



**53ème Congrès du GIRSO  
Andorra 23 – 25 Avril 2009**

Chers amis, chers collègues,

Le 53ème Congrès du GIRSO est très proche. En effet, du 23 au 25 avril nous organisons notre congrès annuel à Andorre.

Nous vous invitons à accéder à notre nouveau site [www.girso.eu](http://www.girso.eu) où vous trouverez toutes les informations au sujet de cette nouvelle opportunité de renouveler les liens de collaboration et d'amitié qui sont la base du GIRSO. Vous y trouverez les dates pour toute communication ou poster à soumettre au Comité scientifique.

Vous aurez alors l'occasion de vérifier que notre Groupement est bel et bien entré dans le monde du numérique. Nous vous incitons tous à nous visiter et à faire vos enregistrements et inscriptions sur ce site, dont les capacités techniques (système paypal) vous permettront aussi d'effectuer le paiement de vos cotisations.

Par la même occasion, vous pourrez constater qu'une nouvelle étape de la vie du Bulletin du GIRSO est ouverte: l'étape électronique. En fait, un nouvel Éditeur en Chef est prêt à vous aider pour tout article que vous désirez publier. Les membres du Comité Éditorial sont déjà nombreux à travailler pour que le Bulletin reprenne son envol. Il est très important que vous envoyez, donc, des articles pour que le Bulletin soit de plus en plus reconnu scientifiquement. Nous comptons sur vous tous.

Si vous avez des difficultés n'hésitez pas à nous contacter.

Diffusez ces informations au sein de vos écoles pour que nous soyons nombreux à Andorre.

A très bientôt. Amitiés

La Présidente du 53ème Congrès  
M. C. Manzanares

**Siège**

Hôtel Crowne Plaza ; Prat de la Creu, 88 - AD500 Andorra la Vella  
Telf. : +376 874 444 ; [www.plazaandorra.com](http://www.plazaandorra.com); [crowneplaza@plazaandorra.com](mailto:crowneplaza@plazaandorra.com)

**Secrétariat du congrès**

Adriana Campi  
Faculté d'Odontologie. Pavelló de Govern Bureau 2.7  
Campus de Bellvitge. Feixa Llarga s/n  
08907 L'Hospitalet (Barcelona)  
Tel. + 34 93 403 72 20 / 1  
[www.girso.eu](http://www.girso.eu)  
[girso2009@ub.edu](mailto:girso2009@ub.edu)

**Comité organisateur**

M. Cristina Manzanares (UB)  
Patricia Carvalho (UB)  
Vicente Lozano (UB)  
Joaquim Moreira (ISCS-N)  
Filomena Salazar (ISCS-N)  
Ingrid Salvans (UB)

**Comité scientifique**

Josep M. Ustrell (UB)  
Hassan Bousbaa (ISCS-N)  
Cristina Coelho (ISCS-N)  
J. Alberto Duarte (UP)  
Stefan Louryan (ULB)  
Paolo Menghini (U. Pavia)  
J. Júlio Pacheco (ISCS-N)  
Meritxell Sánchez (UB)  
Helena Viñals (UB)

**Comité directeur du GIRSO**

Président

M. Cristina Manzanares

Président sortant

Pierre Lafforgue

Vice-présidents

Charles Pilipili

Paolo Menghini

Secrétaire

Joaquim Moreira

Trésorier

Josep M. Ustrell

Trésorier adjoint

J. Júlio Pacheco

Editeur

José A. Duarte

Editeur Emeritus

Miquel Viñas

**Programme**

**Jeudi 23**

17:00 – 20:00 Accueil

18:00 – 20:00 Réunion Comité Directeur

20:00 Cocktail de bienvenue (Participants aux cours, congressistes et accompagnants)

**Vendredi 24**

08:30 Accueil

09:15 Ouverture

09:30 Conférence inaugurale – “Un nouvel outil pour la recherche de biomarqueurs tissulaires oraux : l'imagerie par spectrométrie de masse (I.M.S)”. Mme. Dominique Deville de Perrière. Université de Montpellier

10:30 Pause-café

11:00 Symposium: Les questions de la Clinique sur la Régénération des structures oro-dentaires  
Présidence : M. Eduardo Saba-Chujfi. Université São Leopoldo Mandic – Campinas ; M Henry Magloire. Université de Lyon.

11:05 Molecular effects of Enoxolone in human inflammatory fibroblasts models.  
Quilarque Y., Berdal A., Descroix V.

11:25 Modelling colorant leakage techniques: application to endodontics.  
Olivier Romieu, Zimányi László, Piotr Warzynski, Bernard Levallois, Frédéric Cuisinier, Dominique Deville de Périère, Bruno Jacquot

11:45 The use of bioresorbible scaffolds for articular cartilage regeneration.  
Sancho-Tello M., Novella-Maestre E., Forriol F, Gastaldi P., García Gómez R, Monleón Pradas M, Gómez Ribelles JL, Ruiz Saurí A., Carda C.

12:30 Cérémonie d'Inauguration

13:00 Déjeuner

14:00 Séance des posters

Présidence: M. Cristina Manzanares. Universitat de Barcelona – M. Marc Bolla. Président de la Conférence des Doyens des Facultés de Chirurgie Dentaire de France.

15:30 Pause-café

16:00 Conférence: Ou en est la recherche pour la construction d'une dent biologique? M. Henry Magloire, Université de Lyon.

16:30 Séance communications orales: Paradontologie / Implants

Présidence: Mme. Ariane Berdal. Université de Paris – M. J. Júlio Pacheco. Instituto Superior Ciências da Saúde-Norte

16:35 Bacteria prior to root filling: comparison between the university of Oslo (Norway) and Montpellier (France).

Collart Dutilleul PY., Romieu O., Sunde PT., Orstavik D.

16:55 Thermocycling the samples in dental materials research.

Merlati G.

17:15 Osseointegration ability of zirconium implants: a histological study in dog.

Bendiab Ch. T.,khaldi L.,Victoria HerreraJJ,Torres JH, Cuisinier F.  
16:30 Activité sociale : Caldea (Espace Thermoludique)

### **Samedi 25**

10:00 "Les homogènes Msx dans les dysmorphologies orales et dentaires." Mme. Ariane Berdal.  
Centre de Recherche Cordeliers. Université de Paris

11 :00 Pause-café

11:30 Symposium: Les réponses de la recherche en développement des structures bucco-dentaires  
Présidence : M. Henry Magloire. Université de Lyon – M. Frédéric Cuisinier. Université de Montpellier

11:35 Combined study of polymeric biomaterials and dental pulp cells as scaffold  
for neural stem cells differentiation.

Soria JM, Sancho-Tello M., Bagan JV., Jiménez Y., Monleón M., Carda C.

11:55 Dentinal tissue engineering: scaffolds xenotransplanted in immunodeficient mice.  
Novella-Maestre E.,Sancho-TelloM., Vallés A., Gloria Gallego G., Monleón M.,Carda C.

12:15 Dynamic ultrasonography as a mean of diagnostic in temporomandibular  
joint disc displacement.

Cabral Mota R., Manzanares Céspedes MC., Ustrell Torrent JM., Vilaça Fernandes M.

12:35 Association between psychological distress and TMD symptom severity  
Angeja AM.,Ustrell Torrent JM, Pacheco JJ., CoelhoJA, Braga AC

13:00 Déjeuner

14:00 Assemblée générale

15:30 Pause-café

16:00 Séance communications orales

Présidence: M. Charles Pilipili. Université Catholique de Louvain - P. Menghini. Università degli  
Studi di Pavia

16:05 Relationship of dry mouth syndrome with water and prescribed drugs consumption  
Santana A., Gutiérrez E., Viñals H., López-López J, Chimenos Küstner E.

16:25 Prevalence of the posterior crossbite in deciduous dentition Ribeiro AI.

16:45 Programed stimulothrapy. Merino M., Duran J.

### **Activité parallèle**

10:00 – 18:00 COURS POUR HYGIÉNISTES et PROTHÉSISTES

**18:00 Clôture**

**20:00 Diner du prix**

Avec la collaboration de :

Govern d'Andorra

SOADCO – Klockner Implant system

Laboratorios Kin

Banesto

Hotel Crowne Plaza

## Présentations Orales

### **Symposium: Les questions de la Clinique sur la Régénération des structures oro-dentaires**

#### **Présidence :**

**M. Henry Magloire, Université de Lyon.**

**M. Eduardo Saba-Chujfi. Université São Leopoldo Mandic – Campinas,**

### **Molecular effects of Enoxolone in human inflammatory fibroblasts models.**

Quillarque Y\*, Berdal A., Descroix V.

Objectives: 18 $\beta$  glycyrrhetic acid or enoxolone is an aglycon triterpenic derived from glycyrrhizin. It is the main component of many medical drugs. In dentistry it is used as a topic treatment of soft tissues inflammation and is contained in several tooth pastes and endodontic cements. In spite of their anti-inflammatory and immune regulatory properties, only few papers have explored the mechanism of the therapeutic effects of enoxolone. In the present study, we search to identify the signaling pathways of enoxolone in an inflammatory human fibroblast model.

Methods For this purpose, we used a microfluidic cards containing 96 types of human inflammatory genes in order to compare their expression levels in absence or in presence of 4 increasing enoxolone doses (1, 5, 10, and 25  $\mu$ g/mL).

Results: 60 % of the analyzed genes were expressed in our model, the expression of 13 genes was increased after inflammation induced by TNF- $\alpha$ , the majority of them are involved in the classic inflammatory signaling pathways (TNF alpha, NF-kB, p38 Kinase, JNK). Following addition of enoxolone, a significant inhibition in the expression rate of 11/13 genes was observed: the majority of them in a dose dependent manner. We thus showed that enoxolone is able to decrease the expression of different inflammatory gene markers most likely through the NF-kB signaling pathway.

Conclusion: Though the mechanisms of action of enoxolon remains unclear, we can hypothesize that it involves NF-kB, either by an inhibition of its phosphorylation and/or its nuclear translocation.

**\*Prix Jeune Chercheur, GIRSO 2009**

### **Modelling colorant leakage techniques:**

### **application to endodontics.**

Olivier Romieu\*, Zimányi László, Piotr Warzynski, Bernard Levallois, Frédéric Cuisinier, Dominique Deville de Périère, Bruno Jacquot.

Our aim is to improve the comprehension of in vitro tracer leakage studies and to determine in which conditions they can be reliable. We have developed different models, to describe either an initially dry interface (slit) between sealer and dentin or a wet slit. Equations based on physical laws are derived to model in vitro colorant penetration. For the dry interface, atmospheric, hydrostatic, colorant gravimetric, capillary and internal air pressure are behind the forces which control colorant penetration. For wet interfaces, colorant penetration is governed by laws of diffusion and in both cases it is influenced by the width of the interface and the size of the colorant. For dry conditions, penetration is less than an hour, mainly driven by the capillary pressure, and the penetration increases as the width of the interface diminishes. Dentinal tubules and the extent of their interconnection modify the penetration depth. For wet conditions the main factor controlling the penetration length and speed is the size of the tracer (the bigger the tracer, the slower the penetration). Our models demonstrate that tracer penetration studies have to be performed in strict experimental conditions. Dry and wet interfaces are two extreme cases with very different tracer penetration modes and experimental methods. In vitro colorant penetration tests should be performed in one of these conditions avoiding, as much as possible, the cases where the slit contains both air and water. These models can be adapted to other dental situations.

**\*Satisfecit, GIRSO 2009**

### **The use of bioresorbable scaffolds for articular cartilage regeneration.**

Sancho-Tello M., Novella-Maestre E., Forriol F, Gastaldi P., García Gómez R, Monleón Pradas M, Gómez Ribelles JL, Ruiz Saurí A., Carda C..

Temporomandibular joint pathologies originate severe oral dysfunctions, thus the purpose of this study was to investigate articular cartilage regeneration, by implanting synthesized bioresorbible scaffolds with or without preseeded chondrocytes. Polymeric scaffolds were synthesized with poly ethyl acrylate (PEA) and variable percentages of hydroxyethyl acrylate

(HEA) or methacrylic acid (MAAc), containing a network of interconnected wide pores. Articular cartilage chondrocytes were obtained from New Zealand rabbits, grown in culture, and injected into some of the scaffolds, that were implanted into an area excavated on articular cartilage. Animals were sacrificed 90 days later, and the regenerated tissue was studied with immunohistochemical routine techniques. We observed a good tissue regeneration when scaffolds with high PEA percentage and low or lack HEA were used, with architecture preservation and implant integration into the osteocondral complex, that was better when disks were preseeded with chondrocytes. Porous cavities of the scaffolds were colonized by neosynthesized proliferating tissue islets that resembled typical hyaline cartilage as revealed by immunohistochemical labeling, and they were more numerous when preseeded scaffolds were used. Bone tissue appeared in the deeper zone of the scaffold, in the vicinity of underlying bone and vessels. However, scaffolds containing MAAc or high HEA percentage originated a fibrous capsule with numerous clasts surrounding the disk. Thus, the use of biodegradable scaffolds is a good technique for articular cartilage regeneration, since some of the polymers induced an osteocondral complex with a superficial neocartilage with similar characteristics of surrounding hyaline cartilage, and a deeper zone resembling subcondral bone.

**\*Satisfecit, GIRSO 2009**

#### **Séance communications orales: Parodontologie / Implants**

**Présidence: Mme. Ariane Berdal. Université de Paris – M. J. Júlio Pacheco. Instituto Superior Ciências da Saúde-Norte**

#### **Bacteria prior to root filling: comparison between the Universities of Oslo (Norway) and Montpellier (France).**

Collart Dutilleul PY., Romieu O., Sunde PT., Orstavik D.

The aim of this study was to evaluate and compare the efficiency of root canal disinfection made by undergraduate students in Oslo, Norway, and Montpellier, France. The two schools differed in the endodontic technique used and in preclinical teaching.

Over a period of 11 weeks, 56 samples were collected from root canals of patients treated

by French and Norwegian students. These samples were analyzed by anaerobic culture and DNA-DNA hybridization.

More positive cases were found in Montpellier (11/28) than in Oslo (6/28) but without statistical differences ( $p=0.15$ ). There were more positive cases for necrotic pulp and retreatment in Montpellier than in Oslo ( $p=0.063$ ). With vital pulps, no difference was found. Students in the last academic year had significantly more positive cases than less experienced students ( $p=0.03$  and  $OR=4.76$ ). With the Checkerboard technique, no significant difference between the schools was found.

The relatively high frequency of positive cultures prior to root filling points to a need for reinforcement of aseptic measures in both schools. The systematic use of calcium hydroxide and possibly greater emphasis on asepsis in Oslo may explain the observed differences between the schools.

#### **Thermocycling the samples in dental materials research.**

Merlati G.

Thermocycling of dental materials to simulate one of the many factors in the oral environment has been common in many laboratory tests. Temperature changes used have been substantiated with temperature measurements made in vivo and vary considerably between reports. Justification and standardization of regimen are required and an analysis of the recent ISO draft has been reported. An assessment of reports describing temperature changes of teeth in vivo and a clinically relevant thermal cycling regimen has been pointed out. A ten year survey of the in vitro testing has been reported.

**\*Prix du GIRSO 2009**

#### **Osseointegration ability of zirconium implants: a histological study in dog**

Bendiab Ch. T., Khaldi L., Victoria Herrera JJ, Torres JH, Cuisinier F.

Mechanical properties and biocompatibility make zirconia ceramics suitable implant material. Histological observations and animal studies showed the capacity of ZrO<sub>2</sub> for osseointegration. This work aims to analyze the ability for osseointegration of zirconium implants and evaluate cell adhesion of human fibroblasts to zirconium implants.

Eight screwed ZIR.ROC implant (Paris Im-

plants, France) were inserted within the jaws of two Creole dogs. After a healing period of two months the animals were euthanized and implants with surrounding tissues were collected. Undecalcified transverse sections were prepared according to an improved micro-CT process and analysed by light microscopy. Histomorphometry analysis was used to determine percentage of the bone-implant contact surface and bone density (ratio between mineralized bone tissue and mineralized bone marrow).

ZIR.ROC implants achieved osseointegration demonstrating direct bone contact. Mean percentages of palatal and buccal bone-implant contact surface were respectively 39.60 % and 39.38 %.

ZIR.ROC implants allows osseointegration in dog. Results have to be validated in human clinical study.

**\*Satisfecit, GIRSO 2009**

**Symposium: Les réponses de la recherche en développement des structures bucco-dentaires**

**M. Henry Magloire. Université de Lyon – M. Frédéric Cuisinier. Université de Montpellier**

**Combined study of polymeric biomaterials and dental pulp cells as scaffold for neural stem cells differentiation**

Soria JM, Sancho-Tello M., Bagan JV., Jiménez Y., Monleón M., Carda C.

This study is focused on the development of an in vitro hybrid system, consisting of a polymeric biomaterial, covered by a dental pulp cellular stroma that act as a scaffold, offering a neurotrophic support for the subsequent survival and differentiation of neural stem cells. Thus, in a first phase, we studied the behavior of the dental pulp stroma onto polymeric biomaterials based on ethyl acrylate. For this purpose, cells from normal impacted third molars were grown onto 0.5 mm-diameter biomaterial disks during 3, 6 and 9 days in a defined culture medium. After cell culture, neurotrophic factors Brain-derived neurotrophic factor (BDNF) and Epidermal growth factor (EGF), generated by the stromal cells, were quantified by ELISA. In a second phase, we proceeded to study the survival and differentiation of adult neural stem cells, obtained from the subventricular zone of adult rat brains, expanded and cultured onto the polymeric scaffolds previously covered by dental pulp

stromal cells. The results show the capacity of dental pulp cells to cover the major surface of the polymeric biomaterial, and generate neurotrophic factors that become crucial for a subsequent differentiation of neural stem cells. Thus, the use of stromal cells cultured on biomaterials such as scaffold and neurotrophic pumps would establish new criteria for the design of new cell therapy experiments in animal models to assist lesions or damaged areas in the Central Nervous System.

**Dentinal tissue engineering: scaffolds xenotransplanted in immunodeficient mice**

Novella-Maestre E., Sancho-Tello M., Vallés A., Gloria Gallego G., Monleón M., Carda C.

Tissue engineering alternative strategy designs synthetic materials that mimic dentinal matrix, therefore they are optimal to reproduce cellular environment. We synthesized scaffolds made of biocompatible materials with evidences of reparative response by the enclosed odontoblast.

The purpose of this study was to increase the mimicry of dentinal matrix scaffold in order to study the possible cellular colonization and characterization.

Synthesized scaffolds were implanted subcutaneously into nude-mice: A) polymeric hybrid nanocomposites; B) adding 15% silicon; C) tubular surface covered by hydroxyapatite. Fifty per cent of the scaffolds were covered with fibronectin. Mice were sacrificed at 4/6/8 weeks. Optical microscopy, immunohistochemistry (CD11b/c) and electron microscopy were employed to study scaffolds structure, neovascularization, cells origin and macrophagic responses.

Group A/B scaffolds presented a good cellular distribution and intense neoangiogenesis, which was improved by fibronectin. Group C presented the best cellular distribution and neo-dentinal pattern; fibronectin did not modify the results. Cellular nesting decreased after 4 weeks in A/B, while it was stable until 8 weeks in group C.

We demonstrated that the dentin matrix showed a moderate mimetization, imitating a reactive dentin in some cases, with cellular processes as well as the whole cytoplasm and nucleus.

Cellular characterization showed cells with immature fibroblastic characteristics (versus mesenchymal). Some cells in the surrounding areas, presented lisosomes allowing their ty-

pification as reactive elements. We conclude that the use of these biosynthetic materials is a useful tool for caries treatment since they are colonized by cells, showing immunopattern and ultrastructural differentiations imitating the dentin structure. Colonization and viability are improved by the use of mineralized interphases.

#### **Dynamic ultrasonography as a mean of diagnostic in temporomandibular joint disc displacement**

Cabral Mota R., Manzanares Céspedes MC., Ustrell Torrent JM., Vilaça Fernandes M.

At present, magnetic resonance imaging is the standard method in use to establish most of the diagnoses on tmj disorders. The need for an easier method precipitated studies in the use of ultrasonography. The aim of this study was to evaluate the diagnostic reliability of temporomandibular joint definition of disk positions by dynamic ultrasonography in comparison with magnetic resonance imaging bypassing the difficulties by placing the transducer in the external acoustic meatus. The goals were to observe the relation between disk and condyle in closed, open and full articular movement. The observations, US and MR, were then registered in a Wilkes modified table in which a zero value was introduced to describe the absence of pathology. Fifty one patients, affected by temporomandibular disorders were examined, as a work group using both methods, MR and US. We obtained a significant accordance of 91.1%, between US and MRI diagnostic images while in the remaining 9% the full disk - condyle position was visible. In conclusion the ultrasound imaging with the transducer positioned in the external acoustic meatus provided a continuous image of the disk position during the articular movement for the 102 articulations. Moreover, this protocol spares the extreme noise referred for the TMJ ultrasonographic explorations described in the literature.

**\*Satisfecit, GIRSO 2009**

#### **Association between psychological distress and TMD symptom severity**

Angeja AM.\*, Ustrell Torrent JM., Pacheco JJ., Coelho JA., Braga AC.

Psychological distress is fast emerging as a risk factor in temporomandibular disorders (TMD) as evidenced by recent studies that

have shown increased levels of anxiety and depression amongst TMD patients. However, implicitly of such a relationship amid nonpatients who exhibit TMD symptoms remains unclear. Therefore, the aim of this study was to analyze differences between of such mood disorder domains and each severity category of Fonseca's Anamnestic Index amongst a nonpatient population. To assess the level of psychological distress the Portuguese version of the Hospital Anxiety and Depression scale (HAD) was used. From the initial 500 participants complete data were available for 414 patients (236 women and 168 men). Results revealed strong differences between TMD-free (n=175) and other TMD categories [mild-TMD (n=147), moderate-TMD (n=65) and severe-TMD (n=27)]. Regarding depression, the most significant relationship (odds ratio [OR] 9.96, 95% confidence interval [CI] 3.98-23.6) was observed between the TMD-free and TMD-severe group; for anxiety, between the TMD-free and TMD-moderate groups (OR: 21.7, CI 10.1-46.9); and mixed disorder (OR: 49.0, CI 5-209). In conclusion, patients who present mild to severe TMD symptomology show more psychological distress than those with low grade symptomology or altogether considered asymptomatic. This finding confirms previous suggestion in the literature that anxiety and depression might be associated with TMD symptoms other than chronic pain.

**\*Prix du GIRSO 2009**

#### **Séance communications orales**

**Présidence: M. Charles Pilipili. Université Catholique de Louvain –**

**P. Menghini. Università degli Studi di Pavia**

#### **Relationship of dry mouth syndrome with water and prescribed drugs consumption**

Santana A., Gutiérrez E., Viñals H., López-López J, Chimenos-Küstner E.

The aim of this study is to learn the relationship of subjective xerostomia (Dry Mouth Syndrome) in a population of individuals over 65 years old with water and prescribed drugs consumption as risk factors. We study 100 independent patients with diagnosed dry mouth, whom cognitive status was normal, 60 were females and 40 males. We examined and interviewed the patients following our protocol in order to value the quantity of water and other liquids drank every day, prescribed drugs taken related to xerostomia, and thirst

sensation. In the protocol we asked for 13 different drugs and the results showed a high frequency of antihypertensive consumption with an incidence rate of 59%, followed with anti-inflammatory and antidepressives consumption with incidence rate of 37% and 36% respectively; 15% of the individuals consumed only one drug included in the protocol, the rest consumed 2 or more. Regarding water consumption the results showed that 16% of the individuals drunk only 1 glass of water every day, 45% drunk between 2 and 3 glasses of water per day, and the rest consumed more than 3 but not more than 6 glasses of water daily. Concerning thirst sensation 82% of the individuals said they felt it every day. The results suggest that this population did not drink enough water to compensate the xerostomia caused by biological aging and as secondary effect of the prescribed drugs consumed. Would the population be educated in how to improve this situation, the results could probably change and the thirst sensation could be lower or even over.

### **Prevalence of the posterior crossbite in deciduous dentition**

Ribeiro AI.

The posterior crossbite is an occlusal disharmony of great prevalence in the temporary dentition and it is not solved with the growth. The classification of the crossbite varies in accordance with many criteria, it could be anterior or posterior, and this last one also can be classified as unilateral or bilateral. This malocclusion can involve only one dental element, groups of teeth or the dental arches in its totality.

Several are the possible factors to cause the posterior crossbite, being a multifactorial disharmony of ambiental, functional and/or genetic origin. A set of factors causes significant clinical alterations in the growth of maxillaries, the morphology of the dental arches and/or in the intermaxilar relation, provoking the crossbite.

The involved etiologic factors in this malocclusion can be the drawn out temporary tooth retention, deleterious standard of dental eruption, oral habits (finger suction, pacifier use, lingual interposition), respiratory problems, atypical pressure of the tongue, occlusal interferences and congenital malformations of the lip and/or palate.

Given the frequency of these anomalies, it is

necessary to carry through a good differential diagnostic of the same ones, to be able to adjust the treatments in a most efficient way and with the most steady possible results.

This work intends to contribute with some knowledge that will help to perform a good diagnostic and the possibility of a precocious treatment of the posterior crossbite, preventing more complex problems in the future.

In this study we use a sample of 600 children with ages understood between the 3 and 5 years, of both sexes, that attended the kindergardens of Oporto between July and October of 2007.

As inclusion criteria all the children had to be caucasians and to have all the temporary teeth in the arches.

The aim of this study is to determine the prevalence of the posterior crossbite in children with pre-school age, to also determine the prevalence of the different types of the crossbite and its origin, to relate the presence of the posterior crossbite with the suction habits, and with the type of feeding and breath.

A questionnaire to the parents of the children on the oral habits and the children examination was made by an only observer who collects and registered the data in a clinical file.

The results of this study allow the following conclusions: the prevalence of the posterior crossbite was of 17% for the children in pre-school age, and of these the most frequent it was of functional origin. This anomaly is more frequent on the right side. We can also conclude that the habits of suction of the pacifier, sucking-bottle and lingual interposition are related with the presence of posterior crossbite.

### **Programed stimulotherapy.**

Merino M., Duran J.

The "programmed stimulotherapy" protocol, resulting from the evaluation of oral function, based on the objective measurement and quantification of collapsed nares, the degree of adenoid and tonsillar hypertrophy, lingual mobility, and patterns of deglutition, involves the use of any of the MFS devices in a prescribed sequence of automated exercises with the stated objective of promoting the normalisation of the triumvirate of oral function: respiration, deglutition, and masticatory pattern. Clinical observation of the relevance of oral motor functions led to the idea of creating muscular stimuli as a basis for the treatment of impaired oral functions.

## Posters

### I. BIOMATERIALS , DRUGS and NEW TECHNIQUES

#### **Protocole d'Étude de Réponse des Tissus de l'Os Tibial à l'Application de Mineral Trioxide Aggregate (MTA). Étude initial chez le Rat Sprague Dawley.**

Torres O., Valdivia, I, Manzanares MC.

Le MTA est considéré le matériel d'élection pour son utilisation en contact direct avec les tissus dentaires vitaux et pour promouvoir la régénération. Ceci est dû à plusieurs facteurs, dont sa capacité de scellage, son action antibactérienne, sa biocompatibilité et son PH. À fin d'évaluer son éventuel effet sur les tissus osseux nous proposons un protocole d'application de MTA en tibia de rat Sprague Dawley.

**Matériels et Méthode :** On a utilisé 2 rats provenant de l'animalerie du Campus Bellvitge (Université de Barcelona) sous supervision vétérinaire, mâles, sains et âgés de trois mois. Les animaux ont été soumis à anesthésie générale avec renforcement d'anesthésie locale. On a effectué une incision en peau pour accéder à la face interne de l'extrémité proximal du tibia. Donc, on a effectué une incision dans le périoste, on a exposé l'os et on a effectué une cavité par fraise ronde d'acier stérile propulsé par moteur chirurgical avec une irrigation abondante. On a placé approximativement 200 mg de MTA (gris en un des animaux, blanc en l'autre) dans l'os et on a fermé tant le périoste (pour couvrir la cavité osseuse créée) comme les plans superficiels avec suture reabsorbable. Ces animaux ont été sacrifiés aux 15 jours pour l'analyse des échantillons.

**Résultats :** Les segments de tibia, ont été décalcifiés pour micrographie optique. Par rapport au MTA gris, l'échantillon indique que à 15 jours il y a une grande quantité de biomatériau dans la cavité médullaire. Le tissu osseux s'est développé autour du biomatériau. Par rapport au MTA blanc, l'observation de l'échantillon indique qu'il y a faible présence du MTA.

**Conclusions :** L'application de la préparation de MTA blanc en tibia a davantage de difficulté étant une pâte qui se dissout plus facilement dans un moyen aqueux. Le MTA gris présente une consistance plus pâteuse qui permet son accumulation avec moins de problèmes

dans la cavité créée. La micrographie des échantillons de tibia nous permet d'observer mieux les tissus obtenus. À l'histologie, le tissu osseux observé dans la cavité médullaire peut être la conséquence d'une certaine influence inductrice du biomatériau sur le tissu osseux ou bien une conséquence secondaire à la mouture pour obtenir la cavité. Dans de prochains protocoles expérimentaux doivent s'incorporer des cavités contrôles pour une meilleure interprétation de ces phénomènes. Dans les résultats observés avec micrographie électronique, la faible présence du MTA blanc dans la cavité médullaire comparé avec le MTA gris, peut être dûe à deux motifs. D'une part, à la plus grande hydrosolubilité du MTA blanc qui empêche une accumulation aussi substantielle que celle du MTA gris dans une cavité créée, ou bien à une biodégradation plus rapide que le biomatériau ou bien à une somme des deux.

#### **Évaluation de la Vitalité Pulpaire à l'application de Mineral Trioxide Aggregate (MTA) dans les dents de croissance- Étude chez des Rats Sprague Dawley.**

Torres O., Valdivia, I, Manzanares MC.

**Introduction:** Le MTA est devenu de plus en plus un matériel d'élection pour l'utilisation en contact direct avec les tissus dentaires vitaux et pour rétablir leur régénération. Ces effets sont attribués à plusieurs facteurs comme la capacité de scellement, l'action antibactérienne, la biocompatibilité et le pH du matériel.

**Objectif:** Le but de ce travail c'était d'évaluer les possibilités de l'incisive du rat pour les études de réaction pulpaire à brève temps, après l'application de ce matériel

**Matériel et Méthode:** On a utilisé 4 rats Sprague Dawley sous supervision vétérinaire, sains et âgés de trois mois, en provenance de l'animalerie du Campus de Bellvitge (Université de Barcelona). Les animaux ont été soumis à anesthésie générale. On a créé une cavité dans la partie frontale et cervicale des dents incisives jusqu'à l'exposition de la pulpe dentaire. Chez deux souris, les cavités ont été réalisées dans les incisives maxillaires et chez les autres, dans les incisives mandibulaires, en utilisant pour les combler deux types différents de MTA : Blanc et Gris. Chez chaque animal, sur l'exposition pulpaire des dents intervenues on a déposé MTA et finalement tous les cavités ont été selles avec du ionomère de verre. Ces animaux ont été sacrifiés 15 jours

après pour l'analyse des échantillons. L'image obtenue par l'histologie, avec une coloration au Trichrome de Masson montre un segment de 3 des incisives dans lesquels on a introduit les MTA gris. Elle correspond à la zone moyenne des incisives supérieures ou aucun effet sur la pulpe dentaire a été vérifié. Le même résultat a été trouvé dans la région plus cervical proche de la région d'insertion du MTA, aussi blanc que gris. Quinze jours après l'application du bio-matériel, la région de la création de la cavité a été déplacée pour le bord incisal et consommé. De cette façon, aucune des souris a présenté des signes de lésion ni de la cavité ni du matériel restaurateur. Dans l'analyse des coupes histologiques, aucune anomalie dans le tissu pulpaire ou dans les zones adjacentes n'a été observée.

Conclusions: Malgré l'exposition de la pulpe et le procès d'obturation avec du MTA, les dents de tous les animaux ont continué son processus d'éruption. Les tissus dentaires ont montré une régénération très rapide face à l'intervention, sans montrer des effets secondaires. En prochains études, il faudra revoir les temps pour l'observation histologique de la régénération tissulaire dentaire.

#### **Byphosphonate-related osteonecrosis: proposal of a protocol treatment and application in 7 patients.**

Rubal X.

Byphosphonates regulate the bone metabolism by a strong binding to hydroxyapatite with an apoptotic, antitumoral and antiangiogenic action. Mean life is up to 12 years.

Our objective is to propose a protocol for dental management in patients that received treatment with byphosphonates.

Literature about dental management in these patients has been reviewed. The protocol proposed was applied in the management of 7 patients.

We introduce 7 female patients of which 5 had received treatment with endovenous byphosphonates (Zometa(R)) as complementary treatment for bone metastasis. 3 of these cases already presented lesions suggestive of osteonecrosis, in relation with tooth extraction while the other two cases consulted for dental evaluation. The other 2 cases included in this study were under treatment with oral byphosphonates (Fosamax (R)) in relation with osteoporosis that consulted for exodontics.

The majority of the authors recommend the following management protocol: 1) Oral byphosphonates: manipulation can be done, except in cases that had been treated for a period longer than 3 years, in 70 year old patients or older, or in cases where a combination with corticoids or chemotherapy was performed. In these last cases, odontologic treatments are preferably postponed at least 3 months. 2) Endovenous byphosphonates: conservative treatments can be carried out. Exodontics and oral surgery in general are discouraged. Dental treatments are strongly recommended to be performed before treatment with endovenous byphosphonates when possible.

#### **Marketing in dentistry**

Lara C, Riera A, Nieto S, Lozano V.

Marketing in dentistry is an important current issue. It consists of a set of activities carried out with the aim to satisfy the needs of our patients.

It has three principal objectives: orientation towards the production, the distribution, potential market and towards the strategic orientation. This poster wants to show the different kinds of methods that we can use from direct, internal, external and interactive marketing, and the advantages and facilities that the marketing offers to the dental practitioner in the management of the dental service. We can divide it in different phases: the first one is the analysis of medical service and the second one is to develop a marketing plan (marketing mix). Marketing in dentistry improves the communication between the professional and the patients.

#### **Dento-alveolar ankylosis and Osteointegration: parallel processes?**

Carvalho Lobato, P, Tallón Walton, V, Valdivia Gandur, I, Manzanares Céspedes, MC

Objectives: our study is aimed to ascertain the relations between the alveolar osseous tissues and the dental calcified tissues in the ankylosis, and between the alveolar tissues and hydroxyapatite-covered implants. The chronology and the calcified tissues implied in both processes are compared.

Methods: twenty female beagle dogs aged 24 months and 18 Kg average weight were used. The second maxillary molars ligament was removed after extraction in order to cause an ankylosis. The molars were replaced and

secured by a suture of the gum. The second study dealt with five hydroxiapatite-coated implants fabricated by pulsed laser deposition. The samples were implanted in the tibial diaphysis and covered by periostium. Three male Beagle dogs aged 24 months, with an average weight of 18 Kg were used.

The animals were sacrificed respectively one, two and three months after the surgical procedure in both experiences. The samples were embedded in plastic polymers without prior decalcification, in order to perform scanning microscopy with secondary and backscattered electrons (BS-SEM).

Results: osteointegration and dental ankylosis follow the same chrono-biological pattern. During the first month, osteoclasts initiate the healing process. During the second month, chondroid tissue is deposited in the repair area forming calcified trabeculae that allow the deposition of new calcified tissue layers, mainly woven bone. All the long of the third month the chondroid tissue-woven bone mass is substituted by lamellar bone, first around the vascular spaces and afterwards as newly formed haversian osteons.

Conclusions: the calcified tissues observed both in the osteointegration and in the dento-alveolar ankylosis processes are the same ones previously described in the endomembranous cranial bone growth, cranial sutural closure, fracture healing, dental eruption and distraction osteogenesis. The tissues involved in osteointegration and ankylosis, as well as in the previously described regeneration processes belong to the endomembranous developmental pattern.

### **Osseous filling of mandibular cavity defects**

Gaspar Pombo S., Costa AC., Malheiro P., Costa H., Zenha H.

There is a multiplicity of different types of bone lesions that present with specific clinical characteristics. However, differential diagnosis is not always straightforward as different entities may present with the same clinical and radiographic findings.

Cystic lesions are one of the types of bone lesions. In general, they occur more frequently in the jaws than in any other part of the human body. They are usually asymptomatic, slow-growing, produce an x-ray image suggestive of bone destruction and can generate cortical proliferation that leads to different degrees of

facial asymmetries.

We propose to present two different methods of mandibular cavity filling applied at the Plastic, Reconstructive & Maxillofacial Department of the Centro Hospitalar de Vila Nova de Gaia, Portugal.

We present two clinical cases of mandibular cysts treated by enucleation and immediate cavity filling with bone. Autologous bone graft (corticocancellous bone from the iliac crest) was used in one and synthetic bone (alo-bone Excotech®) was used in the other.

Both patients recovered well after surgery. Successful bone reconstruction was achieved in both cases.

The X-rays made three months after surgery revealed bone integration in both grafts with better radiographic architecture in the patient where synthetic bone was used. Anatomic reconstruction was obtained with both techniques.

Although both patients had a positive recover, the synthetic bone revealed to be less disabling during the post-operative period due to the absence of the donor zone morbidity.

The Late Bone Integration will be discussed in the future.

## **II. ORAL DISEASES, EPIDEMIOLOGY, BACTERIOLOGY**

### **Valuation of the hormonal influence during the gestation and the gingival and dental plaque indexes**

Flores E., Viñals H., Sabater MM., García L., Flores N., López J., Chimenos E.

During the gestation some changes are produced in the oral cavity, being most frequently located in the gums. These changes relate to the presence of dental plaque, dental calculus and deficient oral hygiene, with the intervention of hormonal factors that exaggerate the response of the tissues to the local irritants.

Our aims are to relate the values of progesterone and 17  $\beta$  estradiol with the gingival index (GI) (Løe & Silness, 1963) and with the dental plaque index (PI) (Silness & Løe, 1964) of the population studied in the 2nd quarter of pregnancy.

The sample is constituted by 26 pregnant women of two Primary Health Care Centers from the province of Barcelona. The patients selected were 2nd quarter pregnant women taken care of by the dental service. They were included in a protocol of periodontal exploration,

valuing the GI and PI. We request them an analytical study to shown the levels of progesterone and 17  $\beta$  estradiol.

An ordinal regression in which the variable of response is the GI was carried out, the covariates being the PI and the level of progesterone. The statistically significant results show a major probability of presenting high values of GI in patients with large values of progesterone and PI.

But it was not possible to state a similar relation for 17  $\beta$  estradiol, maybe due to the fact that the values of progesterone and 17  $\beta$  estradiol are correlated and can mask their relation with GI.

Hugoson (1971) found a significant correlation between the severity of the gingival inflammation and the rate of every sexual hormone. However it has been proved that the plasmatic levels of estradiol and progesterone are more increased during the pregnancy, it has not been possible to demonstrate a direct correlation between these increases and the increase of the gingival inflammation

#### **Assessment by the osteoporosis densitometry of the jaw and panoramic x-ray: preliminary study.**

Muñoz J.+, Estrugo A., López J, Gómez C, Viñals H, Chimenos E.

Osteoporosis is a systemic skeletal disease characterized by a generalized reduction in bone mass and a microarchitectural deterioration of bone. For detecting osteoporosis we used bone densitometry in two standard locations.

It has been observed that bone mineral density of the mandible was correlated with that obtained in other bones. Osteoporosis has been associated with the resorption of the residual ridge of the mandible and periodontal bone loss and teeth.

Bone mineral density (BMD) of the mandible has been studied with different methods, using radiographic and panoramic radiographs radiomorphometric rates. In some studies have been detected the Densitometry-X absorption (DXA) in the mandible but so far the positioning and the reproducibility for oral density is still difficult.

#### **OBJECTIVES:**

- 1 .- To evaluate the degree of overlap of branches in the mandibular DXA
- 2 .- To evaluate the degree of patient comfort.

#### **MATERIAL AND METHODS**

77 patients were studied. They perform a DXA standard. Y sites were also performed at the mandibular DXA. 55 patients were positioned with the guidelines defined by Horner K. in 1998. 22 patients were positioned with the guidelines developed by this study.

#### **RESULTS**

Comparing the two studies as the superposition of both ramus mandibular in each of the two different groups of patients in the second group obtained a 99% overlap, whereas in the former group was only 50%.

#### **+ In memoriam**

#### **Tuberculosis in Europe.**

Lliteras Llodrà F., Martínez Medina M., Lozano de Luaces V.

Introduction :At the beginning of the twenties of the past century, tuberculosis (TBC) was an important problem of public health. In subsequent years, as a result of improvements in live conditions, contingency plans and advancements in its treatment, the impact of the disease decreased progressively. It was even thought that it could be permanently eradicated. Nowadays tuberculosis represents a first class world sanitary problem due to the appearance of strains that resist the treatment.

Material and methods: We have carried out a selection of articles in the database Pubmed, inserting as key words: tuberculosis disease, epidemiology Europe tb, Oral manifestations tb, prevention tb, tb infection-control oral healthcare settings. We have also reviewed textbooks about tuberculosis' disease as a possible cause of cross infection in the dental clinic.

Discussion: In 2005, the rate of the impact in Europe was of 48/100 000 inh.

There is a great difference between the different continent's areas: The rate impact on the 15th countries in the EU and before the 2004 expansion was 10.7/100.000 inh. The rate impact on the 12 new countries in the EU during 2004 was 10.7/100.000 inh. The rate impact in the East sub region (Russia and the Former Soviet Union) was 110/100.000 inh.

Conclusion: TBC is an emerging disease, that continues to be a serious world health problem. The fact that 8 million new cases are diagnosed per year in the world, 30 million of active patients and 2 million deaths per year, shows quite accurately the scale of the problem. Both resistance to multiple medical treatments and the co-infection with the VIH

are the main challenges to control the tuberculosis.

**On the utility of the chemiluminescence and toluidine blue stain in the early diagnosis of the cancer-related oral lesions: a protocol of study.**

Viñals H., Khoroshun A, Flores E, Estrugo A, Sabater M, López J, Chimenos E

Conventional visual examination (CVE) and palpation are the usual clinical identification techniques of the premalignant or malignant mucosal lesions in the oral cavity. These techniques could be enhanced by inspecting oral mucosa leukoplakias in an appropriate way.

We want to evaluate the use of chemiluminescent light source and toluidine blue stain (Vizilite Plus®) for inspect oral mucosa leukoplakias. To do it, we present a protocol of study in an European population. This protocol has two parts. First, we will carry out a statistical analysis for the suitable number of patients from which our clinical research could obtain reliable results. To do it, we will check information to know the prevalence of malignant transformation of leukoplakias in European populations.

Secondly, we draw up the clinical and histopathologic study that will allow us to compare two groups of patients who present leukoplakias:

a) For the first group, chemiluminescence and toluidine's blue stain will be used, and the most relevant zones will be biopsied and will be histopathology studied.

b) For the second group, not chemiluminescence and toluidine's stain will be used, and the areas with leukoplakia presenting a clinical major risk of malignant transformation will be directly biopsied.

Before the biopsy, the clinical characteristics of the mucosa lesions will be recorded attending to the size of the lesion, location in zone of risk, appearance of the leukoplakia (homogeneous vs. non-homogeneous). For both groups, clinical pictures of the lesions will be taken.

The histopathological analysis of all the biopsy samples will be carried out by the same team. This team is high qualified in diagnosis of oral lesions. After the histopathologic results, both groups will be compared in order to evaluate if the chemiluminescence and the toluidine blue stain used in one of the groups, represent an additional advantage in

the clinical and histopathological identification of the leukoplakias, as oral lesion with a risk of malignant transformation.

**\*Satisfecit, GIRSO 2009**

**Unicystic ameloblastoma – Diagnosis and treatment**

Costa AC., Pombo SC., Malheiro P., Costa H., Zenha H.

The ameloblastoma is the most important tumour of the odontogenic tumours group. It is defined as an epithelial tumour originated in the odontogenic epithelium cells. There are three recognised clinical patterns and differentiation is central in the management of this pathology as treatment and prognosis is specific to each of the patterns. The most common type is the conventional solid ameloblastoma or multicystic, followed by the unicystic ameloblastoma and finally, the peripheral ameloblastoma.

A male patient, aged 46, was admitted to the Plastic, Reconstructive & Maxillofacial Department of the Centro Hospitalar Vila Nova Gaia, Portugal, with a radiological image of an unilocular lesion, concerning the dental pieces between 3.6 and 4.2. Surgery was performed by an intra-oral approach, with excision of the cystic lesion and overlying dental pieces, followed by reconstruction with an iliac crest corticocancellous bone graft and osteosynthesis with titanium plates and screws. Anatomical integrity of the jaw was maintained. The postoperative period and primary healing were uneventful. The histological exam revealed an unicystic ameloblastoma. No recurrence was detected at 9 months follow-up. Ameloblastoma should always be part of the differential diagnosis of cystic lesions of the jaws, even in the presence of unicystic lesions.

**Otic pathology: are dentists at risk?**

Alcaraz M, Cabrera E, Riera N, Santos A, Lozano V.

Sound is a vibration transmitted through different media, like the air or water, composed of frequencies capable of being detected by the ear. There is a difference between the definition of sound and noise. We call "noise" sound that is unpleasant and confused.

At a dental clinic, noise produced by rotating equipment, compressors and other appliances used in dental practice may have long-

term negative consequences for health professionals.

The noise generated in a dental clinic represents from 8 to 12% of the acoustic energy to which a dentist is exposed daily. In addition, this noise can interfere in communication among staff, inducing stress.

Currently, professional deafness is a frequent complaint. 29% of dentists present cephalic pathology after working in a clinic. 3% of dentists report hearing loss.

As a result, numerous studies have been undertaken to demonstrate the consequences of noise for dentists (Vendroux, in 1974, was the first to study auditory injury among dentists).

Results from studies demonstrate that with the introduction of new rotating instruments the risk of acoustic trauma was present but low. However, studies also demonstrate that the use of noise producing instruments in dental practice causes interference in communication and understanding difficulties resulting in lack of sense in 18% to 48% of syllables and 52% to 90% of phrases. This can lead to accidents in the dental clinic. Moreover, excessive noise can produce, among other pathologies, headaches and acoustic trauma that can eventually result in hearing loss.

For this reason, we want to conduct a study to measure noise generated by dental appliances to demonstrate that continuous exposure to noise could be a risk to the health of dentists, dental hygienists and assistants.

#### **Microscopic characterization of the bacterial flora of five ecosystems in an orthodontic patient.**

Castro VM., Fontes JP., Mouzinho JF., Novio Mallon S., Pacheco JJ, Salazar F., Velazco Henriques C.

More than 700 bacterial species were identified in diverse studies of culture in oral microflora, of which only 20 are resident. Oral microbial populations are characterized by their variability and heterogeneity.

The development, composition and distribution of oral microflora in different ecosystems are influenced by factors of adherence, aggregation and co-aggregation.

The aim of this study was to characterize microscopically bacterias from various ecosystems of the oral cavity of a patient with periodontal health and verify the importance of microscopic examination in the setting of microbiological periodontal health.

This study performed smear slides in 5 different ecosystems (bucal epithelium, dorsum of the tongue, supragingival tooth surface, crevicular surface and saliva) in a 25 year old patient, with orthodontic braces.

To demonstrate and characterize the microscopic morphology of the bacterial samples they were stained with Gram and Vagó (useful to evidence spirochetes) methods in each ecosystem.

These techniques permitted the visualization of different bacterial morphotypes and there amount.

On the other hand, the presence of orthodontic braces seems to exert a selective action on the oral flora. In spite of this selective action, the flora of all ecosystems with the exception of the crevicular surface revealed no difference from a healthy periodontium. The crevicular surface demonstrated an increase of bacterias, between them the presence of spirochetes (sign of the inflammatory reaction).

The results revealed the importance of the optical microscope in the identification of the resident oral microorganisms, and therefore the balance or unbalance of the oral microflora.

#### **Macroscopic and Microscopic Characterization of Bacterial Colonies of Five Ecosystems in a Healthy Periodontal Individual.**

Castro VM., Nascimento Almeida L., Chumbinho MP., Pacheco JJ, Salazar F., Velazco Henriques C.

The oral cavity is diverse and consists of a wide range of microorganisms. There are distinct microbial habitat distributed in the dental pieces and epithelial bucal surfaces mouth, each of which colonized by a complex diversity of bacteria. More than 700 species have been identified in the mouth, of which over 50% have not been cultivated.

The aim of the present study was to differentiate macroscopic and microscopically five different habitats of an individual with optimal dental hygiene with orthodontic treatment.

The samples were collected from the following five sites: epithelial bucal and dorsum of the tongue with swab brushes, supragingival with tooth pick, crevicular surfaces with dental floss, and saliva (2ml) in a sterile jar. The transport medium used was VMGA III (Möller 1966). The qualitative and quantitative cultures were incubated in aerobic, capnophilic

and anaerobic atmospheres. The UFC (Unit Formed Colony) were calculated and different colony were stained with Gram.

The results showed predominant presence of genera Streptococcus and Actinomyces in every ecosystems followed by Neisseria, Stomatococcus, and anaerobic Veillonella (normal bacteria in the healthy microflora). The supragingival and subgingival surfaces revealed the presence of Capnocytophaga and an absence of periodontopathogenic microorganisms.

Species typically associated with periodontal disease were not described. The bacterial flora detected is the predominant in a healthy oral cavity despite the presence of orthodontic treatment

### III. TEMPOROMANDIBULAR JOINT AND JAW DISORDERS

#### **Physiotherapy in the postoperative management of multiple jaw fractures: a case report.**

Oliveira S., Coelho JA., Angeja AM., Coelho MP., Martins. M.

The effectiveness of surgical intervention to improve pain relief and range of mandibular motion associated with temporomandibular joint (TMJ) problems is well documented. Recent reports suggest that physical therapy may play a decisive role in reestablishment of normal stomatognathic function. The aim of the present study was two-fold: to review of the most pertinent literature available on the subject and report on treatment outcome of a surgically repositioned TMJ disk treated with physical. The case study refers to a 25 year-old female who underwent surgery for bilateral anterior disk displacement and subjected to a physical therapy program 2 weeks post-op. Initial assessment revealed pain in the right masseter (VAS 8), limited range of mandibular opening, reduced muscle strength, and functional limitation. A twice weekly physiotherapy program was instituted, including pulsed ultrasound, thermotherapy, therapeutic massage, passive and active joint mobilization, progressive isometric for isotonic exercises, followed by topical ice padding bilaterally. As a complement a patient education program on self-massage, mobilization and physical exercise was installed. A Fifth week evaluation demonstrated substantial re-

duction masseter pain (VAS=1), a 39% improvement in active and 41.7% in passive range of mandibular opening capacity, an increase in muscle strength, with consequent improvement of chewing function. In conclusion treatment plans involving physiotherapy allow for significant decrease of pain complaints, function gain, and patient wellbeing. Thus, the authors stress the importance of further studies to be carried out over longer periods of time, in order to confirm treatment outcome.

#### **Surgical treatment of bilateral TMJ disc displacement without reduction: A case report.**

Coelho JA., Angeja AM., Costa H., Malheiro P., Mendes JM.

Temporomandibular joint (TMJ) disc displacement without reduction refers to dysfunctional disc-condyle that leads to a serious and challenging clinical condition (closed lock), characterized by significant pain and restrictive mandibular opening. Therapeutic options range from patient education to joint surgery. No standard of care for primary or concomitant close-lock is yet available and conservative treatment has been employed with acceptable and stable long term outcomes, despite lack of evidence to suggest that it can be curative. Surgical intervention is necessary when other measures fail to reduce pain or provide minimal satisfactory function. This report presents the case of a 46 year-old female presenting chronic pain of, severe opening restriction (7 mm) and weight loss (10 Kg). Initial MRI scan confirmed clinical suspicion of bilateral anterior disc displacement without reduction and left disc rupture. Surgical intervention was recommended and accepted, consisting of bilateral disc reposition and traction by suture to the temporal fascia and left meniscoplasty. Without complementary treatment, third and sixth week post-op assessment revealed a 5 and 7mm regain in opening capacity respectively. In conclusion, despite the controversies TMJ surgery continues to play a small but important role in the management of specific temporomandibular disorders, improving physiological, clinical, esthetical and patient wellbeing.

#### **Articular alterations with the use of splints in athletes of high competition.**

Vilaça M., Cabral R. Ustrell JM, Manzanares MC.

The principal objective of our study was to evaluate by means of ultrasonography (US) the alterations of the relationship between the Temporomandibular joint condyles and the disks, with and without a splint, in patients that use splints more than 6 hours a week.

US allow us to discern the presence or absence of dynamic alterations of the relationship condyle/disk.

The sample contemplates 10 patients with inclusion and exclusion criteria in that right and left TMJ were submitted to US, with and without splint.

In spite of not having still been evaluated a significant sample of patients, the proposed technique has proven not to be difficult to carry out even if the evaluation or its results requires a multidisciplinary team. Nevertheless, once interpreted, the US results observed are appreciated immediately by both the practitioner and by the patient. We registered articular (discal) alterations with the use of splints.

**The role of physiotherapy in the post operative rehabilitation of bilateral TMJ anterior disk dislocation: a propos a clinical case.**

Oliveira S., Coelho JA., Angeja AM., Costa H.

The effectiveness of surgical intervention to improve pain relief and range of mandibular motion associated with temporomandibular joint (TMJ) problems is well documented. Recent reports suggest that physical therapy may play a decisive role in reestablishment of normal stomatognathic function. The aim of the present study was two-fold: to review of the most pertinent literature available on the subject and report on treatment outcome of a surgically repositioned TMJ disk treated with physical. The case study refers to a 25 year-old female who underwent surgery for bilateral anterior disk displacement and subjected to a physical therapy program 2 weeks post-op. Initial assessment revealed pain in the right masseter (VAS 8), limited range of mandibular opening, reduced muscle strength, and functional limitation. A twice weekly physiotherapy program was instituted, including pulsed ultrasound, thermotherapy, therapeutic massage, passive and active joint mobilization, progressive isometric for isoto-

nic exercises, followed by topical ice padding bilaterally. As a complement a patient education program on self-massage, mobilization and physical exercise was installed. A Fifth week evaluation demonstrated substantial reduction masseter pain (VAS=1), a 39% improvement in active and 41.7% in passive range of mandibular opening capacity, an increase in muscle strength, with consequent improvement of chewing function. In conclusion treatment plans involving physiotherapy allow for significant decrease of pain complaints, function gain, and patient wellbeing. Thus, the authors stress the importance of further studies to be carried out over longer periods of time, in order to confirm treatment outcome.

**Radiation-induced osteonecrosis of the jaws: a protocol treatment proposal and application in 6 patients.**

Valls Ontañón A.

Radiation-induced osteonecrosis of the jaws is a severe complication of radiotherapy (RT) in head and neck malignant tumours. Tooth extractions or dental diseases in an irradiated region are risk factors for developing this type of osteonecrosis.

Literature has been reviewed and a protocol for dental treatment for patients that underwent radiotherapy for head and neck tumours is proposed and applied in 6 patients who previously underwent RT.

Four of these patients did not show any associated lesion and hyperbaric oxygen therapy was applied previously and after tooth extractions. The two other cases already showed intraoral lesions that were confirmed to be cases of osteonecrosis, one of them had a pathologic fracture of the mandible and the other had a bone sequestration. Both patients were remitted to a Oromaxillofacial surgery unit.

Although there is a variety of opinions about whether to make dental treatments before or after RT, the majority of authors recommend these treatments to be performed previously. Nevertheless prophylactic tooth extractions are not recommended. The hyperbaric oxygen therapy has been proposed recently as a complementary treatment that can reduce the rate of complications.