



SHORT REPORT

The Incidence Of Agenesis Of The Palmaris Longus Muscle In The Edos Of Nigeria

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The palmaris longus muscle is one of the superficial muscles of the anterior compartment of the forearm (McMinn, 1998). It is the most variable muscle in the Human body (Brones, 1978). Not only is it absent in 13% of upper extremities (McMinn, 1998), it shows also variability in its morphology, attachments, duplication and its ability of having accessory slips and substitute structure (Remann *et al* 1944; Igbigbi and Ssekiteleko, 1998). Comparative anatomical studies have shown that it is present only in mammals (Backhouse and Churchill, 1975) and that it is best developed where the forelimb functions for weight bearing and progression (Remann *et al* 1944).

In human, it is of morphological interest being phylogenetically degenerating (Brones, 1978). The palmaris longus in its usual form is slender and fusiform, lying between the flexor carpi radialis and flexor carpi ulnaris, as it overlies the flexor digitorum superficialis (McMinn, 1998). It arises from the common flexor origin and its tendon is inserted, adherent anteriorly across the flexor retinaculum into the palmar aponeurosis. The main importance of this muscle is that its tendon slightly overlaps the median nerve from the lateral side, and it must not be mistaken for the nerve (McMinn, 1998). In the living subject, the presence or absence of this muscle can be tested with the pads of the pollex and digitus minimus pinched together and the wrist flexed against resistance (McMinn, 1998).

Igbigbi and Ssekiteleko (1998) worked extensively among the Ugandans and found the incidence of agenesis of this muscle to be 1.02%, with no bilateral agenesis in the studied subjects. In their study on 1600 extremities in cadavers, Remann *et al* (1944) recorded the incidence to be 12.8% in adult male and female American whites and blacks (in approximately ratios 10:1 and 7:1 to Adachis respectively). Gruber (1872) reported an incidence of 20.4% in Germans. According Adachis (1909) and Nakano (1923) the incidences

were 3.4% in Japanese and 2.2% in Chinese, respectively. These studies show that the agenesis of this muscle is much more common in the occidental than in the oriental and black races. Thompson *et al* (1921) also recorded the incidence to be considerably lower in the blacks than in whites, and lower in male than female of both races.

However, there is no anatomical record for the incidence of agenesis of this muscle among the Edos of Nigeria. The present study was carried out among 400 students of Edo origin in Ambrose Alli University, Ekpoma, Nigeria. The sample was not ethnic biased. The Edos were isolated from a larger sample of 1000 students which formed the study population. The Edos are the host community of the University. This adds to the scientific documentations on anthropological measurements of the people. Eight hundred extremities were studied in 400 living subjects comprising of 180 female and 220 male. The presence or absence of palmaris longus muscles by inspection of its tendons at the wrist were carried out on each subject. This method was also employed by Schaeffer (1909), Thompson *et al* (1921), and Igbigbi and Ssekiteleko (1998). The incidence of agenesis of this muscle based on sex, and side of the body as well as the overall incidence for both sexes were determined. In six subjects, nine cases of agenesis were observed, five on the left and four on the right. In male, three cases of bilateral and one case of unilateral agenesis were seen. In female, two cases of unilateral agenesis were seen and, no case of bilateral agenesis was observed. The incidence of agenesis on the left limb was 1.25%. On the right, it was 1.0%. The incidence in the male was observed to be 1.59% while in the female it was 0.56%. The overall incidence was 1.13%.

The incidence recorded in the present study is lower than that recorded for Americans, Germans, Japanese and Chinese subjects Brones, 1978; Gruber, 1872; Adachis, 1909; and Nakano, 1923; but do not differ significantly from that observed in the Ugandans. (Igbigbi and Ssekiteleko, 1998).

Previous studies showed that bilateral agenesis was more prevalent in some races (Remann *et al*, 1944;

Gruber, 1872; Adachis, 1909; and Nakano 1923). Although Igbigbi and Ssekitoleko, (1998) recorded the unilateral form as the most prevalent in the Ugandans. However, in the present study, the ratio of unilateral to bilateral agenesis was 1:1. This is in variant with the studies already cited. This indirectly supports the finding by Brones, (1978) that palmaris longus is the most variable muscle in the Human body. Like in the studies on the American and the Ugandans (Brones, 1978; Igbigbi and Ssekitoleko, 1998) the present study also recorded that agenesis was more in males than in females, unlike the work done by Thompson *et al* (1921) who recorded an incidence that is lower in males. In conclusion, this study has shown that the incidence of agenesis of palmaris longus muscle is more frequent on the left forearm than on the right forearm, and that neither bilateral nor unilateral agenesis is predominant. Furthermore, this confirmed that palmaris longus muscle is the most variable muscle in the human body. The observed incidence of its agenesis in the Edos is 1.13%.

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