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Short report

An accessory extensor digiti minimi arising from extensor carpi ulnaris

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ABSTRACT

In a study of an accessory extensor digiti minimi arising from extensor carpi ulnaris in 240 upper limbs, an accessory tendinous slip originating from extensor carpi ulnaris was observed in the tunnel of the 6th compartment at the wrist in 82 (34.2%). The slip inserted into one of several sites on the 5th metacarpal bone, such as on the base with the main tendon (29.6%), on the midportion (2.5%) or on the head (1.7%). The last type of accessory tendinous slip, which was connected with the extensor aponeurosis of the little finger, is the accessory extensor digiti minimi arising from extensor carpi ulnaris described by Kaplan & Spinner (1984).

INTRODUCTION

Extensor carpi ulnaris, rarely, has an additional component which inserts into the base of the proximal phalanx of the little finger and is known as the ulnaris digiti minimi (Wood Jones, 1942). An accessory tendinous extension from the lower part of the tendon of extensor carpi ulnaris is frequently observed. The extension runs towards the proximal phalanx of the little finger and is sometimes connected with the medial slip of extensor digiti minimi at the head of the 5th metacarpal bone (Mestdagh et al. 1985). Kaplan & Spinner (1984) referred to it as an accessory extensor digiti minimi arising from extensor carpi ulnaris. Barfred & Adamsen (1986) reported clinical cases of an anomalous tendinous slip which connected with extensor carpi ulnaris and the extensor of the little finger.

In the present study, anatomical variations in the accessory tendinous slip arising from extensor carpi ulnaris were examined in cadaver specimens to investigate the accessory extensor digiti minimi arising from extensor carpi ulnaris.

MATERIAL AND METHODS

For this study, 240 normal human upper limbs were examined, all in pairs, from cadavers of adult Kyushu Japanese. The specimens were randomly selected from among the 1986–8 dissections of normal humans performed by the medical students at the University of Occupational and Environmental Health, Japan. Careful dissection and observation revealed the presence of the accessory tendinous slip arising from extensor carpi ulnaris in the tunnel of the 6th compartment at the wrist. The width of the accessory

Table 1. *Frequency of accessory tendinous slips arising from extensor carpi ulnaris reported by the present and other authors*

	N	n	%	Population
Sano (1931)	10	1	10.0*	Ainu
Inoue (1934)	100	11	11.0*	Japanese
Iwami (1951)	50	13	26.0	Japanese fetuses
Kosugi et al. (1987)	375	100	26.7	Japanese
Mestdagh et al. (1985)	150	50	33.3	European
Present author	240	82	34.2	Japanese

N, number of limbs studied; n, limbs with slips;
* Significantly lower than the present study ($P < 0.05$).

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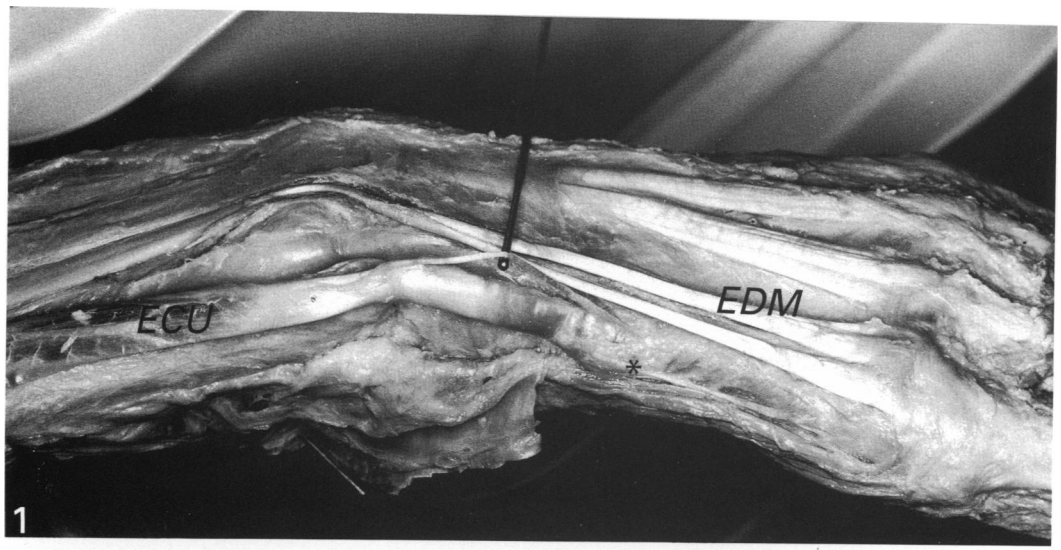

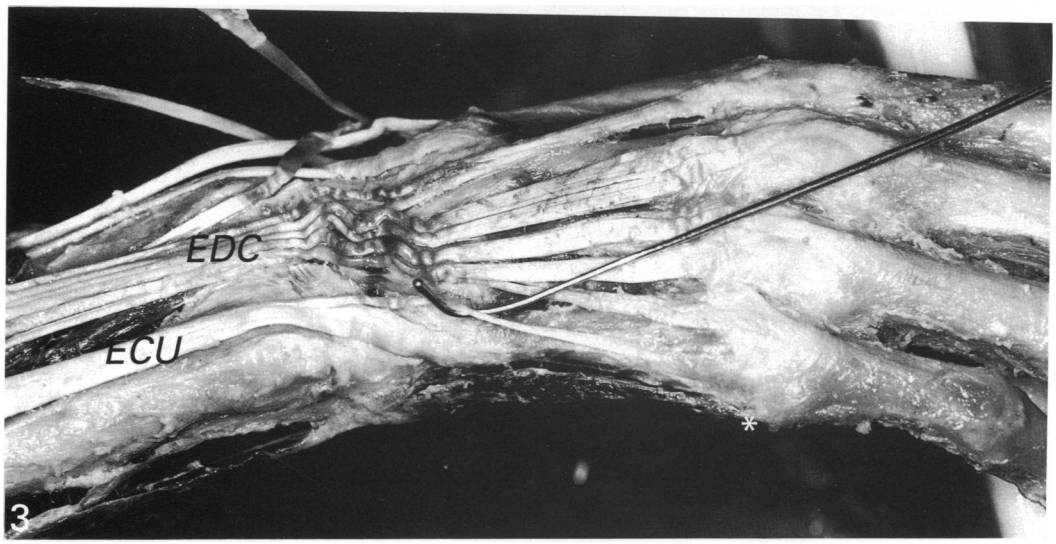

Fig. 1. Accessory tendinous slip arising from extensor carpi ulnaris with insertion on the base (*) of the right 5th metacarpal bone (type A) in a 74-y-old male. *ECU*, extensor carpi ulnaris; *EDM*, extensor digiti minimi.

Fig. 2. Accessory tendinous slip arising from extensor carpi ulnaris with insertion on the midsection (*) of the right 5th metacarpal bone (type B) in a 75-y-old male. *ECU*, extensor carpi ulnaris.

Fig. 3. Accessory tendinous slip arising from extensor carpi ulnaris with insertion on the head (*) of the right 5th metacarpal bone (type C) in a 56-y-old male. *ECU*, extensor carpi ulnaris; *EDC*, extensor digitorum communis.

tendinous slip was measured with sliding calipers. The prevalence of slips of different types was compared statistically by the z test for normal distribution, and measurement values by Student's t test.

RESULTS AND DISCUSSION

The prevalence of an accessory tendinous slip arising from extensor carpi ulnaris is shown in Table 1. In this study, an accessory tendinous slip was observed in 82(34.2%) of the 240 upper limbs. This prevalence is the highest so far reported. The prevalence in the Ainu population (Sano, 1931) is significantly lower than that in the present study ($P < 0.05$). The prevalence reported for Japanese subjects is variable (Inoue, 1932; Iwami, 1951; Mori, 1964; Kosugi et al. 1987). That found in the present study is almost the same as that reported for European subjects (Mestdagh et al. 1985).

Accessory tendinous slips arising from extensor carpi ulnaris were found to insert at 1 of 3 sites on the 5th metacarpal bone: on the base along with the main tendon (Fig. 1, type A); on the midsection (Fig. 2, type B); and on the head (Fig. 3, type C). The frequency of each type is shown in Table 2. Type A was found in 71 (29.6%) of the 240 limbs, and was the most common type. The frequency of slip was higher on the right side than on the left, but this difference was not significant. Type B was found in 7(2.5%) limbs, and the frequency on the right was again higher, also nonsignificantly. Type C was found in 4(1.7%) of extremities; the frequency on the right was significantly higher ($P < 0.05$). Mestdagh et al. (1985) found 16 Type C accessory tendinous slips among 150 European specimens (10.7%). This is significantly higher than that found in the present study ($P < 0.001$).

The width of the accessory tendinous slips arising from extensor carpi ulnaris is shown in Table 3. As a whole, no significant side differences were seen. However, the width of the accessory tendinous slip increased in the order type A < type B < type C, and type B slips were significantly wider than type A slips ($P < 0.05$). Type C slips were the largest, but this difference was not significant.

Barfred & Adamsen (1986) suggested that an accessory tendinous slip arising from extensor carpi ulnaris has clinical importance in causing impairment of function at the wrist and of the little finger. They found a tendinous slip (1 mm in diameter) which originated from extensor carpi ulnaris just dorsal to the ulnar head while operating on a 40-y-old female violinist. After excision of the abnormal tendinous slip, her symptoms improved, but only temporarily. In addition, they indicated that pulling on the tendinous slip caused the 5th metacarpophalangeal joint to extend. This feature suggests that this tendinous slip was probably equivalent to our type C slip.

The incidence of type C slip is low (1.7%), but is clinically significant because slips of this type may impair function at the wrist and little finger. Type C slips are more frequent in the right hand, and the mean width is the largest of the 3 (1.53 mm in diameter). Anatomical variations are relevant for clinical problems.

Table 2. *Site of insertion of the accessory tendinous slips arising from extensor carpi ulnaris and its frequency in present study*

		Insertion site on 5th metacarpal bone			
		Base (type A)	Midsection (type B)	Head (type C)	Total
Right	n	37	5	3	45
(N = 120)	%	30.8	3.3	2.5*	37.5
Left	n	34	2	1	37
(N = 120)	%	28.3	1.7	0.8	30.8
Total	n	71	7	4	82
(N = 240)	%	29.6	2.5	1.7	34.2

N, number of limbs studied; n, number of limbs with slip.
* Side difference significant ($P < 0.05$).

Table 3. *Width of accessory tendinous slips arising from extensor carpi ulnaris (at origin)*

		Insertion site on 5th metacarpal bone			
		Base (type A)	Midsection (type B)	Head (type C)	Total
Right	n	37	5	3	45
(N = 120)	Mean (mm)	0.91	1.21	1.42	0.97
	S.D.	0.294	0.198	0.375	0.323
Left	n	34	2	1	37
(N = 120)	Mean (mm)	0.90	0.98	1.85	0.93
	S.D.	0.310	0.177	—	0.337
Total	n	71	7	4	82
(N = 240)	Mean (mm)	0.90	1.14*	1.53	0.95
	S.D.	0.299	0.211	0.375	0.328

N, number of limbs studied; n, number with slips.
* Significantly wider than type A slips ($P < 0.05$).

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