

## SCIP Flap Application in Management of a Soft Tissue Defect in the Inguinal Region, About Clinical Case

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### Abstract

Perforating flaps are increasingly used in reconstructive surgery. Among their many applications, the propeller perforating flap technique makes part of the most recent. It allows any part of the body to become a potential site donor of perforating flap based on Doppler tracing. The shape of skin patch is adapted "to measure" then it is turned like a propeller up to 180° to make up for the loss of substance. The donor site is self-closing or grafted [1].

The first pedicled inguinal flap was described in 1972 by McGregor, it is based on the superficial iliac circumflex artery (SCIA).

Since this flap has experienced progress, particularly in perforating flap and free flap [2].

In this article we will describe the application of the SCIP (superficial circumflex iliac perforator) flap in management of soft tissue defect on the right inguinal region in a patient in his seventies, the choice of this flap was guided by need for a large graft with the slightest functional and aesthetic damage while maintaining the local cosmetic appearance of the skin (appearance, thickness and plasticity.)

**Keywords:** Soft Tissue Defect; Inguinal Region; Propeller Flap; Perforating Flap; Superficial Circumflex Iliac Artery SCIA; Superficial Circumflex Iliac Perforator Flap SCIP

### Introduction

During the reconstruction of tissue defects, the surgeon is subject to several constraints: this must meet imperatives, first of all functional, by considering in this case the anatomical particularities of each limb and limb segment but also aesthetic.

Ultimately, the objective of reconstruction is to obtain stable and reliable skin coverage while limiting donor site morbidity.

The development of perforator flaps makes it possible to meet these two criteria, by providing a thin flap that adapts to the cos-

metics and to the surrounding skin thickness while limiting the functional and aesthetic sequelae of the donor site.

The many advances (fundamental and technical) made in this field, in particular anatomical studies, have made it possible to define angiosoma which correspond to clusters of perforating vessels distributed over the entire cutaneous covering, accounting for the multiple possibilities of coverage whatever the location of the defect and its size.

Among these many advances, the technique of the propeller perforator flap is one of the most recent. It allows any part of the

body to become a potential donor site for a perforator flap based on anatomical or Doppler identification. The shape of the skin patch is adapted “to measure” then it is turned like a propeller up to 180° to fill the loss of substance. The donor site is either self-closing or grafted.

The use of superficial vessels makes it possible to preserve the deep structures (muscle, nerve trunk and axial arteries) which in the past constituted the very keystone of pedicled flaps.

The perforator flaps are suprafacial entities, this constitutes a determining element in the early rehabilitation, the resumption of the function of the limb and the quality of life of the patients; consequently, now and more than before, the emphasis is placed on the aesthetic consequences of the reconstruction of a limb, as well as the functional ones, which in the near past was in proportion to the primary imperative, which is coverage.

In this regard we will talk about the perforating flap based on the SCIA in its propeller variety to cover of a defect tissue located on the antero-external aspect of the hip.

The superficial iliac circumflex artery is a constant artery, which emerges from femoral artery 2 cm below the inguinal ligament, it gives mainly two branches, of which the lateral branch which goes

towards the anterosuperior iliac spine, the territory of this artery can extend beyond the anterosuperior iliac spine, which allows fairly substantial tissue samples to be taken [3].

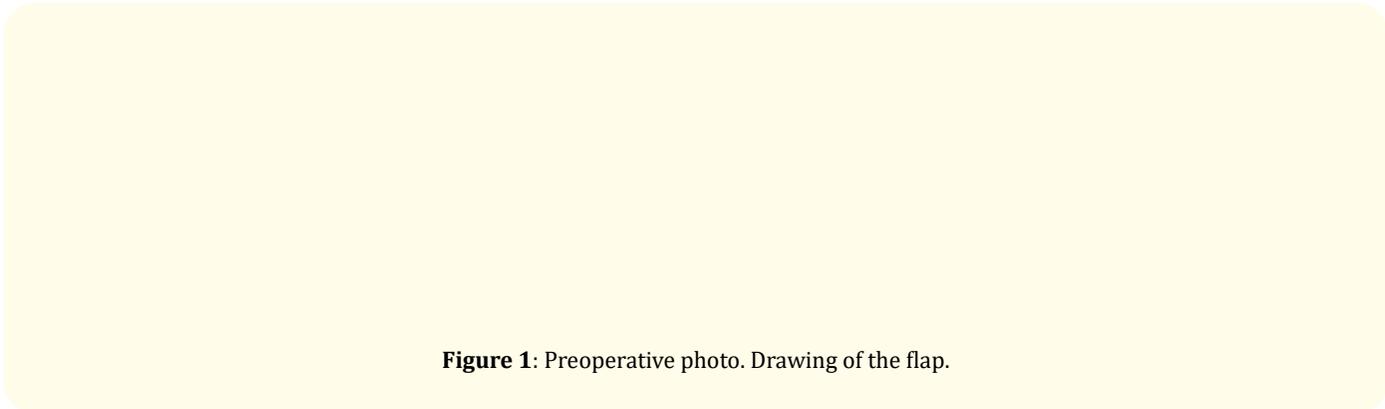
**Clinical case**

This is a 75-year-old diabetic patient with heart failure, who following a skin infection presented a large tissue defect on the anterior aspect of the right hip measuring approximately 10 cm by 7 cm.

Our choice fell on this flap given the constant nature of SCIA, which eliminates the need for Doppler locating of the artery, given the quality of the tissues it offers with the same local appearance and the same thickness, and also given the possibility of closing the donor site without grafting, which is known and practiced with the McGregor flap.

The landmarks of the flap are the anterosuperior iliac spine and the pubic spine, the line of the inguinal ligament is drawn between these two landmarks, then the femoral artery is traced, the SCIA arises from this 2 cm below the inguinal ligament.

The size of the cutaneous patch is measured according to the loss of substance to be covered, it must include the SCIA, it is located astride the inguinal ligament, overflowing it by a third above and two thirds below, it exceeds widely the anterosuperior iliac spine outside [4].



**Figure 1:** Preoperative photo. Drawing of the flap.

The patient was operated in dorsal position, cushion under the ipsilateral buttock, after drawing the flap and placing the operating drapes, we started the cutaneous incision on the external part, here no visible artery up to the anterosuperior iliac spine, we release the lateral cutaneous nerve of the thigh.

And then we start a fine dissection around the superficial iliac

circumflex artery up to the scarpa aponeurosis which is cut around the artery and we continue the dissection until the femoral artery, we continue around the skin graft with a scalpel and the flap is isolated on its own circumflex pedicle, it is rotated around its axis counterclockwise and it remains well colored and well vascularized, after debridement of the defect the flap is fixed and the donor site self-closing without graft [5-9].

**Figure 2:** Dissection of the lateral cutaneous nerve around iliac spine.

**Figure 3:** Superficial circumflex artery identification after fascia cutting.

**Figure 4:** Flap fixation, final result.

### Discussion

For such a defect, we could have recourse to a classic flap such as the fascia lata flap, which is a reliable flap that is not very complicated to perform, however at the cost of a significant deterioration of the thigh, with an incision that goes up to a third distal of the thigh, moreover by turning over the flap we would have a large dog's ear not very aesthetic, with a graft on the donor site.

As we saw previously the SCIA is an constant artery, we did not have to use preop Doppler to identify it and mark it on the skin,

which would have been desirable to facilitate the dissection and make it faster.

The artery is identifiable at the height of the anterosuperior iliac spine and is suprafacial in the thickness of the fat, as you approach the femoral artery the dissection must be fine until you reach the plumb of the femoral artery, at this time the aponeurosis of the SCARPA is incised around the artery very carefully then the dissection is continued until it comes into contact with the femoral artery, once there the rest of the sample is taken and the entire flap

is mobilized on its own vascular axis then turned counterclockwise to cover the previously debrided tissue defect.

In our case the perforating propeller flap on the SCI. Artery allowed us to have a voluminous tissue, of the same aesthetic appearance and of the same thickness compared to the local tissues of the patient, with less deterioration and especially with a self-closing donor site without graft.

The patient was released from the hospital 10 days after his surgery; unfortunately he died of covid a month later.

### Conclusion

Perforator flaps have revolutionized the management of soft tissue defect in the human body, locally propeller perforator flaps have made it possible and still make it possible to cover tissue defects regardless of the site, including the lower third of the leg where there is practically no soft tissue “skin on bone”.

This accounts for the infinite possibilities of covering always with the least functional damage compared to the classic pedicled flaps which were based on axial elements of the limbs (arteries and nerves). Currently and thanks to this technique the dissection and harvesting plane is Suprafascial, preserving the deep functional elements and bringing similar tissues locally to the site of the defect, of the same color of the same appearance of the same thickness and of the same elasticity.

The future is that of harvesting so-called “thin” flaps in the plane of the fascia superficialis! Which opens new perspectives.

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