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Usage and Effects of Drugs during Orthodontic Tooth Movement.
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Oral Management of Cancer Patients
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Extra-Oral Manifestations of Malocclusions
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Facial Patterns and Malocclusions
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Limitations and complications of cleft lip and palate treatment in Lebanon
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The Nature and Clinical Significance of Myofibroblasts and Integrins in Wound Healing
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The Effect of Cancer Therapy on Dental and Skeletal Development in Children
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Usage and Effects of Drugs during Orthodontic Tooth Movement.

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Our aim is to present state of the art knowledge on the effects of certain drugs on the process of inflammation that occurs during orthodontic treatment, and the potential use of medications to facilitate or slow down tooth movement. The basis for interaction of drugs with tooth movement is the involvement of many chemical messengers in the process of alveolar bone and periodontal ligament remodeling. Drugs such as analgesics used routinely for pain control during treatment may inhibit prostaglandins (PGs), a group of naturally occurring lipids that participate in the inflammatory process and cause bone resorption by increasing the number of osteoclasts; these substances can delay tooth movement. The opposite phenomenon was triggered with local injection of eicosanoids such as PGs at the site of tooth movement to enhance bone remodeling thereby the pace of tooth movement. Bisphosphonates, which also possess anti-inflammatory properties, have been injected locally in animal experiments to reduce the rate of tooth movement for anchorage or retention purposes. Directions of research and status of clinical applications are discussed.

Oral Management of Cancer Patients

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The oral cavity is highly susceptible to direct and indirect toxic effects of chemotherapy and ionizing radiation, which are facilitated by the presence of a diverse and complex microflora and trauma to oral tissues during oral function. The most common oral complications (mucositis, infection, salivary gland dysfunction, taste dysfunction, pain) can lead to -a- secondary complications such as dehydration, dysguesia, and malnutrition and -b- systemic infection, as in myelosuppressed cancer patients. Head and neck radiation can result in xerostomia, rampant dental caries, trismus, soft tissue necrosis, and osteonecrosis. Severe oral toxicities can compromise optimal cancer therapy, requiring dose reduction or treatment schedule modifications until resolution of oral lesions, and possible suspension of cancer therapy that might affect prognosis. Management of oral complications of cancer therapy includes identification of high-risk populations, patient education, mandatory pretreatment dental evaluation and interventions, and timely treatment of lesions. Interactive protocols between dentist and oncologist are presented.
**Extra-Oral Manifestations of Malocclusions**

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The old premise that best facial appearance is based on maintaining a full dentition integrated in “ideal” occlusion has shifted to a current soft-tissue paradigm that focuses diagnosis and treatment of dentofacial problems on the facial teguments. A definite but variable relationship exists between extraoral features and the underlying malocclusion. The aim of this presentation is to highlight the specific facial characteristics that help identify underlying dental or skeletal abnormalities and timely referral for orthodontic treatment. The divergence of each facial characteristic according to age and malocclusion will be emphasized with clinical illustrations. Research data indicate optimal esthetic inclinations of anterior teeth during smile.

**Facial Patterns and Malocclusions**

Laeticia Nassif, Hala Aoun, Anthony Macari

The facial complex attaches to the basicranium, and the early growing cranial floor is the template that establishes many of the dimensional, angular, and topographic characteristics of the face. Two general extremes exist for the shape of the head: the long, narrow (dolichocephalic) headform and the wide, short, globular (brachycephalic) headform. Correspondingly, the dolichocephalic headform sets up a developing face that becomes narrow, long, and protrusive (Leptoprosopic facial type); and the brachycephalic headform establishes a face that is more broad and less protrusive (Europrosopic facial type). A third and a distinctive type of headform is the Dinaric, which is a brachycephalized dolichocephalic headform: a long face and a large nose with a brachycephalized cranial index. The various headforms are associated with tendencies toward certain malocclusions. Dolichocephalic headform predisposes to Class II malocclusions and a retrognathic profile. Brachycephalic headform predisposes to CI III malocclusions or bimaxillary protrusion and a prognathic profile.

**Ultrasonic Bone Cutting**

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Ultrasonic bone cutting, the latest technology in surgical osteotomy, utilizes micro vibration. Powerful as it is, it preserves the integrity of soft tissues. When compared with the commonly used conventional orthognathic surgical techniques, the ultrasonic method is time consuming. Numerous advantages outweigh this shortcoming: precise micrometric cuts; bloodless field; preservation of soft tissues; less trauma and thus viable tissues at the cut bone sites. In this presentation, the listed characteristics of ultrasonic bone cutting will be illustrated, and the role of this technology in orthognathic surgery are critically appraised.
Limitations and complications of cleft lip and palate treatment in Lebanon

T. Shalan1, M. Zebian2, R. Haddad1, J. Ghafari1,2,3

1-American University of Beirut, 2-Lebanese University, 3-New York University

Cleft lip and palate malformations are the most common congenital craniofacial abnormalities affecting the nose, upper lip and jaw. Our aim is to review complications of these disorders, ranging from feeding difficulties, speech problems, chronic infections, dental and orthodontic problems and emotional distress. Specifically, the incidence and management of cleft lip/palate in Lebanon will be surveyed. Often, treatment failure or complications in this population are related to the lack of a team approach that coordinates the timely intervention of various professionals from audiology, genetics and genetic counseling, nursing, pediatrics, oral and maxillofacial surgery, orthodontics, dentistry, psychology, social work and speech therapy among others. Available statistics and ideal treatment regimens are presented with an inventory of needs for treatment of cleft anomalies in Lebanon.

The Nature and Clinical Significance of Myofibroblasts and Integrins in Wound Healing

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Wound is the disruption of the continuity of a living tissue, and wound healing is the organism attempt to limit and correct the insult. It is a self-perpetuating process encompassing a number of overlapping phases: inflammation, epithelialisation, angiogenesis and matrix deposition. In normal conditions these mechanisms are resolved and lead to a mature wound. Cell-cell and cell-matrix interactions are important components in all stages and are controlled by multiple cytokines. The myofibroblast, a major component of granulation tissue, is a key cell during this process; it may represent an important target for wound healing modulation to improve the evolution of hypertrophic scars. This work presents the modulation of myofibroblasts and integrin $\alpha v \beta 3$ in a full thickness wound performed on rabbits treated with different topical agents using: (1) Saline, (2) Tegaderm (3) Silver Sulfadiazine and (4) Moist Exposed Burn Ointment: MEBO. The reepithelialisation was faster in the MEBO group with less edema formation, delayed contraction, less inflammatory cells resulting in a soft scar. In the MEBO group, wound contraction and myofibroblast's activity were the least for probably due to a downregulation of the integrin $\alpha v \beta 3$. Along with this presentation, wound healing will be illustrated in repair of cleft lips.
The Effect of Cancer Therapy on Dental and Skeletal Development in Children

M. Saadeh, S. Muwakkit, G. El-Hajj- Fuleihan, J. Ghafari
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Our aim was to determine the impact of cancer therapy on dental and skeletal maturity. Panoramic and hand-wrist radiographs of 93 children with cancer were evaluated and compared with matched healthy controls. Method: Dental age (DA) was quantified with the Moorrees (M) and Demirjian (D) methods, skeletal age (SA) with Greulich-Pyle (GP) and Tanner-Whitehouse (TW2) systems. Demirjian's system consistently assigned older DA than Moorrees's method. SA methods corresponded in nearly 90% of instances. Results: Chemotherapy (CT) has no effect on DA. Radiotherapy (RT) affected teeth in the direct path of irradiation (morphological abnormalities). High-risk leukemia patients had a statistically significant delayed SA (0.7 years). No associations existed between CT agents or for CT-RT and DA or skeletal age maturation. Treatment duration did not affect DA or SA. Findings indicate lack of definitive effect of cancer therapy on DA, and a secondary transient influence on SA. Definite trends can be elucidated in larger samples with longitudinal data.