

Free Radial Forearm Flap with Preservation of the Cephalic Vein in Head and Neck Reconstruction: Case Report

Aloísio Ferreira da Silva Filho, MD¹
Estevão Gomes de Almeida Plentz, MD¹
Gabriel Rabelo Guimarães, MD²
Patrícia Silva Saraiva, MD³
Ilene Maria Guimarães de Siqueira, MD⁴
José Carlos Ribeiro Resende Alves, MD⁵

- 1] Staff member of Plastic Surgery
- 2] Staff member of Otorhinolaryngology
- 3] Resident (MEC) of Plastic Surgery
- 4] Resident of Plastic Surgery
- 5] Chief of the Second Clinic of Plastic Surgery

From the Second Clinic of Plastic Surgery
Felício Rocho Hospital - Belo Horizonte - Brazil

Address for Correspondence:

Aloísio Ferreira da Silva Filho, MD

R. Uberaba, 418 sala 202
30180-080 - Belo Horizonte - MG
Brazil

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ABSTRACT

The authors present one case of microsurgical reconstruction of head and neck, in a patient with basal squamous cells carcinoma of the scalp invading the skull in which the adopted technique was that of a radial forearm flap, but with the preservation of the cephalic vein in all its course. This surgical maneuver was elected because of a per-operative technical difficulty consisting in the absence of a suitable recipient vein of a previous radial cervical dissection.

The radial forearm flap was transferred to the receiving bed in the head and neck region, where the microsurgical anastomosis between the radial and facial arteries was performed, with no need of venous anastomosis since the cephalic vein was preserved.



Fig. 1 - Craniectomy and radical cervical dissection were performed. The dura mater was temporarily covered by a split skin graft.

Fig. 1 - Craniectomia e linfadenectomia radical realizadas. Dura mater coberta provisoriamente com enxerto com espessura parcial.



Fig. 2 - Defect of the skull after removing of the skin graft and elevation of the radical cervical dissection flap.

Fig. 2 - Defeito da calota craniana após remoção do enxerto cutâneo e elevação do retalho do esvaziamento cervical radical.



Fig. 3 - Planning of the radial forearm flap.

Fig. 3 - Planejamento do retalho antebraquial radial.

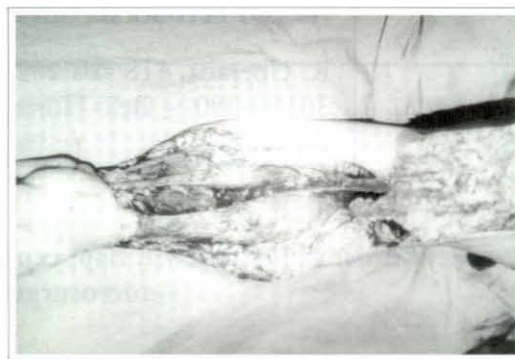


Fig. 4 - Elevation of the Chinese flap and dissection of the venous pedicle.

Fig. 4 - Elevação do retalho chinês e dissecação do pedículo venoso.

INTRODUCTION

YANG, BOAQUI AND YUZHI⁽¹⁾ (1978) described the forearm the flap in China. SONG et al.⁽²⁾ (1982) popularized its use as a free flap for the reconstruction of head and neck. BEIMER & STOCK⁽³⁾ (1983) used the same flap, with reverse pedicle, for hand re-

construction.

The radial forearm flap, also called Chinese flap, is based on the radial artery and on its fasciocutaneous perforating branches.

Its territory may extend from the lower third of the anterior aspect of the arm till the wrist flexion crease.



Fig. 5 - Transposition of the flap under a subcutaneous tunnel at the supraclavicular region, preserving the cephalic vein.

Fig. 5 - Transposição do retalho sob túnel de pele na região supraclavicular, conservando-se a veia cefálica.



Fig. 6 - Anastomosis between the radial and facial arteries.

Fig. 6 - Anastomose das artérias radial e facial.



Fig. 7 - Operation completed; good perfusion of the flap.

Fig. 7 - Operação terminada. Retalho com boa perfuração.

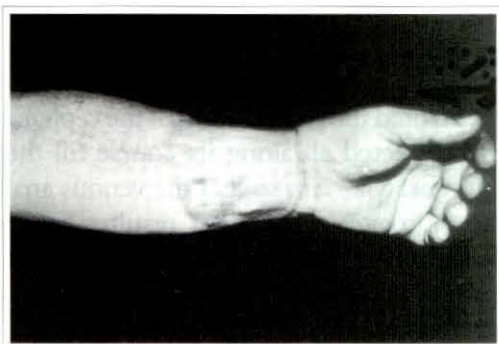


Fig. 8 - Donor area; late result.

Fig. 8 - Área doadora; resultado tardio.



Fig. 9 - Radial antebraquial flap at the head and neck region; late result.

Fig. 9 - Retalho antebraquial radial na região cérvico-craniana; resultado tardio.

Its distal width extends from the tendon of the pollicis longus to the tendon of the extensor carpi ulnaris and its proximal width extends from the lateral to the medial humeral epicondylus.

Planning comprises the drawing of a line from a point 1 cm below the center of the antecubital fossa to the tubercle of the scaphoid. This line corresponds on the surface to the anatomical course of the radial artery and of the anterolateral intermuscular septum, representing the vascular axis of the flap.

The dissection is carried out from the distal to the proximal portion, and from the ulnar to the radial side, including the deep fascia and preserving the

fasciocutaneous branches which emerge from the intermuscular septum.

On reviewing the literature we found one case reported by NAKAYAMA⁽⁵⁾ (1986), in which the same procedure of preservation of the cephalic vein was used, because of the lack of an adequate venous receiving bed. In such circumstances, venous grafts can be used to make the connection with receiving bed blood vessels. It must be noticed, however, that long venous grafts are critical and exposed to thrombosis.

CASE REPORT

Male, 37 years old, white, arrived in our service in August, 1994, with a history of having already been submitted to 4 operations for exeresis of recurrent scalp tumor in the vertex region. In the latest operation, a local flap was used for reconstruction, and a drain was placed through a stab wound in the left mastoid area. The patient developed tumoral recurrence on the scalp together with a new lesion in the left postauricular region, that we thought it could be a tumor seeding along the drain course.

On August, 1994, he underwent resection of the scalp lesion, as well as the excision of a portion of the underlying skull. The histopathologic examination detected a basal squamous cells carcinoma with bone infiltration, and the specimen had free surgical margins. The same operation also comprised the resection of the left postauricular tumoral lesion adherent to the mastoid process, and the histopathologic finding was basal squamous cells carcinoma removed with free surgical margins.

On December 18, 1994, the patient returned with a recurrence of the left postauricular tumor on the superior portion of the surgical scar, and the necessary excision was performed.

On March 9, 1996, the patient was reviewed, and detected a recurrence of the cutaneous lesions on the scalp, both in the left postauricular and in the temporal regions. On March 12, 1996, he underwent the excision of those lesions as well as a radical posterolateral cervical dissection, including the jugular vein, the external jugular vein, and the sternocleidomastoid and omohyoid muscles. A craniectomy was performed in the temporal region. The bare area was covered at first with advanced flaps from within this region and with split skin graft taken from the left thigh. The histopathologic examination indicated the presence of invasive basal squamous cells carcinoma affecting skin, subcutaneous tissue, subjacent muscle and bone tissue, as well as free surgical margins and the absence of metastasis in 14 studied lymph nodes.

On March 14, 1996, in a second stage of the operation, the patient was submitted to reconstruction with a microsurgical free radial forearm flap. Because of the absence of a suitable receiving venous bed for microsurgical anastomosis, the dissection of the cephalic vein was carried out till its point of union with the subclavia vein. The Chinese flap was so transposed to the head region through a subcutaneous tunnel un-

dermined at the supraclavicular area. The anastomosis between the radial and facial arteries was performed in the receiving bed. The forearm donor area was covered with a split skin graft also taken from the left thigh.

The postoperative period was uneventful and the patient underwent temporal and cervical radiotherapy.

RESULTS

The last clinical control took place on July, 1997. No recurrence was found, and the patient was in good health.

DISCUSSION

The Chinese flap is well known and largely used in microsurgical reconstruction.

In the reported case, the venous receiving bed was critical due to a prior cervical radical dissection. The use of a venous graft that could have been used would also entail a high degree of danger, since long grafts are prone to thrombosis.

We favored the preservation of the cephalic vein, which was dissected all along its course till the outlet into the subclavia vein, so that the venous anastomosis for the drainage of the graft resulted unnecessary. We thought this approach to be original, but on reviewing the specific literature we fell across one similar case reported by NAKAYAMA⁽⁵⁾.

CONCLUSION

In patients needing microsurgical head and neck reconstruction but lacking a suitable venous recipient bed, we think the forearm free flap with preservation of the cephalic vein is both feasible and efficient.

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