Absence of flexor carpi radialis: A rare anatomical variation with clinical significance

Sir,

The importance of flexor carpi radialis (FCR) as a donor muscle in tendon transfers, as a tendon graft and as an anatomical landmark has been well established. The anatomical variations of FCR are very rare but can have great significance in such cases. We report a rare case of congenital absence of FCR muscle found during an elective surgery of bone grafting for scaphoid non-union.

We present the case of a 20-year-old male patient who presented to us with established non-union of the left scaphoid. Open reduction and internal fixation with bone grafting of the scaphoid through a volar approach was discussed and planned. During skin marking for the volar approach, the FCR tendon could not be palpated. Therefore, we made the skin incision across the wrist crease with the scaphoid tubercle as the landmark. The radial artery was identified on the radial side of the wound and retracted laterally. The FCR being a landmark to reach the scaphoid was searched for and was found to be absent. It was found to be replaced by a thin and rudimentary fibrous band lying radial to a very broad palmaris longus (PL) tendon. Proximal exploration was not done. The volar aspect of the radial side of the wrist joint is usually exposed by retracting the FCR medially after incising the tendon sheath to free the tendon from its tunnel. In our case, with absent FCR, no such landmark was available and the wrist capsule was directly approached and incised open to expose the distal two-thirds of the scaphoid. The procedure was completed with excision of the sclerotic segment of the scaphoid, iliac bone grafting of the defect and fixation with a headless compression screw.

Anatomical variations in the FCR muscle have been described by Bergman with respect to its origin, insertion and having an additional slip from other muscles. Rumball and Tonkin reported a case of an absent FCR in a patient undergoing tendon transfer for a posterior interosseous nerve palsy. The proposed transfers were FCR to extensor digitorum communis (EDC) and flexor digitorum superficialis (FDS) of the ring finger to extensor pollicis longus (EPL). At the time of surgery, both the FCR and PL were absent. The procedure had to be changed and the transfers carried out were FDS of the ring finger to EDC, routed around the ulnar border of the forearm and FDS of the middle finger to rerouted EPL. Sofos and Riaz reported a case of absent FCR encountered intra-operatively in a patient with first carpometacarpal arthritis, in whom a trapeziectomy with FCR ligament reconstruction was planned. With absent FCR, they converted the procedure into a simple trapeziectomy. The absence of the FCR, found intra-operatively as mentioned above, can jeopardise surgeries. Especially for tendon transfers, it is imperative to establish beyond doubt the presence of FCR by pre-operative clinical examination. In its absence, other tendons such as PL may be confused for the FCR by superficial examination. In case of any doubt, an ultrasonography of the wrist can be used to identify the tendon.

The operating surgeon, intending to use the FCR for tendon transfer or as a tendon graft, should be highly aware of the possibility of such a variation, where it may pose difficulties and even a change in the planned surgical procedure. Hence, it is imperative that one checks the presence of FCR in any case requiring it as a surgical landmark, donor for tendon transfer or tendon graft.

Financial support and sponsorship
Nil.
Letters to Editor

Conflicts of interest
There are no conflicts of interest.

Vigneswaran Varadharajan,
Praveen Bhardwaj, S. Raja Sabapathy
Department of Plastic, Hand and Reconstructive
Microsurgery, Ganga Medical Centre and Hospitals Pvt. Ltd.,
Coimbatore, Tamil Nadu, India

Address for correspondence:
Dr. Vigneswaran Varadharajan, Department of Plastic, Hand and
Reconstructive Microsurgery, Ganga Medical Centre and Hospitals
Pvt. Ltd., 313, Mettupalayam Road, Coimbatore - 641 043,
Tamil Nadu, India.
E-mail: vigneshdr87@gmail.com

REFERENCES

1. Boyes J. Tendon transfers for radial palsy. Bull Hosp Jt Dis
1960;21:97-105.
2. Brand P. Tendon transfers in the forearm. In: Flynn JE, editor.
Hand Surgery. Baltimore: Williams and Wilkins; 1975. p. 189-200.
3. Burton RI, Pellegrini VD Jr. Surgical management of basal joint
arthritis of the thumb. Part II. Ligament reconstruction with tendon
interposition arthroplasty. J Hand Surg Am 1986;11:324-32.
4. Eaton RG, Littler JW. Ligament reconstruction for the painful thumb
carpometacarpal joint. J Bone Joint Surg Am 1973;55:1655-66.
5. Rumball KM, Tonkin MA. Absence of flexor carpi radialis. J Hand
Surg Br 1996;21:778.
6. Sofos SS, Riaz M. Absence of flexor carpi radialis during an
elective carpometacarpal arthroplasty of the thumb: A rare
anatomical variation. Case Rep Med 2016;2016:7853487.
7. Bergman RA. Compendium of Human Anatomic Variation: Text, Atlas
and World Literature. Baltimore: Urban and Schwarzenberg; 1988.

Novel use of preputial flap

Sir,
The novel use of prepuce as a regional flap to cover a
defect over right thigh with exposed femoral artery
pseudoaneurysm in a 23‑year‑old male who suffered
electric burn with 1100 V alternating current and was
referred to our centre after 40 days. Due to high voltage
electric current injury, local tissue was deficient as
donor, with debribed and fibrosed gracilis, tensor fascia
lata and sartorius muscles and surrounding raw area.
Options to cover the exposed femoral artery
[Figure 1] which had a history of blowout were either a complicated
microvascular free flap or morbid inferiorly based rectus
abdominis muscle/myocutaneous flap.
We used this flap as a simple alternative in given
scenario against complex tissue transfer. A femoral
angiography was done to confirm the diagnosis of
pseudoaneurysm [Figure 2], which was repaired with
venous patch and subsequently covered it with a
preputial flap. The arterial supply reaching the outer
preputial layer fold by 180° to supply the inner layer and
it ultimately terminates at the corona. Blood supply to
the prepuce reaches via 4 to 5 minute vessels, distributed
both ventrally and dorsally.
[1,2]
Unfurling of the prepuce can be easily done by
giving an incision on the inner layer, near the corona
circumferentially, and carefully dissecting the 2 layers of
the prepuce without damaging the blood supply to either.
A dorsal slit was given up to the base of glans. Incision
was then turned perpendicular and was taken all
around, leaving 1 cm skin attached on each side of the
frenulum [Figure 3]. This unfurled prepuce was then
used to cover the raw area above the freshly repaired
artery. Base of flap was attached in a manner that almost

How to cite this article: Varadharajan V, Bhardwaj P, Sabapathy SR.
Absence of flexor carpi radialis: A rare anatomical variation with
clinical significance. Indian J Plast Surg 2017;50:111-2.
© 2017 Indian Journal of Plastic Surgery | Published by Wolters Kluwer - Medknow