

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