

Distal vascular pedicle-hemisoleus to tibial length ratio as a main predictive index in preoperative flap planning

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Summary. The management of severe compound tibial fractures is aimed at obtaining osseous consolidation, proper cutaneous and muscular cover, absence of infection and restoration of limb function. A knowledge of the cutaneous and muscular vascularisation allows the surgeons to use many flaps in a rational and predictable manner. One of the most commonly used flaps is the soleus muscular flap. This may be used as a proximally or distally based muscular flap and the use of a hemisoleus flap has also been described. A morphometric analysis of the relation between tibial length and soleus vascular pattern provides a simple and reliable method for planning this flap preoperatively. The study was performed on fresh and preserved cadavers.

Le rapport de la longueur du lambeau d'hémi-soléaire à pédicule vasculaire distal à la longueur du tibia : un indice capital dans la planification pré-opératoire des lambeaux

Résumé. Le traitement des fractures largement ouvertes du tibia vise à obtenir la consolidation osseuse, la couverture musculaire et cutanée, pour combattre l'infection et faciliter la restauration fonctionnelle du membre inférieur. La connaissance de la vascularisation cutanée et musculaire permet au chirurgien d'utiliser de nombreux lambeaux de façon rationnelle et prédictible. L'un des lambeaux les plus utilisés est le lambeau musculaire de soléaire. Il peut être utilisé comme lambeau musculaire à pédicule proximal ou distal, l'utilisation de lambeau d'hémi-soléaire a également été décrite. Grâce à une analyse morphométrique des rapports unissant la longueur du tibia et la disposition vasculaire du m. soléaire, nous proposons une méthode simple et fiable pour planifier ce lambeau avant l'intervention. L'étude a été réalisée sur des cadavres frais et embaumés.

Key words: Limb defects — Surgical flaps — Hemisoleus flap — Tibial morphometry

Reconstructive surgery, a synthesis of orthopaedic and plastic surgery, stems from a global concept of traumatic defects of the limbs. Fortunately the severe compound tibial fracture has long received integral treatment, which possibly attaches more importance to the soft tissues than to the bone injury itself [16].

Classifications of compound fractures [4] attempt to predict the outcome of a given lesion (extent of skin necrosis, infection, amputation rate, etc). In some cases the ability to predict the development and extent of necrosis is very limited (ie, in traumatic degloving). The treatment protocols and the modes of treatment used must also be predictable and reliable [1].

The use of flaps has become increasingly rational and predictable due to the systematisation of cutaneous vascularization carried out by Manchot [6] in 1889, and later by Salmon [13] with the help of roentgenography. Currently, the works of Mathes and Nahai [10] and of Masquelet et al. [8] are of daily clinical application and numerous publications illustrate specific aspects in this field [2, 7].

The aim of this work is to exploit the local resources of the leg to the maximum through the use of a distally pedicled soleus muscle flap and to obtain a predictive value in relation to tibial length. This would provide information about the possibilities of cove-

