

Anatomical Variation of Radial Artery : A Case Report of Superficial Radial Artery

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Purpose

Radial forearm free flap is commonly used reconstruction method for head and neck cancer and it is important to know the anatomy of radial artery. Because of the consistency of this artery, in most cases, surgeon does not precede preoperative radiologic imaging. Therefore, rare anatomical anomalies could lead to unpredictable surgical results.

Methods

In this case, a 68-year old man presented with a T2N2bM0 squamous cell carcinoma of the tongue. After hemiglossectomy, radial forearm free flap was designed and flap elevation was started as same as other previous cases. After ligation of radial artery, when the radial incision had been performed, another pedicle was observed just beneath the superficial radial nerve in a subcutaneous layer. It coursed radially onto the brachioradialis muscle, crossed under the cephalic vein and the superficial branch of the radial nerve, and extended distally and dorsally in the wrist [Fig 1]. The forearm was then opened proximally to follow that aberrant branch until it confirmed to join the main radial artery and radial forearm free flap was elevated [fig 2]. Microvascular anastomosis was performed to the neck vessels, and adequate flap perfusion and drainage were confirmed.



Fig 1. Dissected radial artery and vein. (arrow) High bifurcation of radial artery into superficial palmar branch and dorsal carpal branch



Fig 2. Elevated radial forearm free flap

Results

We followed up the patient for 4 months postoperatively. The radial forearm free flap survived without donor site complication such as hand necrosis or limitation on range of motion [Fig 3.].



Fig 3. (Left above) Preoperative recipient site
(Left below) Recipient site 4month after operation
(Right above) Preoperative donor site
(Right avobe) Donor site 4month after operation

Conclusion

Aberrant superficial course of radial artery similar to this case has been reported as superficial radial artery (SRA), but is quite scarce. Because preoperative vascular imaging is not performed in most cases of radial forearm free flap, and Allen's tests might be insufficient, surgeons should keep in mind of the anatomical variation of radial artery.