Sural Flap in non usual or at risk situations: a comparative retrospective study of the classical sural flap indication.

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Introduction: The leg is a region of the body with little amount of subcutaneous tissue, which facilitates the exposure of tissues after high energy trauma and in addition to this, it has poorly vascularized skin regions, such as the lateral and medial malleoli, and the hindfoot area. In the last twenty years, the sural flap has been used as an option for cutaneous coverage of lower limb injuries, especially in the region of the Aquiles tendon and hindfoot, with low complication rates and reinterventions, both with acceptable aesthetic side-effects.

The aim of this study is to expand the use of the sural flap, increasing the use in cases of forefoot lesions, middle third tibia and in major soft tissue defects, even in the presence of superficial lesions of the pedicle rotation point, maintaining the same complication rates as in the classical description made by Masquelet et al.

Methods: Were analyzed, between 2006 an 2016, 41 patients submitted at sural flap. Patients were divided into two groups according to the location of the lesion to be covered and the presence of some of the risk factors for the performance of the flap. The risk factors considered in this study were: superficial lesion at the pedicle rotation point, defects to be covered in the forefoot and the middle third of the tibia and by fibrosis at the point of rotation of the pedicle by previous manipulation. In group A, 31 patients were submitted to the classic sural flap. All patients in this group were adults, being 3 women and 28 men. Group B included patients who had a risk factor. All 13 patients were adults, 5 women and 8 men.

Results: Among the 31 patients included in group A, 8 presented complications, resulting in a 25.8% complication rate. There were 6 partial losses (19.35%) and 2 total losses (6.45%) in this group. Four out of 13 patients presented complications in group B, resulting in a 30.76% complication rate. Three patients presented partial loss of the flap and 1 patient presented epidermolysis in this group. All of the complications of this group were treated without the need for a new flap. Comparing the number of complications (p = 0.736) and the type of complication (p = 0.506), there were no significant differences between the studied groups (A and B) according to comparative statistical data.

Conclusion: The use of the reverse sural flap is effective in the treatment of the distal tibia, calcaneus tendon and hindfoot lesions, and we can extend the use of this flap to the forefoot (Fig 1), middle and anterior third of the tibia and defects where there are other superficial lesions in the pedicled (Fig 2) path without significantly increasing complication rates.

Keywords: pedicle flap, sural nerve, cutaneous coverage, fasciocutaneous