

Dental School, Vita-Salute University, Milan, Italy, Head: Prof. E. Gherlone

**Aim:** Study and review the clinical and histological characteristics of the canalicular adenoma, evaluate its short and long-termed recurrence, its occurrence regarding ethnic groups, emphasizing the importance of the histologic analysis and the extended follow up.

**Methods:** Literature review regarding recurrence, locations, clinical, histological and immunohistochemical manifestations. A case report of a 73 years old female patient sought to dental care for an asymptomatic swelling in the right buccal mucosa. Visiting the patient, confirmed the presence of a nodular and floating lesion, the diagnosis was performed after surgical excision, and histological exam which confirmed a canalicular adenoma.

**Results:** The literature review showed a bit of disparity in the canalicular adenoma ratios regarding location, occurrence, the average age range of affection, clinical appearance and signs, but it was agreed that it is a benign tumor, its most commonly site is the upper lip then the buccal mucosa, less frequently the palate, parotid gland and extremely rare intra-mandibular (4 cases), and that it occurs mainly in elderly patients (more than 40 years) with slight predilection to females, clinically painless, slow growing, and has a tendency to present as a multifocal lesion specially in the upper lip, whom diameter is about 3 mm to 3 cm.

After continues follow ups so far our patients didn't show any signs of recurrence but its not rarely reported in the literature the recurrence on a short and long-termed distance of time (months to years).

Histologically its distinguished by the composition of layers of cells stratified in columns-like form, and immunohistochemically by the absence of protein s100, p63, ck5/6, GFAP. Its important to keep in mind that about 24% of canalicular adenoma shows foci of tumor islands micro and macroscopically which may mislead the examiner towards malignancy.

**Conclusions:** Despite the fact that canalicular adenoma has its clinical features that defines it from other similar lesions, its final diagnosis can't be done before or without the histological exam to eliminate any other potential more serious benign or malign lesions. Extended follow up (up to 12 years) must be performed to inspect for any potential recurrences in the prior location or any other common places, or would it be more appropriate to say that a previously diagnosed patient with canalicular adenoma should be considered more susceptible to future occurrences of it in the same or even in the contralateral side and other frequent places of appearance.

### Clinical and histological evaluation of a new approach in alveolar ridge preservation

### technique in the aesthetic zone: a prospective single cohort study

**Isola Gaetano\*\*\*, Matarese Giovanni\*, Ciccù Marco\*, Laino Luigi\*\*\*, Cassandro Francesco\*\*, Ramaglia Luca\***

\*Department of Biomedical, Odontostomatological Sciences and of Morphological and Functional Images, University of Messina, Messina, Italy

\*\*Department of Neurosciences, Reproductive and Odontostomatological Sciences School of Medicine University "Federico II", Naples, Italy

\*\*\*Multidisciplinary Department of Medical-Surgical and Odontostomatological Specialties, Second University of Naples SUN, Naples, Italy.

**Aim:** Alveolar ridge resorption following tooth removal is an undesirable, but well-documented physiologic process. The reduction of the alveolar ridge width following extraction is usually greater than the loss of height in the first 6 months after extraction. Different ridge preservation or augmentation techniques have been advocated to avoid or minimize this resorptive process, using different bone grafting materials or in conjunction with barrier membranes. The purpose of this prospective single cohort study was to evaluate the use of a xenograft and a collagen matrix in treating full or partial buccal bone defects of fresh extraction sockets in the aesthetic zone.

**Methods:** This a prospective cohort study was conducted on 14 patients (8 males, 6 females, mean age 44.7 years old). Patients considered eligible for the study received tooth extraction and ridge preservation with a bovine derived bone (90% anorganic bovine bone in combination with 10% porcine collagen fibers) and soft tissue closure with a collagen matrix (a resorbable bilayer matrix composed of porcine collagen). Following 16 weeks of healing, clinical measurements as horizontal ridge width, vertical ridge changes and width of keratinized gingiva were recorded and a core biopsy was obtained and prepared for histologic evaluation of percentages of vital bone, residual graft, and soft tissues assessment in each patient.

**Results:** All treated sites allowed the placement of implants. The mean horizontal ridge width at the buccal crest for the treated patients decreased from  $8.2 \pm 1.1$  to  $7.8 - 1.2$  mm for a mean loss of  $0.4 \pm 0.8$  mm ( $P > 0.05$ ). The mean values of the facial soft tissue level indicated an increase over time. Moreover, the vertical change at the lingual sites was 0.5 mm and the keratinized gingiva showed a coronal shift 1.2 mm. In addition, 12% of sites required an additional bone augmentation at implant placement. The biopsies harvested from the grafted sites revealed the presence of trabecular bone, which was highly mineralized and well structured. Finally, in the palatal area no bone changes were observed. No implant failed during the

entire observation period.

**Conclusion:** The ridge preservation procedure allows to counteract the bone loss after tooth extraction even though the bone modelling and remodelling after a tooth extraction is not completely avoidable. The technique with xenograft and a membrane with a double layer used for ridge preservation of the extraction sockets in the aesthetic zone can be considered effective in repairing bone defects before implant placement. The secondary soft tissue healing showed a significant improvement as the soft tissue level and the width of keratinized gingiva over time and did not compromise bone formation. The results of this study demonstrated that this technique may represent an advantage in cases when aesthetic concerns are of primary interest.

### Radiological, histological and histomorphometrical evaluation of a biomimetic nanostructured matrix as sinus augmentation graft

Lorusso Felice\*, Staiti Giorgio\*\*, Tampieri Anna\*\*\*, Mortellaro Carmen\*\*\*\*, Scarano Antonio\*

\*Department of Medical, Oral and Biotechnological Sciences and CeSi-MeT, University of Chieti-Pescara, Chieti, Italy

\*\*Private Practice Torino, Italy

\*\*\*Bioceramics and Bio-hybrid Composites Senior Affiliated Member Methodist Hospital Research Institute - Houston (Texas - USA)

\*\*\*\*Department of Health Sciences Oral Surgery Unit, University of Eastern Piedmont, Novara, Italy

**Aim:** Recently, oral surgery became rich with new means to improve the relationship between the bone substitutes, surrounding tissue and human organism: the regeneration led by the tissues represents one of the most encouraging examples. Many bone substitutes have been applied for sinus regeneration procedure, such as autogenous bone, inorganic bovine bone, porous and resorbable hydroxyapatite, tricalcium phosphate, bioactive glass, and blood clot. The application of bone grafts is oriented to promote bone formation with faster resorption processes and new combinations of osteoinductive scaffolds. The aim of the study was to evaluate in vivo a biomimetic nanostructured matrix composed by MgHA/collagen-based scaffold as a sinus augmentation graft.

**Methods:** Eleven healthy patients (mean age: 52yo; range 48–65 yo) were treated and for sinus augmentation and implant rehabilitations. The maxillary sinuses were filled with MgHA/collagen-based scaffold with a porous three-dimensional design (3D) with a composite architecture, mimicking the complex hierarchically organized bone structure. Cone Beam Computed Tomography evaluation (3D CBCT) was performed for

preoperative and post-surgical sinus augmentation. Bone specimens were obtained by trephine bur to achieve histological and histomorphometrical analysis to evaluate the residual grafted material, the percentages of newly-formed bone and marrow spaces.

**Results:** CBCT scans bone augmentation showed in all patients treated hyperdensity in comparison between immediate postoperative period and late postoperative period, with more density than native bone at both times (mean volume after graft elevation= 2906 mm<sup>3</sup>, min=2148.8 mm<sup>3</sup> max= 3146.4 mm<sup>3</sup>). In the late postoperative period (6 months) the mean volume after graft elevation was 2806.7 mm<sup>3</sup> (min=2010.9 mm<sup>3</sup> max=3008.9 mm<sup>3</sup>). The statistical analysis demonstrated a significant difference for volume change (P <0.01%). Histological analysis shows that at low magnification trabecular mature bone was present in all specimens without any pathological inflammatory cell infiltrate. No foreign body reactions were present and the graft were completely resorbed. Mature bone deriving from the endosteal surface filled the external portion of the bone sinus, and the periphery and central portion of the cavities showed mineralized new bone formation. The sinuses were completely healed and no particles or MgHA/collagen-based scaffolds were visible. Furthermore it was observed seams of osteoblasts and unmineralized matrix with collagen fibrils at areas of new bone apposition. The tissues present in the sample were composed of 2 ± 2% of lamellar bone, 36 ± 1% of woven bone and 58 ± 4% of marrow spaces.

**Conclusions:** MgHA/collagen-based scaffold evaluated is an highly biocompatible bone substitute which particles have an almost complete resorbable quality; infact no residual material was found. The biomaterial which is gradually replaced by new bone apposition. The clinical and histological evidences show that MgHA/collagen-based scaffold can be used, successfully, for sinus augmentation procedures.

### Histological features of bone substitutes used in GBR and socket preservation procedures: a review of the literature

Todaro Claudia\*, Rodriguez y Baena Arianna\*\*, Lupi Saturnino Marco\*

\*Department of Clinical Surgical, Diagnostic and Pediatric Sciences, University of Pavia, Pavia, Italy

\*\*University Dental Clinic, UAX University, Madrid, Spain

**Aim:** Bone regeneration in dentistry has been largely discussed throughout the years and many different bone substitutes have been studied and released on the market. The aim of this systematic review was to answer the focused questions: in humans, what are