



Original Article

Fasciocutaneous flaps for covering foot and ankle injuries ☆,☆☆

Alexandre Carvalho Quirino^{a,*}, Karen Cristina Viegas^b

^a Hand Surgery Service, Hospital São João de Deus, Divinópolis, MG, Brazil

^b Universidade Federal de São João Del Rei, São João Del Rei, MG, Brazil

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ABSTRACT

Objective: to present some cases from our service and to confirm that sural and lateral supramalleolar flaps are good options for covering the soft tissues of the foot and ankle.

Methods: twenty-two flaps were constructed in 21 patients of ages ranging from 15 to 72 years. Male patients predominated (66.6%) and in 47.6% of the cases the injury resulted from accidents involving motorcycles.

Results: among the 22 flaps, 12 were sural and 10 were lateral supramalleolar; in one case, two flaps were used. In all the cases, the injuries were successfully covered and the patients recovered well. During the postoperative follow-up, the commonest complication was epidermolysis, occurring in eight cases (three in a sural flap and five in a supramalleolar flap), among which two cases progressed to distal necrosis of the flap (one sural and the other supramalleolar). One patient wanted the flap reviewed for esthetic reasons.

Conclusions: sural and supramalleolar flaps are very reliable. They preserve the main trunk arteries, are quickly dissected, have low hospital cost, enable coverage of extensive areas, present esthetically acceptable damage to the donor area and do not impair motor function.

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Retalhos fasciocutâneos para cobertura de lesões no pé e tornozelo

RESUMO

Objetivo: mostrar alguns casos do nosso serviço, além de confirmar como boas opções os retalhos sural e supramaleolar lateral na cobertura de partes moles do pé e tornozelo.

Métodos: foram feitos 22 retalhos em 21 pacientes, entre 15 e 72 anos. Houve predomínio do sexo masculino, com 66,6%, e em 47,6% as lesões foram decorrentes de acidentes que envolveram motocicletas.

Resultados: dos 22 retalhos, 12 foram do tipo sural e 10, supramaleolar lateral. Em um caso usaram-se os dois retalhos. Em todos os casos houve sucesso na cobertura das lesões, com boa recuperação dos pacientes. No seguimento pós-operatório a complicação mais comum

Palavras-chave:

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☆☆ Work performed at Hospital São João de Deus and at Hospital Santa Lúcia, Divinópolis, MG, Brazil.

* Corresponding author.

E-mail: alexandrequirino@uol.com.br (A.C. Quirino).

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foi a epidermólise, com oito casos, três no retalho sural e cinco no supramaleolar, dos quais dois progrediram para pequena necrose distal do retalho, um deles sural e o outro supramaleolar. Um paciente desejou rever o retalho por questão estética.

Conclusões: os retalhos sural e supramaleolar são bastante confiáveis, preservam os troncos arteriais principais, são de rápida dissecação, têm baixo custo hospitalar, permitem cobertura de áreas extensas e apresentam dano estético aceitável na área doadora sem prejuízo funcional motor.

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Introduction

Before beginning this study, we obtained approval from the Brazil Platform, an online tool for registering research that involves human beings, which is aimed toward the general public and toward aiding the work of the Research Committee system and the National Research Ethics Committee of the National Health Council (CEP/CONEP/CNS).

Today, with the significantly increased number of car and motorcycle accidents, tissue losses from the foot and ankle region are becoming increasingly frequent.¹ These injuries are dealt with routinely at referral services, where labor, surgical techniques and specialized training are abundantly available, with the capability to resolve such losses using free flaps.

On the other hand, many such services, often distant from the metropolises, also receive significant numbers of cases of these injuries but do not have the same conditions as the referral services. Thus, one very reasonable choice for covering these tissue losses in feet and ankles is sural fasciocutaneous and lateral supramalleolar flaps. These two flaps were described by Masquelet et al. in 1992,^{2,3} and they have become one of the few options for covering these regions, which have a sparse vascular bed⁴ in which bones and tendons are often found to be exposed in addition to vessels and nerves.

Sural and lateral supramalleolar flaps are very reliable^{5,6}; they preserve the main trunk arteries, can be dissected rapidly and, differently from free flaps, have a low hospital cost. They make it possible to cover large areas, have a large range of rotation,^{5,7} presented acceptable esthetic damage in the donor area without functional damage and are therefore a good choice for covering foot and ankle injuries.⁸

The present study had the aim of showing some cases from our service, as well as confirming that sural and lateral supramalleolar flaps are good options for covering soft tissues of the foot and ankle. It also confirms that many injuries that formerly were only covered with free flaps can also be resolved using fasciocutaneous flaps, with faster and simpler techniques, at services that do not have the human and/or surgical resources for microsurgical flaps of greater sophistication. In this manner, free flaps are left as the last option and/or for cases in which there really is no other choice.

Materials and methods

Twenty-one patients (22 flaps) attended at Hospital São João de Deus and Hospital Santa Lúcia in Divinópolis, Minas Gerais, between 2007 and 2012, were evaluated. Fourteen patients

Table 1 – Details of the population studied.

Variables	N	%
Sex		
Male	14	66.67
Female	7	33.33
Cause of injury		
Motorcycle accidents	10	47.62
Other types	11	52.38
Comorbidities		
Yes	3 (SAH ^a : 2/DM ^b : 1)	14.28
No	18	85.72

^a Systemic arterial hypertension.

^b Diabetes mellitus.

were male and seven were female, with a mean age of 37 years and a range from 15 to 72. The side affected and dominant side were evenly balanced among the patients.

In 10 patients (47.6%), the injuries resulted from motorcycle accidents. The injuries were observed in different regions of the foot and ankle, with nine cases in the ankle, seven in the hindfoot (including the heel) and six between the midfoot and forefoot. The time that had elapsed between the injury and the surgery to provide coverage ranged from two to 264 days, with a mean of 40.3. There were four contaminated cases, which were the ones with the longest delay in provision of coverage, with a mean of 116.5 days.

Three patients presented comorbidities: two with systemic arterial hypertension (SAH) and one with diabetes mellitus (DM) (Table 1 and Fig. 1).

The surgical options for covering the tissue losses were chosen between sural flaps (constructed in 12 patients) and

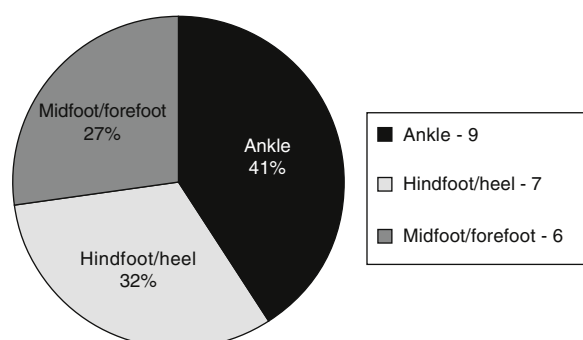


Fig. 1 – Distribution of the population studied according to the location of the injury.

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