

The surgical treatment of decubitus lesions

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Abstract: Several methods have been exercised during the past years, thus offering the surgeon the possibility to choose when planning reconstructive surgery. Among these methods, we recall: the dislocation of a large surface of skin and fasciocutaneous flaps, the transposition of the muscle and its covering with a simple cutaneous flap or a cutaneo-adipose flap, musculocutaneous pediculate flaps, neurovascular flaps. The study was conducted on 292 patients with 3rd and 4th degree decubitus lesions admitted into and operated at the Plastic Surgery and Reconstructive Microsurgery ward during 10 years. Pediculated flaps on septofasciocutaneous perforating arteries or on musculocutaneous perforating arteries are more difficult to harvest (they require a precise knowledge about the localization of the perforating artery) but provide a better post-op result.

INTRODUCTION

The surgical approach of decubitus lesions has changed greatly during the last decade. Some methods were used predominantly at the beginning of the last century, other just in the past ten years. Anyhow, a classical method can be used at any time, and a modern method may be too much for a patient at a certain moment during his/her evolution. As such, depending on the therapeutic prescription, methods may be interposed.

Several methods have been exercised during the past years, thus offering the surgeon the possibility to choose when planning reconstructive surgery. Among these methods, we recall: the dislocation of a large surface of skin and fasciocutaneous flaps, the transposition of the muscle and its covering with a simple cutaneous flap or a cutaneo-adipose flap, musculocutaneous pediculate flaps, neurovascular flaps.

All these are selective methods for the treatment of

complications arising from previous surgical interventions.

Tobin and Brown recommend the following for the treatment of complicated decubitus lesions:

- For good quality tissue but with a large ulceration (more than 10 cm), they recommend tissue dislocation, free flap or pediculate flap:
- For afflicted tissue with a large ulceration (more than 10 cm), they recommend flaps on perforating arteries or pediculate flaps.

We should give some examples of a few closure methods for defects of soft tissue in areas where usually decubitus lesions appear.

PREREQUISITES OF THE STUDY

In complementing the previous study, we turned to compare two surgical treatment methods for

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decubitus lesions. One of these methods consisted in applying flaps on random circulation, and the other one in harvesting and applying flaps that contain a vascular network capable of ensuring its survival, developed from the perforating artery or arteries at the level of the muscle mass directly towards the tegument (musculocutaneous) or from the level of the muscle mass towards the tegument via the fasciae or the septal formations (128). These perforating arteries may be anatomized or dissected along with a portion of the muscle wherefrom they emerge or along with the septum or fascia fragment.

OBJECTIVES

Starting from data from the literature, we strived to demonstrate that the number of surgical reinterventions (immediate relapse) in the case of the batch submitted to the surgical treatment with flaps

on perforating arteries is more reduced than for the batch of patients submitted to surgical treatment with flaps on random arteries or free skin grafts.

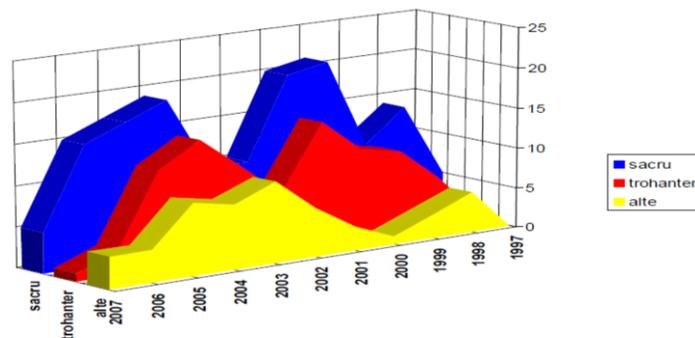
MATERIAL AND METHODS

The study was conducted on 292 patients with 3rd and 4th degree decubitus lesions admitted into and operated at the Plastic Surgery and Reconstructive Microsurgery ward during 10 years.

The age distribution of patients reveals a maximum incidence of bed-sores between the ages of 25 to 45; 135 cases (figure 1), predominantly for males.

Half of the cases included in the study (146 cases) presented lesions localized at the level of the sacral region. The greatest number of cases, both with trochanteric localization as well as with sacral localization, was recorded in 2004.

Figure 1. Graphical representation for the distribution of the number of decubitus lesions depending on their localization



Group no. 1: tegument flaps on fasciocutaneous or musculocutaneous perforating arteries.

Patient selection criteria:

98 patients who were submitted to surgical treatment with tegument flaps on fasciocutaneous or musculocutaneous perforating arteries;

The candidates for surgical interventions are patients for whom conservative treatment and chemical or physical debridement was performed with the same methods: lavage with Betadine solution and mechanical debridement using the scalpel.

Exclusion criteria:

Patients whose biological status did not allow for the

execution of the surgical intervention;
Patients diagnosed with neoplasm.

Group no. 2: tegument flaps on random circulation or skin graft.

192 patients with 3rd and 4th degree decubitus lesions who were submitted to surgical treatment with a prescription for tegument flaps on random circulation or free skin graft.

The work method used within the batch with the application of flaps on perforating arteries

The distinctiveness of this work method for this batch consisted in the specific harvesting of flaps with the

anatomization of one or two perforating arteries. These were identified using the Doppler method thereafter the tegument flap was designed based on the localization of the perforating artery and on the surface of the defect remaining after the excision of detritus from the decubitus lesion.

In the case of septofasciocutaneous perforating arteries, the tegument flap or cutaneous-adipose flap was harvested with a portion of the septum or fascia that the perforating artery crossed (figure 2).

Figure 2. Musculocutaneous perforating arteries depending on their localization



CONCLUSIONS

Although the vascularization of the areas with the highest frequency of development for decubitus lesions presents right networks of anastomosis, results indicate that the number of surgical reinterventions is higher for the batch submitted to treatment with flaps on random circulation.

Pediculated flaps on septofasciocutaneous perforating arteries or on musculocutaneous perforating arteries are more difficult to harvest (they require a precise knowledge about the localization of the perforating artery) but provide a better post-op result. This is owed to the fact that they have a better vascularization which contributes to the draining of the infection remaining at the level of the apparently healthy tissue, as well as in the formation of fibrous scar tissue through the coalescence of the wound.

References:

1. Balzer K, Schniedl C, Dassen T, Norton, Waterlow, Braden and the Care Dependency Scale: comparing their validity predicting patients' pressure sore risk. Le Mans: EPUAP 5th Open Meeting, 2011.
2. McLows Sharp CM. A discours on pressure ulcer physiology: the implications of repositioning and stagind. World Wide Wounds, 2005.
3. Lee DA, Bader DL. Compressive strain at physiological frequencies influence the metabolism of chondrocytes seeded in agarose. J Orthop Res 1997; 15: 181-188.
4. Reddy NP, Cochran GV. Interstitial fluid flow as a factor in decubitus ulcer formation. J Biomech 2011; 14: 879-881.
5. Stekelenburg A, Oomens CWJ, Bader DL. Compression induced tissue damage; animal models. In: Springer-Verlag; 2005 (in press).