

## Palmaris Longus in Korean

Choong-Hee Won, M.D., Bong-Soon Chang, M.D.,  
Moon-Sang Chung\*, M.D.

Department of Orthopaedic Surgery, Chungbuk National University Hospital,  
Cheongju, Korea

Department of Orthopaedic Surgery, Hadong sejong Hospital\*,

Department of Orthopaedic Surgery, Seoul National University Hospital\*,  
Seoul, Korea

### = Abstract =

The Palmaris longus tendon is important not because of its function but because of its usefulness as a donor tendon. Variations in the palmaris longus muscle are frequent and the most common variation of the muscle is its absence. The incidence of absence of this muscle varies in different racial groups. Reinmann and his coworkers found the palmaris longus muscle absent in 12.9% of in their 1,600 limbs surgery. We have experienced 307 cases of palmaris longus graft surgery and found that there were 4 cases of absence of the palmaris longus tendon. We examined 2,000 limbs of Korean to see the presence of the palmaris longus muscle. Among 1,000 persons, the muscle was absent bilaterally in 11 persons (1.1%). It was absent unilaterally in 32 persons (3.2%). The probability that the muscle is absent in any single limb is 2.7%. There was no significant differences in the incidence of absence by sex or right and left side.

**Key Words :** Palmaris longus, Variation, Korean.

### INTRODUCTION

The function of the palmaris longus muscle is to

flex the wrist. However it is not important functionally, and it can be sacrificed in any time when necessary. The most common variation of the palmaris longus muscle is its absence. Therefore it should be verified whether it presents before palmaris longus graft surgery. Reinmann and his coworkers<sup>2)</sup> reported that the muscle was absent in 12.9%. LeDouble<sup>1)</sup> found it absent in 11.9%.

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\* Correspondence author : Choong-Hee Won  
Department of Orthopaedic Surgery  
Chungbuk National University Hospital, San 62, Gaesin-Dong,  
Cheongju, 360-763, Korea

Racial differences in its absence have also been noted. We have experienced 307 cases of palmaris longus graft surgery, and found only 4 cases of its absence. We hypothesized that the absence of palmaris longus muscle in Korean would be very rare. The palmaris longus muscle is prominent when the wrist is flexed with thumb and little finger in opposition. It is easily identified by physical examination and we examined 1,000 Korean to see its presence in 2,000 limbs.

MATERIALS AND METHODS

Korean have identical ethnic background. The incidence of absence of palmaris longus muscle would not be affected by age, socioeconomic status or the area of residence. The only variable that would affect its absence would be sex and/or the side of the body. We randomly selected 500 males and 500 females to see the presence of the palmaris longus muscle in 1,000 person with 2,000 limbs. Only adults(age:18 to 82 years) were included for this study for convenience. None of them have diseases or injuries in their upper extremities. The palmaris longus muscle is easily identified at the wrist level when the wrist is flexed with thumb and little finger in opposition(Fig. 1). When doubtful, palpation would afford additional information for its presence. We examined every case of above limbs and double-checked it especially when the muscle was suspected to be absent. The presence in right and left side was recorded separately. Statistical analyses by standard error of a percentage were done to see the differences between male and female, and between right and left arm.

RESULTS

Among 500 males, the muscle was absent in 13(2.6%) in the right arm, in 12(2.4%) in the left, and bilaterally in 6(2.1%). Among 500 females, the

Fig. 1. In the left arm, the palmaris longus tendon is prominent when the wrist is flexed with thumb and little finger in opposition. There is no visible and palpable palmaris longus in the right arm.

muscle was absent in 16(3.2) in the right arm, in 13(2.6%) in the left, and bilaterally in 5(1.0%)(Table 1). Statistical differences between male and female, and between right and left arm were not significant. The muscle was absent unilaterally in 3.2%(32 1,000). The muscle was absent bilaterally in 1.1% (11/1,000). The muscle was absent in 2.7% (54/2,000) when any single limb is considered.

Table 1. The Absence of the palmaris Longus in 500 males and 500 females

Male		Female		Total	
Rt	Lt	Rt	Lt	Rt	Lt
13(6)*	12(6)*	16(5)*	13(5)*	29(11)*	25(11)*
Total	25(6)*	29(5)*		54(11)*	

\* means bilateral absence

## DISCUSSION

The absence of the palmaris longus muscle in Korean is very rare compared with previous reports that dealt with Caucasians<sup>(1,2)</sup>. The identification of the palmaris longus muscle by physical examination only could not detect absence of the muscle exactly. The presence of the muscle is not difficult to confirm by physical examination. We double-checked the absence of the muscle to rule out false negative for presence of the palmaris longus. Even if some positive cases had been counted as negative cases, that would not negate the significance of the result because that cases would reflect the remnants of the muscle and would not afford the muscle as a graft material. The rarity of the absence of the muscle in Korean is compatible with operative finding in more than 300 cases of tendon graft surgery. Thompson and his coworkers<sup>3)</sup> made a study of the genetics of the

palmaris longus in several racial groups, and apparently showed that the absence of the muscle is a mendelian characteristic. We guess that the rarity of the absence of the palmaris longus muscle in Korean would be a racial characteristic.

## REFERENCES

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= 국문 초록 =

## 한국인의 수장근

충북대학교 의과대학 정형외과학교실

하동 세종병원 정형외과\*

서울대학교 의과대학 정형외과학교실\*

원중희 · 장봉순 · 정문상\*\*

수장근은 기능적으로 중요한 근육은 아니나 건이식술시 가장 흔히 공여건으로 사용되는 근육이다. 수장근의 변형은 흔하며 가장 흔한 이상은 이 근육이 존재하지 않는 것이다. 수장근의 존재는 인종에 따라 차이가 있다. Reinmann 등은 인체해부실험에서 수장근이 약 12.9%에서 발견되지 않았다고 보고한 바 있다. 저자들은 307예의 수장근을 이용한 건이식수술을 경험하면서 한국인의 경우 수장근이 존재하지 않았던 예가 4례로 극히 적었던 것을 경험하였다. 이에 저자들은 한국인에서 수장근의 존재 유무를 보기 위해 1,000명의 양쪽 상지를 검사하였다. 이중 양측에 수장근이 존재하지 않은 경우는 11명(1.1%)이었고, 한쪽에만 존재하지 않은 경우는 32명(3.2%)이었다. 성별이나 좌우측에 따른 유의한 차이는 없었다.