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The objective of this study was to evaluate 3 bovine xenografts (BIOSS, TIOSS and SYNERGY) applied to alveoli after human extraction during prosthetic rehabilitation with implants. Bone tissue samples were treated with: Group 1, TIOSS; Group 2, BIOSS; Group 3, Synergy; Group 4, without substitute (clot). Histopathological studies were carried out. The interpretation of bone biopsies was made following ISO Standards 10993-6 Year 2007: A- Biocompatibility: inflammation, foreign body reaction (FBR), abscesses, necrosis, fibrosis, macrophages. B- Bone neoformation: type of bone, presence/absence of particles and rate of resorption. Histometric and statistical studies. The histological results obtained at 4 months were: (A) Biocompatibility: Group 1 – TIOSS: moderate chronic inflammation. Presence of FBR, abundant lymphocytes. Group 2 and 3 – BIOSS and Synergy similar behavior with a few chronic inflammation and absence of FBR. Group 4 (clot) – absence of FBR. None of the cases presented necrosis and/or abscesses. (B Bone neoformation: Group 1 – TIOSS: amorphous particles surrounded by numerous congestive vessels and predominantly lax connective tissue and newly composed bone (38%). Group 2 and 3 – BIOSS and Synergy: particles surrounded by fibrovascularized tissue and newly composed bone (47% BIOSS and 49% Synergy) with abundant fatty bone marrow. Group 4 (clot) – laminar bone type (45%). New bone percentages did not show statistically significant differences ($P = 0.2$). The reabsorption rate of the particles was low in the 3 substitutes evaluated by their persistence at 4 months post placement in the alveolus. From the results obtained, we conclude that BIOSS and Synergy had better biological behavior due to the absence of FBR. All three stimulated bone neoformation. The low reabsorption rate prevented alveolar bone atrophy after extraction and maintained the dimensions of the receptor zone; beneficial events for the stability of the implant and its osseointegration.

Key words: Bovine xenografts, Alveoli, Bone regeneration.

A84

OPTICAL, POLARIZED, METALLOGRAPHIC AND ELECTRON SCANNING MICROSCOPES FROM OSTEOFORMATION BY POLYLACTIC-POLYGLYCOLIC ACID

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Tooth extraction is one of the most common dental procedures. This situation is followed by irreversible alveolar bone resorption during the first three months of healing, although dimensional changes can be observed up to a year later. The clinical consequences limit the availability of bone for implant placement. Among the existing therapeutics, bone graft materials (BGM) are the choice, since in addition to providing structural support, they promote osteopromotion. In the present study, Poly(lactic-co-glycolic) Acid (PLA-PGA) particles were characterized and biological behavior as BGM in dental alveoli was evaluated. The in vivo model used was the post extraction alveolus in Wistar rats. Animals were divided into 2 groups: 1) Control Group (CG): without MRO; 2), Experimental Group (EG): with PLA-PGA. Bone samples were evaluated with soft X-rays (SXR), histological with light microscopy (LM) and polarized light (PL), histometric (H) and statistics studies at weeks 1, 2, and 3 after surgery. The characterization was carried out with a metallographic optical microscope (MOM) and a Scanning Electron (SEM). Results: MOM: particle conglomerates composed of small grains. Average size: $18 \pm 6 \mu\text{m}$. SEM: particle conglomerates with an amorphous and irregular surface, with wide interconnected channels limited by discontinuous and porous walls. In vivo model: SXR: CG: varied radiopacity areas, random, without reaching the apex of the alveolar ridges. EG: low radiopacity images (PLA-PGA particles) surrounded by more radiopaque areas (newly formed bone). LM: GC: alveolus covered by lamellar bone EG: alveolus covered by fibrous connective tissue, PLA-PGA particles surrounded by lamellar bone and primitive bone marrow. PL: in two thirds dense fibrous connective tissue birefringent reddish orange and in the apical third areas of reddish newly formed bone (type I collagen), with some yellowish green areas (type III collagen). GE: superficial third, birefringent dense fibrous connective tissue of intense reddish and orange colors (type I collagen), middle and apical third trabeculae of laminar neoformed bone, red orange and yellow birefringent (type III collagen), with persistence of PLA- particles PGA surrounded by a loose, reddish-orange fibrous area. EH: Bone volume in the GC was 75.12% and GE 78.26% at 3 weeks without statistically significant differences ($P = 0.35$). PLA-PGA was biocompatible and behaved as an osteoconductor and osseostimulator since it promoted the formation of type I and III collagen and bone neoformation around its particles. The alveolar space was preserved. Key words: bone regeneration, alveolus, PLA-PGA.

A85

HUMAN PREMOLARS: STUDY OF OCCLUSAL PITS INJECTED WITH DYE AND THEIR RELATIONSHIP WITH DENTINAL STRUCTURES

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The occlusal face of the premolars is formed by fusion of embryological lobes and where the union is missing, the occlusal pits appear. These are superficial excavations of the enamel that ecological niches to trap bacterial plaque and food debris. They cross enamel and its deep part ends close to the dentin, a permeable tissue. Enamel and dentin are separated by a limit crossed by dentinal structures: canaliculi, spindles and Linderer plumes. These teeth can get caries, a multifactorial disease whose anatomical factor could be enhanced if we verify that the dye injected into the occlusal pits passes into dentin and its structures. Our objectives: histologically classification of enamel located around terminal part of occlusal pits; form that the terminal takes; infiltration of dye into dentin and its structures. Descriptive-relational analysis, comparison between and within groups, Mann-Whitney test/5% bilateral test. We included healthy premolars, both sexes, extracted for orthodontic reasons at IUNIR, public and private dental centers. The roots were immobilized in molds and their crowns were left emerging, the dye was injected under pressure and allowed to dry. The crowns were devasted by their free faces until their proximity to the occlusal pits, the remnants were cut, and these were subjected to the technique of wear. The transparent sheets were examined at higher magnification with OM. Total, 30 teeth, 15 upper premolars (PMS) and 15 lower premolars (PMI). The PMS group was represented by 33% male and 67% female, mean age 15 ± 7.6 ; in PMI were 53% and 47%, average of 18 ± 9 . The enamel surrounding the terminal of the occlusal pits there was classified in irregular: PMS 67%; in PMI 80% ($P = 0.35$), with fissures 40% and 33% respectively ($P = 0.99$), fissured-bonded to dentinal structures 13% in PMS and 53% in inferiors ($P = 0.0068$). The terminal shape on: narrow 34% in