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TECHNICAL NOTE

The anterolateral thigh perforator flap in pharyngo-esophageal reconstruction

Le lambeau perforant antérolatéral de cuisse dans les reconstructions pharyngo-œsophagiennes

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Summary Today's customary techniques for pharyngo-esophageal reconstruction are jejunum and radial forearm free flaps. In this type of reconstruction, the jejunum flap is considered as the reference, but when its harvesting is not possible, the radial forearm flap is used. Since perforator flaps have begun to be developed, the anterolateral thigh flap (ATF) has become increasingly prominent in pharyngo-esophageal reconstruction. The aim of our study was to describe the use of the anterolateral perforator flap in pharyngo-esophageal reconstruction (indications, harvesting method, flap design) and to discuss its advantages and drawbacks as regards oral feeding and esophageal speech.

MOTS CLÉS
Lambeau perforant ;
Reconstruction pharyngo-œsophagienne ;
Lambeau antérolatéral de cuisse

Résumé Les techniques classiques pour les reconstructions pharyngo-œsophagiennes sont les lambeaux libres de jéjunum et antébrachial radial. Le lambeau de jéjunum demeure la référence dans cette indication. Toutefois, quand il ne peut être prélevé, le lambeau antébrachial radial est alors utilisé. Depuis l'arrivée des lambeaux perforants, l'antérolatéral de cuisse ne cesse de prendre une place grandissante dans les reconstructions pharyngo-œsophagiennes. L'objectif de notre article est de présenter l'utilisation du lambeau antérolatéral de cuisse dans les reconstructions pharyngo-œsophagiennes : indications, technique de prélèvement, particularités du

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design et de discuter des résultats, avantages et inconvénients en termes d'alimentation et de voix œsophagienne.

Introduction

Different methods for pharyngo-esophageal reconstruction have been elaborated. The objectives of these techniques consist in the recovery of swallowing and phonation, with as few local and general complications as possible [1]. Pedicled flaps such as the pectoralis major and the latissimus dorsi are currently used for partial or short circular resections. For complete circular resections, free flaps predominate [2,3]. Classical techniques involve jejunum and radial forearm free flaps [4,5]. Indeed, the jejunal flap is the current reference in pharyngo-esophageal reconstruction. But when it cannot be used due to a patient's comorbidities or previous visceral surgery, the radial forearm flap constitutes a second option. And since perforator flaps have begun to be developed, the anterolateral thigh flap (ALT) has become steadily more prominent in pharyngo-esophageal reconstruction. The objective of this article is to describe use of the ALT flap in pharyngo-esophageal reconstruction (indications, harvesting method, flap design) and to discuss its advantages and drawbacks with regard to oral feeding and esophageal speech. It could represent a supplementary solution in highly complex cases and constitute an interesting and reliable alternative approach, provided that certain principles be strictly observed.

Indications

Candidates for circular total post-pharyngolaryngectomy (CTPL) pharyngo-esophageal reconstruction by ALT are patients for whom jejunum flaps are contraindicated or appear unsuitable. More specifically, in patients with chronic obstructive bronchopneumopathy, chronic intestinal disease, a risk of evisceration or eventration, or multiple previous digestive surgeries, reconstruction using a jejunum flap is contraindicated [6]. Similarly, the radial forearm flap is not feasible in patients with a negative Allen's test result, with forearm scars or insufficient skin paddle. As concerns the ALT flap, patients with a scar on the thigh are excluded. Conversely, the flap thickness commonly presented in patients with sizable adipose panniculus is not a contraindication for pharyngo-esophageal reconstruction. In point of fact, during CTPL the space left available by a resection specimen allows for placement of a thick flap, through which the ''empty neck'' aspect is improved.

Flap design

Perforators can be identified preoperatively by Doppler or Doppler ultrasound, which provides reliable information on their precise trajectory, their position with regard to the intermuscular septum, and length of septo-cutaneous or musculo-cutaneous trajectory. This information enhances comfort during the operation and enables the surgeon to choose the side that is simpler to harvest. The usual ALT markers are: superior lateral border of the patella, anterior superior iliac spine and a straight line connecting these two points. The paddle is centered at the middle of the line (Fig. 1). If the perforators have already been identified, the paddle can be positioned on-center or off-center. The paddle is 10 cm wide, the objective being to obtain a tube with a diameter of 3 cm. While its length is approximately 15 cm, it can be adjusted according to the specificities of the surgical specimen. The flap can be harvested whatever the thickness of the adipose panniculus (Fig. 2). The design is adjusted according to final resection. If the resection area reaches the oropharynx, a triangle with a base having the width of the paddle is added at the proximal part of the quadrilateral to model the flap as a funnel. In any case, a triangle is

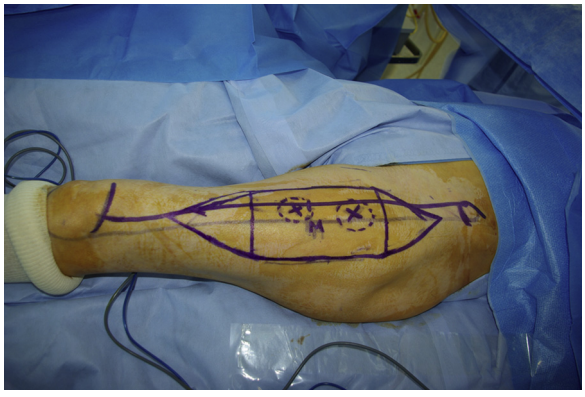

Figure 1 Tracing the cutaneous paddle. The two crosses represent the perforators identified by Doppler ultrasound. The letter ''M'' marks the middle of the straight line between the anterior superior iliac spine and the superior lateral border of the patella.

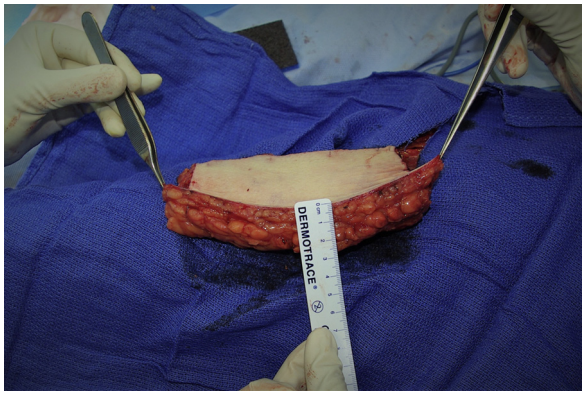

Figure 2 In this indication, the at-times sizable thickness of the flap is not an impediment.

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