

# Validation of “Bunched Finger and Hooked Finger Tests, Two New Tests For Palmaris Longus”

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## Abstract

Palmaris Longus is considered to be a vestigial tendon and often used as a graft for reconstructive surgery. The tests described for its identification are a bit complex. The postures of the hand adopted during the tests are not easily understood by the patient. Further, it is not possible to perform these tests in a patient with Claw hand. Validated herewith are two new, recently described tests (1) Bunched finger test (2) Hooked finger test which are easy to perform and found to be very useful in detecting Palmaris Longus. Ultrasound is used as a tool for validation. Hooked finger test can demonstrate Palmaris Longus even in the presence of Claw hand.

**Keywords:** Palmaris Longus, Bunched Finger test, Hooked Finger test

## Introduction

The palmaris longus (PL) muscle is a long, slender muscle present in the volar compartment of the forearm, interposed between the flexor carpi ulnaris and the flexor carpi radialis muscle. However, it has been accepted as a vestigial muscle and studies have shown that it is absent in almost 30% of the population, either in one forearm (unilateral) or both the forearms (bilateral). This percentage can always vary [1]. The peculiarity associated with this muscle is not merely its presence or absence, but its high degree of anatomical variations. Absence of the PL does not have any effect on grip strength [2]. Numerous tests have been described to detect the presence of the PL. The first of such tests was described by Schaeffer in 1909 [3]. Other tests were later described by Thompson, Mishra, Pushpakumar, Gangata, and many others [2, 3, 4, 5]. All these tests are based on making the tendon taut by eliciting its

weak flexor action and making it prominent, leading to its identification but these tests have certain disadvantages. a) Not easily understood by the patients. b) Cannot be performed in a claw hand. Recently, two new tests have been described by Shenoy R M [4], the “bunched finger” test and “hooked finger” test [4], which are easy to perform. As the tests are performed employing normal movements of the hand they are easily understood by the patient. Unlike other tests, no specific postures are necessary for identification of PL. This is a distinct advantage. With several tests described for identification of PL tendon, there may be a conflict in employing these tests [6,7] in clinical practice. Since, the two new tests described are simple and easy to perform, an attempt is made to validate these tests by ultrasonography and resolve the conflict.

## Materials and Methods

This prospective study was conducted at the tertiary hospital on students who volunteered and of patients attending the outpatient clinic after taking informed consent. The subjects were recruited consecutively and subjected to

the newly described tests; “bunched finger test” and “hooked finger test”. The presence/absence of tendon was confirmed Ultrasonographically. (Fig 3-9) The patients were examined by the resident of orthopaedics department. Absence of tendon was judged by a negative test (Fig. 9) and presence of tendon by a positive test (Fig. 5 & 6). “Hooked finger test” is very useful in absence of thumb and in cases of claw hand. This was performed on a patient having claw hand and validated. However, there were no patients with the absence of thumb for validation.

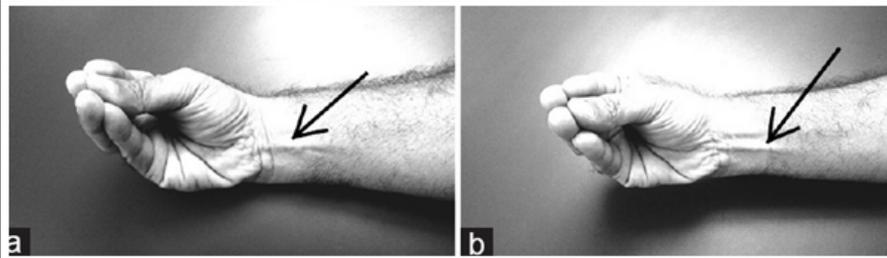
## Bunched finger test (Fig. 1)

The participants were asked to place their hand flat on the table with the palm facing upward. They were then asked to bunch their fingers (as if preparing them for smothering the forehead) and exert firm pressure at the opposing finger tips. This fixes the distal portion of the PL and makes the musculotendinous unit taut. Next, they are asked to flex the wrist which makes the tendon to stand out prominently. At this point of time, if they are asked to pronate the forearm to about 5°–10°, the tendon is seen even more prominently.

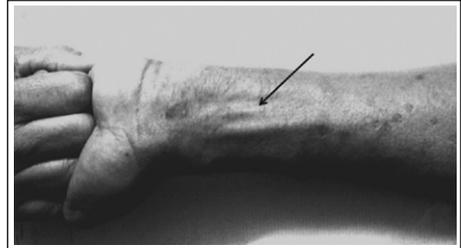
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**Figure 1:** (a) Bunched finger test: Prominent tendon of palmaris longus (arrow) when fingers are bunched, opposed to each other, and the wrist is flexed. (b) Increased prominence of the palmaris longus tendon (arrow) when the forearm is pronated by 5° from the former position.



**Figure 2:** Hooked finger test: Prominence of the palmaris longus tendon (arrow) in a patient with lost thumb. The examiner's hooked fingers are locked with the hooked fingers of the patient and giving resistance with the patient attempting wrist flexion.



**Figure 3:** Bunched finger test: Validation by ultrasonography.



**Figure 4:** Hooked finger test: Validation by ultrasonography.

**Hooked finger test ( Fig. 2)**

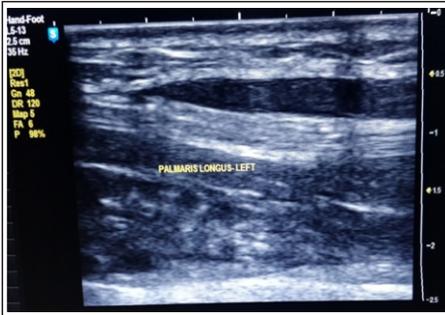
The participants were asked to stretch out their arm and then hook their fingers. The examiner then hooks the fingers of his hand and then locks his fingers into the hooked fingers of the patient. The patients are then asked to flex their wrist while the examiner gives resistance. This makes the PL tendon stand out prominently.

**Results**

70 patients (140 hands) were examined majority were right handed (93.3). There were 50 males. The subjects age ranged from 18 to 50 years with mean age 25 years. The overall presence of PL was 98.5% and absence rate was 1.5%. Both



**Figure 5:** Ultrasonography showing prominent palmaris longus tendon.



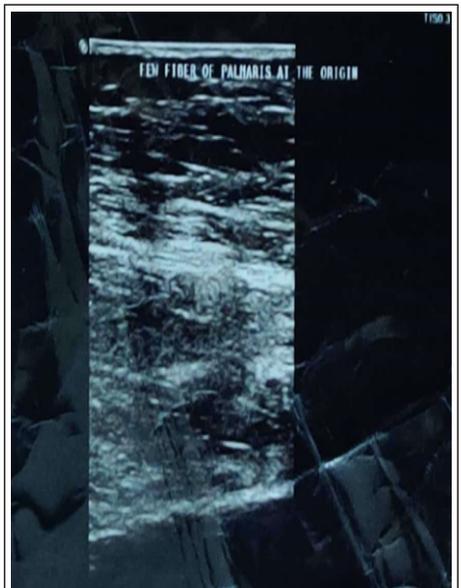
**Figure 6:** Ultrasonography showing prominent palmaris longus tendon.



**Figure 7:** Bunched finger test shows no prominence and the absence of palmaris longus is validated by ultrasonography.



**Figure 8:** Hooked finger test shows no prominence and the absence of palmaris longus is validated by ultrasonography.



**Figure 9:** Ultrasonography reveals few fibers of palmaris at the origin.

**Table 1: The percentage of hands detected by bunched finger and hooked finger test**

Test	Number detected (hands)	%
Bunched finger test	138	98.5
Hooked finger test	138	98.5

tests were found accurate to the same level.

### Discussion

The two new tests which are described here are extremely useful in identifying the PL tendon, which is used as a graft in several reconstructive surgical

procedures. They have distinct advantage over other tests as the patient is tested with normal movements of the hand. No special postures are necessary. Hence patients will easily understand the hand posture and the test is relatively easy to perform compared to other tests. Especially, in cases of claw hand and

those with amputation of thumb, “hooked finger test” is the only test which allows one to identify PL tendon.

### Conclusion

Results of ultrasound analysis have validated these tests and proved beyond doubt that the tendon which stands out prominently is the tendon of PL. Its absence also has been identified by ultrasound. Hence, two new tests are recommended for clinical application.

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