

CHIRURGIE PLASTICĂ ȘI RECONSTRUCTIVĂ

PRELIMINARY RESULTS IN THE TREATMENT OF THE DIAPHYSEAL BONES DEFECTS OF THE LOWER LIMB USING THE METHOD OF THE INDUCED MEMBRANE



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Introduction: The management of segmental long-bone defects is a challenge. The literature has described many techniques, but each is fraught with specific difficulties. Masquelet's technique of induced membrane is now a reference surgical procedure for the treatment of complex lesions requiring bone regeneration. The concept of induced membrane was introduced by Alain-Charles Masquelet in 1986. The method consists in formation of an induced membrane by a foreign body which has secretory properties, influencing positive on the regeneration and strengthening of the cancellous bone grafts.

Aim: To investigate the morphological properties and characteristics of induced membrane which was modeled in an experimental group of rabbits in order to assess and to optimize the effectiveness of the Masquelet method in the clinic.

Materials and methods: Experimental work was done using a group of rabbits (n=10) with the weight $5,5 \pm 0,5$ kg and the age – 5 months. The investigation had 3 steps. The first step of the study consisted in creating the bone defect, filling it up with an antibiotic-impregnated cement spacer and stabilizing it with a plate. The second step of the study was 21 days later, consisting in incision of the induced membrane, removing the spacer and filling up the space with cancellous bone chips collected from iliac crest. At this stage we sacrificed 5 rabbits in order to perform the histological and morphological examination. At the sixth week we switched to the third step – ablation of metal construction and the radiological control exam. At this stage we sacrificed 5 rabbits to study the morphological aspect of the healed bone.

Results: The histo-morphological examination performed at the 21 days demonstrated the presence of an inflammatory process characterized by neutrophilic, eosinophilic elements and regeneration's elements – fibroblasts. Also, it was determined a pseudo-synovial metaplasia and a villous hyperplasia with formation of synovial epithelium on the internal face of the induced membrane. The histo-morphological exam performed at the 6 weeks has demonstrated the continuation of the neoforming process and of the bone modeling, the regeneration process prevailed over the inflammatory one. The morphological aspect was formed by agglomerations of fibroblasts, myoblasts and collagen and numerous vascular buds, that promotes a good neoangiogenesis and osteogenesis of the bone.

Conclusion: The morphological study demonstrated an intense process of cell proliferation and differentiation, which highlights the biological role of induced membrane by foreign body with secretion of the osteoinductive factors, promoting the vascularization and corticalization of the bone. The Masquelet method is an effective method that allows getting the consolidation of the bone in case of critical size bone loss.

Keywords: induced membrane, cement, cancellous bone autograft.

LATISSIMUS DORSI PEDICLE FLAP IN SOFT TISSUES RECONSTRUCTION OF UPPER LIMB



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Purpose: highlighting possible migration variants of pedicle latissimus dorsi flap at thoracic limb's level and the permissive limits in achievement of the best reconstructive results.

Material and methods: pedicle latissimus dorsi flap was performed in 5 cases for tissues defects treatment, being used myocutaneous type. LD flap was used to cover 3 regions of the upper limb: arm - 2 (25%) cases, the elbow joint - 3 (37.5%) cases, proximal third of forearm - 3 (37.5%) cases. The flaps were harvested in the classical way on their thoracodorsal pedicle. The maximum dimensions of tissues defects were 30 x 18 cm.

Results: in the study were harvested 5 flaps, none being lost. 3 (60%) flaps survived completely, and in 2 (40%) cases

had reached to a point 10 cm up to 15 cm distal to the olecranon without significant elongation of the pedicle. 2 (40%) cases developed marginal distal necrosis of about 5 cm, being carried out necrectomy and skin grafting. In 4 (80%) cases migration paths were sutured during first surgical stage and in 1 (20%) cases – at second surgical stage, using skin grafts. No complications at donor site were reported.

Conclusions: This study revealed that latissimus dorsi pedicle flap can be used to cover large skin defects localized on thoracic limb's level, down to the proximal third of the forearm. It can be used up to 60% of the LD surface to cover the defects, without compromising the function of the shoulder. Migration distal from olecranon is not always safe, being accompanied by complications such as marginal necrosis.

Keywords: latissimus dorsi flap, migration, limits.

RECONSTRUCTION OF SOFT TISSUE LOSS IN OPEN FRACTURE OF LOWER LIMB – CASE REPORT



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Purpose: to report a clinical case of open fracture of leg with tissues defect treated ortho-plastic and to analyze final outcome with regards to time taken for union and complications.

Clinical case: this paper reflects one clinical case of a man of 35 years old, smoker, admitted in Emergency Department with Gustilo Anderson type IIIA open fracture in medio-distal 3rd of right calf's both bones with pilon fracture and soft tissues damage AO IO2. In acute stage was performed debridement, fracture fixation in external fixator and reconstruction with posterior tibial artery distal perforator flap. The donor area was covered in second stage with a split thickness skin graft harvested from the thigh. Within 4 days was performed open reduction and pilon's internal fixation with screws. The flap was monitored hourly during first 24 hours, every 4 hours for the next 48 hours and every 8 hours for the next 72 hours. At 7 days postoperative was determined skin graft's infection with its partial loss, being performed debridement and repeated skin grafting. After the immobilization period, that was for a total of 2 weeks, followed by offloading of 1 week, the patient started to walk using a fracture boot, being discharged for ambulatory treatment. After the 5th month, patient started a full weight bearing status without any assistant devices. At 2 months follow-up was determined fistular tibial osteitis, flap's oedema, being underwent sequester-necrectomy and complex conservative treatment. At 5 months follow-up was determined acceptable primary union and satisfactory flap's integration with good aesthetic appearance.

Conclusion: Open fracture of leg's bones which needs flap coverage should be treated with high priority of radical early debridement, rigid fixation, and early flap coverage. A majority of these wounds can be satisfactorily covered with local or regional flaps.

Keywords: Open fracture tibia, nonmicrovascular flap, regional flap

THE TREATMENT OF POST-BURN SCARS AND CONTRACTURES AT THE LOCOMOTORUM



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INTRODUCTION

Historically, survival was the only gauge of success in managing those with serious burns. Survival is no doubt the immediate concern; it is the restoration to pre-injury status, and social return becomes important for the victim and the treating team. An extensive burn is the most devastating injury a person can sustain and yet hope to survive. More recently, the overriding objective of all aspects of burn care has become the reintegration of the patient into his or her home and community. This objective has extended the traditional role of the burn care team to well beyond completion of acute wound closure. The 3 broad aspects of this effort are rehabilitation, reconstruction, and reintegration.

MATERIALS AND METHODS

Different principles of the surgical treatment were implemented in the practical activity thorough various plastic methods. The research includes a lot consisting of 386 patients with post-burn sequels in the locomotors system. Patients were divided into 3 groups according to the location of their lesions: upper limb and axillary region (n=192); trunk and neck (n=88); lower limb and perineum (n=106).