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Oblique Branch of the Lateral Circumflex Femoral Artery Also Found in 32 Percent of Cadavers in Brazil

Sir:

It was with great interest that we read the article by Wong et al. regarding the oblique branch of the lateral circumflex femoral artery,¹ as it came to the public in a timely manner and very appropriately. The anterolateral thigh flap, although very often used in Asian^{2,3} populations, is not widely used by American and North American surgeons.^{4,5} However, we have used, successfully, this type of flap in reconstructive microsurgical procedures in our service, a public tertiary university hospital in São Paulo, Brazil, since 2003. In 2006, we studied anatomically the flaps of 40 thighs of 25 adult cadavers in our obituary service. Our sample was of a mixed origin, as occurs frequently in our country: 64 percent were white, 24 percent were mulattos, 8 percent were black, and one patient was Asian, and we showed that the anterolateral thigh flap can be obtained successfully in our population. Reviewing our study, we found eight cases with the oblique branch feature (thus, 32 percent of the patients, as shown in Fig. 1), a prevalence very similar to that reported by Wong et al.¹ of 31 of 88 cases (35 percent).

The clinical relevance of the oblique branch description, as well pointed out by Wong et al.,¹ is the high prevalence, found by them and also by our service. Surgeons should be aware that the skin component of the flap may be perfused only by the oblique branch. In our series, the perforators derived from the transverse branch (6.58 ± 2.52 cm) were longer than those

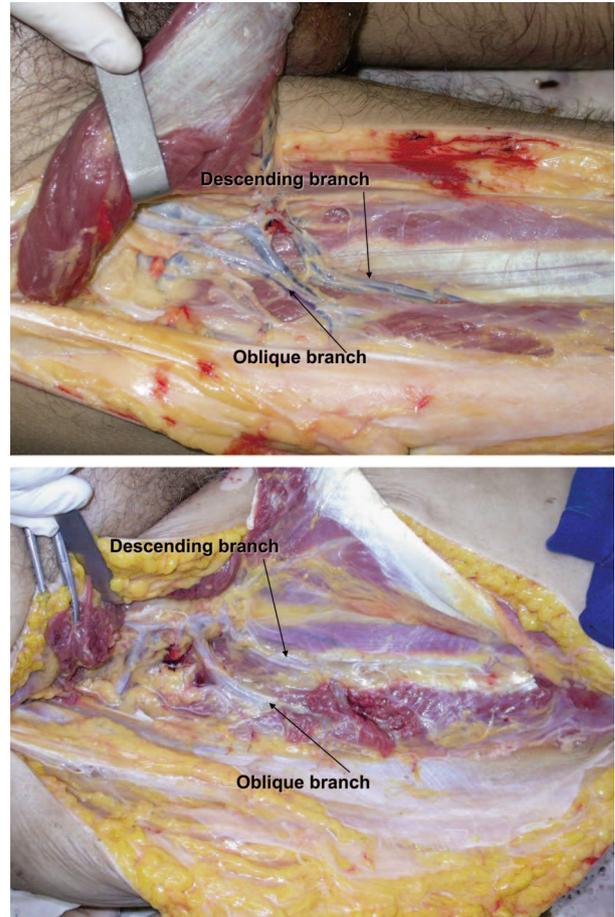


Fig. 1. Two cases of oblique branches of the lateral circumflex femoral artery in cadavers of Brazilian patients.

derived from the descending branch (4.08 ± 1.88 cm) ($p = 0.0000$, analysis of variance; $p = 0.0006$, Mann-Whitney test), and they were also larger in diameter (2.26 ± 0.54 mm versus 1.70 ± 0.59 mm) ($p = 0.0013$, analysis of variance; $p = 0.0014$, Mann-Whitney test). These findings led us to conclude that those were, in fact, oblique branches. Surgeons should be alert to this common anatomical variation of the anterolateral thigh flap which, instead of posing difficulties to the raising of the flap, provides versatility to it.

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DISCLOSURE

Neither of the authors has any conflicts of interest with the content of this communication.

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Reply

Sir:

We thank Drs. da Costa and Lancelotti for their valuable comments on our article, which defined the oblique branch of the lateral circumflex femoral artery.¹ When present, this vessel takes over part or all of the vascular supply to the skin of the anterolateral thigh. The cadaver work by da Costa and Lancelotti reaffirmed the high prevalence and clinical significance of the oblique branch in the thigh. Several key points of our article are reiterated here. First, the anterolateral thigh flap can be harvested based on either the descending branch or the oblique branch of the lateral circumflex femoral artery. Second, the oblique branch is usually shorter and smaller than the descending branch but can reliably be used as the flap pedicle. Third, in harvesting a myocutaneous flap, it is important to determine the source of vessels supplying the skin component by unroofing the skin vessel before committing to any pedicle to ensure viability of the skin.

We would like to clarify the issue on the size and length of the oblique branch as raised by the authors of the letter. We stated that the oblique branch is usually smaller and shorter than the descending branch. Therefore, when a choice exists, we usually prefer the latter as the flap pedicle (Fig. 1). However, not uncommonly, the anterolateral thigh skin is supplied exclusively by the oblique branch and one is then compelled to use it as the flap pedicle (Fig. 2). One can still reliably harvest the flap in such instances but needs to be comfortable with microsurgical anastomosis of small vessels (down to a size of 1 mm). Da Costa and Lancelotti noted that “the oblique branch is larger than the descending branch” on average in their cadaveric study. This contradiction may have arisen from tracing the oblique branch to its higher order branches such as the transverse branch of the lateral circumflex femoral artery. In fact, this was one way of increasing pedicle size

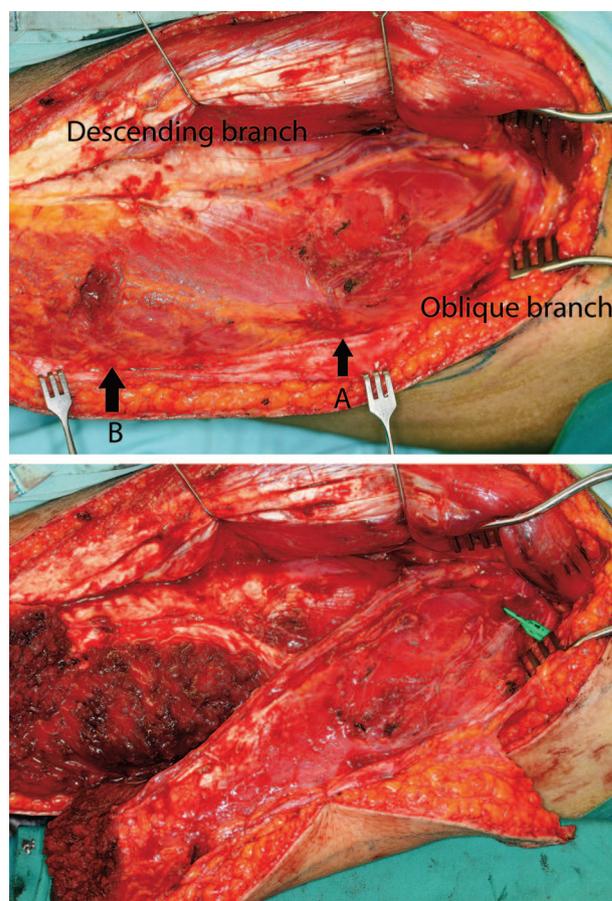


Fig. 1. (Above) In the harvest of an anterolateral thigh myocutaneous flap, the skin component was supplied by both the descending (B) and the oblique (A) branches. (Below) When a microvascular clip was placed on the oblique branch, the flap vascularity (both the skin and muscle components) was noted to be good. The myocutaneous flap was harvested based on the descending branch. When a choice exists, the descending branch is generally preferred, as it is larger and longer.

and length noted in our article. However, doing this routinely is unnecessary, as it causes much more devascularization of the surrounding muscles, especially that to the rectus femoris and tensor fasciae latae muscles. For this reason, provided that the pedicle length and size are adequate, we prefer to harvest the flap at the level of the oblique branch itself. Despite its smallness, it is safe and reliable in our experience.

Much has been said about the anatomical variations of the anterolateral thigh flap. Several authors have classified its vascular variations.^{2,3} Such classifications are unnecessarily cumbersome and may cause further confusion, especially in less experienced surgeons. Based on our current understanding of the anterolateral thigh flap, the potential variations that one may encounter when harvesting the flap can simply be classified into two types. The first is the course of the skin vessel supplying the anterolateral thigh. These can be