinsic musculature of hand is mandatory for various surgical

procedures like cleft hand surgery, pollicisation and other digital transposition procedures.<sup>11</sup>

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