

Replantation of Traumatically Extracted Teeth

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REVIEW PAPER (RP)
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SUMMARY

The authors present contemporary views regarding the treatment of traumatically extracted teeth. Apart from emphasizing the significance of taking a detailed history and performing thorough clinical examination, a special attention is focused on several aspects of the implantation procedure. Finally, factors determining the success of the procedure, as well as the outcome of the treatment are discussed in detail.

Key Words: Tooth Replantation, technique; Immobilisation

Assessment of Bite Force in Patients with Natural, Artificial and Implant-Restored Dentitions: A Review

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**REVIEW PAPER (RP)
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SUMMARY

It is well known that the masticatory muscles are required to provide force for regular chewing movements, occasional heavy biting and fine positioning of the mandible. Maximum bite force has been defined as “the force applied by the subject’s masticatory muscles voluntarily between antagonist teeth without any food being present”. It has been shown that biting force varies from one part of the oral cavity to another and that it is greatest in the region of the first molars and only about one-third in the region of the incisors.

Dental implants are devices made of biocompatible material, inserted into or upon the jaw bones, to support prosthetic replacements for missing teeth, in order to achieve a progressive improvement of masticatory function. Numerous techniques and modern devices (strain gauges, piezoelectric transducers and others) have been used to investigate bite forces with implant-supported prostheses compared with natural teeth.

Maximum bite forces measured on patients with conventional complete dentures were found to be about one-third to one-sixth of those with a natural dentition. Regardless of the type of measuring instrument, forces with implant supported prostheses were increased by a factor 2 to 5 when compared with measurements in complete denture wearers. It seems that patients with fixed prostheses supported by implants had almost similar bite force to fully dentate subjects.

The aim of this study was to review recent literature concerning the bite strength recording with different measuring devices in patients with natural teeth, fixed or removable prostheses and osseointegrated implant prostheses.

Key words: Bite Force; Conventional Prostheses; Implant Supported Prostheses; Force Transducer

BTLock Implants - the Evolution and Evaluation of a New Designed, Problem-Resolving Implant

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ORIGINAL PAPER (OP)

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SUMMARY

Objective: The initial need for different implant systems to be developed in implant dentistry arose from the loose screw syndrome. The aim of this paper is to present a very new implant design with internal connection, named BTLock Implant, and also a 5-year clinical experience with BTLock implants. The objective of the study was to demonstrate the ability of the BTLock implant system to restore masticatory function in the partially edentulous patients over a 5-year period.

Method and Materials: BTLock implant is equipped with a very specific, new designed internal connection characterized with two 3-angled asymmetric designs with multi-leveled closure. When BTLock implant is cross-sectioned through the whole assembled implant, an *Asymmetric Double-Triangulated 3-Leveled Internal Connection* is visible. Optical micrograph of cross sectioned fixture and AutoCAD computer design show detailed complex 3-leveled internal connection. The BTLock system has an accurate and simple implant-level impression and a *colour code indexing system*, to facilitate abutment selection in the laboratory and outside of the clinical environment. Restorative components were customized with computerized AutoCAD graphic program. The attention has been given to the implant-abutment connection. A National multi-centred clinical study was initiated at 4 selected private practices.

Results: The used design of BTLock implant system demonstrated high level of biomechanical stability. During 5 years period in the multi-centred study it was demonstrated that BTLock implants had an almost 98.2% success rate after the first year, 97.6% after the second year, 97.2% after the third, 96.8% after the fourth and 95.5% after the fifth year of post-restoration follow-up.

Conclusion: BTLock implant system with a new internal design between fixture and abutment can achieve a long-term biologic and mechanical stability when used to restore single missing teeth, over a long period of time.

Key words: BTLock Implant, internal design

Comparison of the Mercury Content in the Pulp of Molars With and Without Amalgam Fillings in Turkish People

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SUMMARY

The mercury content in a tissue of an organism is affected by the amount of mercury in the food taken in. Similarly, the mercury in the amalgam filling locally affects the mercury content in the adjacent tissue. In this case, the mercury content in the dental pulp is determined by the amalgam filling as well as by the eating habits of the patient. Therefore, the mercury content in the pulp needs to be dealt with on a community basis. The objective of this study was to compare the mercury content in the pulp of the teeth with and without amalgam fillings in Turkish people, who have different eating habits and to investigate whether the duration of amalgam filling, the number of teeth with amalgam fillings, and the presence of secondary caries affect the amount of mercury in the pulp.

The mercury concentrations in the pulps of 46 molars (30 with amalgam filling and 16 without amalgam filling) were determined. Fully automated cold vapour atomic fluorescence spectrometer was used to determine the mercury concentrations in the pulp. The mercury concentration in the pulp of teeth with amalgam fillings was significantly higher than that of the pulp of teeth without amalgam fillings. Statistically significant relationship was seen between mercury concentration in the pulp of tooth with amalgam filling and the duration of the amalgam filling. No statistically significant relationship was seen between mercury concentration in the pulp of tooth with amalgam filling and the presence of secondary caries or the number of amalgam fillings in the mouth. The amount of mercury in the pulp of the teeth with amalgam filling is higher than in the pulp of the teeth without amalgam filling. There is a certain amount of mercury even in the pulp of people who do not have any amalgam fillings in their mouths. In some cases, this amount even exceeded the mercury concentration in the pulp of teeth amalgam fillings. This was attributed to possible other intake sources of mercury. If dental amalgam is important for the health of teeth and the person himself, the only consideration should not be the amalgam filling, but also the eating habits of the person; and the community should be warned.

Key words: Dental Amalgam; Mercury; Dental Pulp

Microleakage of Class V Composite Resin Restorations Bonded with Different Bonding Agents

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**ORIGINAL PAPER (OP)
Balk J Stom, 2004; 8:28-31**

SUMMARY

The purpose of this *in vitro* study was to evaluate the marginal seal of 2 adhesive systems on Class V restorations. Class V cavities (3.0mm x 2.0mm x 1.5mm) were prepared on 25 extracted non-carious human molars. 2 different adhesive systems - Optibond (Kerr, USA) and Clearfil Liner Bond 2 (Kuraray, Japan) were used before the application of composite restorations. Both systems were used with and without etching. As the control group, total etch technique with 35% phosphoric acid system (Scotchbond Multipurpose Adhesive System, 3M) was applied on the last 5 cavities before the restoration. All specimens were thermocycled 100 times. The specimens were immersed in 0.5% basic fuchsin solution for 24 hours, and then sectioned bucco-lingually.

The degree of dye penetration was evaluated in microns under stereomicroscope. A chi-square test revealed no significant difference in microleakage of all groups.

Key words: Bonding Agents; Composite Resins; Microleakage

Biocompatibility of Some Antiseptics Usually Used in Endodontic Treatment of Chronic Apical Periodontitis: An *In Vitro* Study

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**ORIGINAL PAPER (OP)
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SUMMARY

The present study includes antiseptics belonging to all classes of intracanal medicaments used in contemporary endodontics: Cresophene, Endotine, Rockle's 4, Rockle's caustic, Rockle's essential, Grinazole, Tempophore, Calxyl (Calcium hydroxide). Biocompatibility has been tested on 2 types of fibroblast cell cultures: the ICP-23 stabilized line and the primary gingival fibroblast culture. The influence of the investigated endodontic medication on the cellular dynamics in monolayer, at 24-hour interval, was accomplished over a 4-day span. The cytotoxic effect was analysed using the following parameters: cellular morphological alterations (microscopically visible), the alteration of the aspect of the monolayer and the measurement of the number of cells detached from the cellular layer.

Cellular morphological alterations were of degenerative nature, eventually resulting in cell death. Based on numerical data and in accordance with the microscopic images that were obtained, a scale of cytotoxicity of the investigated substances was established. A maximum percentage of detached cells appears in the cellular lots that were subjected to Rockle's essential and Rockle's 4 action. According to the decreasing order of the cytotoxic effect, Calcium hydroxide, Tempophore, Rockle's caustic, and Cresophene followed. The weakest cytotoxic reactions were determined for Endotine and Grinazole.

***Key Words:* Biocompatibility; Endodontic Antiseptics; Cellular Culture; Cytotoxic Effects**

A Clinical Study of Facio-lingual Width, Embrasure Spaces and Pontic Design of Fixed Restorations

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ORIGINAL PAPER (OP)

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SUMMARY

Statement of the problem. *The management of the axial contours, the embrasure spaces and the design of the pontics are essential factors for the proper construction of the fixed restorations and the health of the periodontium. Daily clinical observation of the restorations have shown that morphological features are often not restored properly.*

Purpose. The purpose of this study is to evaluate the facio-lingual width, the embrasure spaces and the pontic design of fixed restorations previously fabricated by general practitioners and compare them to the respective morphological features of the non-restored contra-lateral natural teeth.

Materials and Methods. A total of 66 fixed partial dentures (124 abutment crowns - 77 pontics) and 24 single crowns were examined in 63 individuals (41 females, 22 males) previously been treated by general practitioners. The facio-lingual width was measured with a Boley gauge. The embrasure spaces were evaluated with an interdental brush to determine whether the brush could be passed in the embrasure space both in the restored and non-restored natural teeth; the latter served as the controls. Each pontic was classified visually as a “hygiene pontic”, “ridge lap pontic” (for posterior teeth), or “modified ridge lap pontic” (for anterior teeth/posterior teeth). The data were analyzed with Student’s t-test and Pearson χ^2 test ($p < 0.05$).

Results. The mean value of the facio-lingual width was significantly greater for the crowns (9.88 mm) than for the control teeth (9.01 mm) and significantly less for the pontics (8.44 mm) than for the control teeth (9.06 mm). The embrasure brush was unable to be passed through the embrasures 44% and 29.5% of the time for the crowns and control teeth, respectively. The evaluation of the pontic design revealed that 37.7% were ridge lap, 2.5% were hygienic, and 59.8% were modified ridge lap pontics (45.5% posterior – 14.3% anterior).

Conclusion. Within the limitations of this study, crowns had greater facio-lingual width and narrower embrasure spaces than non-restored control teeth. The modified ridge lap pontic was the most frequently fabricated pontic design.

Clinical implications. In this study, overbulk, deficient embrasure spaces, and ridge lap pontics were associated with a high percentage to fixed restorations. Correct measurement of the facio-lingual width and estimation of the embrasure spaces in the area of natural control teeth, can help the dentist and laboratory control these morphological features.

Key Words: Crown Contours; Pontic; Embrasures; Fixed Partial Dentures

The Influence of Repeated Firings on the Shade of In-Ceram Alumina Ceramic

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ORIGINAL PAPER (OP)
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SUMMARY

The development and use of colorimetric measurements provides to overcome some difficulties of subjective colour evaluation. The purpose of this study was to evaluate the effect of repeated firings on the colour of alumina core porcelain spectrophotometrically. Colour differences among the core samples were measured by using XL-20 Colorimeter, and data were expressed in CIELAB system.

Statistical differences in L^* ($p < 0.001$), a^* ($p < 0.01$), and b^* ($p < 0.01$) were noted among the samples fired 3, 5, and 7 times. The mean colour differences caused by repeated firings were found below the perceivable level ($\Delta E < 1$).

Key Words: In-Ceram; Alumina Core Porcelain; Colour, stability; Firing, repeated

Interactions of Mast Cells with Extracellular Matrix Proteins Laminin and Fibronectin in Oral Lichen Planus

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ORIGINAL PAPER (OP)
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SUMMARY

Objectives: Oral lichen planus (OLP) is a common mucosal disorder in which mast cell numbers are increased significantly. In inflammatory conditions, mast cells frequently adhere to extracellular matrix proteins. The aim of this study was to identify whether the distribution of mast cells in OLP is related to laminin and to fibronectin.

Material and Methods: A 3-step immunoperoxidase method was performed to examine the associations between mast cells and laminin and fibronectin in OLP and normal buccal mucosa. Specific monoclonal antibodies were used to identify mast cells, laminin, and fibronectin.

Results: In both OLP and normal oral mucosa the majority of mast cells were detected close to vascular basement membranes. Statistical quantitative studies revealed that the number of mast cells associated with the laminin and the fibronectin of vascular membranes was 2-fold higher in the superficial and the deep layer in OLP compared with normal oral mucosa.

Conclusions: These findings suggest that the interactions between mast cells and extracellular matrix proteins laminin and fibronectin may influence the vascular endothelium during OLP lesion formation and progression.

Key Words: Lichen Planus; Mast Cell; Laminin; Fibronectin.

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Evaluation of the Changes in Gingival Microcirculation by Laser Doppler Flowmetry Technique after Subgingival Curettage

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ORIGINAL PAPER (OP)
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SUMMARY

Subgingival curettage was performed after initial therapy in adult periodontitis and gingival microcirculation was evaluated by laser doppler flowmetry technique. Study consisted of 43 sites ($x \geq 4\text{mm}$) in 6 adult periodontitis patients. Probing depth, attachment level, Periotest value, plaque index, Nowickis' bleeding time index and laser doppler flowmeter readings were recorded just before the subgingival curettage and 1 and 3 weeks postoperatively.

Laser doppler flowmeter readings showed statistically significant decrease between initial and 3-week assessments, together with bleeding time index values. It can be said that changes in gingival microcirculation stated by laser doppler flowmetry technique will support the results of clinical parameters in evaluating the periodontal situation.

Key Words: Laser Doppler Flowmetry; Microgingival Circulation; Subgingival Curettage

Principles of Choice of General Anaesthesia for Dental Extractions

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**ORIGINAL PAPER (OP)
Balk J Stom, 2004; 8:53-54**

SUMMARY

Local anaesthesia is a method of choice for dental procedures, but general anaesthesia could be indicated in some occasions: allergy to local anaesthetic agents, lack of patient cooperation, or distressing procedure for the patient. In this study 59 patients who needed dental extractions under general anaesthesia were analysed.

In our material results that mental disorders patients take 18,65%, which should be taken into account. Impacted teeth extractions have been resulted 61,1%, dominated by endotracheal general anaesthesia 30,50%.

Both operator and anaesthetist have the privilege and responsibility of anaesthesia choice.

Key Words: Tooth extraction; General Anaesthesia

Behavioural Management of Paediatric Dental Patients

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ORIGINAL PAPER (OP)
Balk J Stom, 2004; 8:55-57

SUMMARY

Behavioural modelling is a method frequently used for modifying the children's behaviour. The psychological techniques of encouragement-reprobatation are an integral part of the behaviour shaping. This study comprised 300 clinically healthy children at the age 54 - 96 months, distributed in 3 groups according to the technique applied: (1) "live patients model"; (2) encouragement-reprobatation" techniques; and (3) a control group. The patient's behaviour has been estimated according to L. Venham's Cooperative Behavioral Scale.

A behavioural improvement has been observed in the experimental groups after applying the techniques for behaviour modification. The comparison shows statistic significance between the 2 experimental groups and the control one, and lack of such statistic significance between the experimental groups. The research shows that there is a lasting tendency for behaviour improvement.

Key Words: Behaviour; Management, non-pharmacologic; Child, dental environment

Skeletal Class III Malocclusion. A Cephalometric Study in Adult Greeks

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ORIGINAL PAPER (OP)

Balk J Stom, 2004; 8:58-66

SUMMARY

Class III malocclusion constitutes a severe dental discrepancy, usually related to an underlying skeletal problem, also affecting facial aesthetics. The aim of the present study was to investigate sex dimorphism in Greek adult Class III patients, and reveal the discrepancies from the Class I group. 57 pre-treatment lateral cephalograms were traced and 16 variables were measured. In adult Greeks, Angle Class III malocclusion appears to be related to maxillary retro-position and not to mandibular prognathism. Moreover, they exhibited normal facial type, dorsal position of the upper molars, less than normal facial convexity, and normal mandibular morphology.

Key Words: Skeletal Class III, untreated; Adults; Greeks

Occlusal and Facial Aspects in Children with Posterior Cross-bite in the Permanent Dentition

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ORIGINAL PAPER (OP)
Balk J Stom, 204; 8:67-70

SUMMARY

Posterior cross-bite is a common malocclusion, frequently presenting a lower midline deviation, with jaw movement and facial asymmetry. The aim of this study was to investigate and determine maxillary and mandibular dental arch sizes and shapes, and transversal relationship between skeletal-morphologic changes in orofacial region, using gnathometric analysis on studying models and P-A tele-radiography analysis as a reliable analysis for the type and degree of cross-bite.

Key Words: Malocclusion; Cross-bite; Dental Arch; Gnathometric analysis; Cephalometric Radiography

Interdisciplinary Cooperation in the Therapeutic Approach of Complex Dentofacial Problems: Report of 3 Cases

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CASE REPORT (CR)
Balk J Stom, 2004; 8:71-75

SUMMARY

In the context of treating patients suffering from complex dentofacial problems the collaboration of dental specialists seems highly important. 3 clinical cases are presented in this paper. The teamwork of an orthodontist, a maxillofacial surgeon and a prosthodontist was considered essential for their therapeutic management. The first case concerned a patient with excessive over-eruption of a maxillary first molar, which caused severe malfunction of the masticatory system. The second case concerned a young patient with cleft palate presenting a complex dentoalveolar problem in the upper jaw. The third case concerned a patient with severe post-traumatic osseous deficiency in the anterior maxillary region and concomitant loss of 4 anterior teeth. The latter 2 cases created serious functional, aesthetic and psychological problems for the patients.

Combined interdisciplinary intervention of the 3 specialists restored these complex problems and successfully managed the functional, aesthetic and psychological problems of the patients. This paper provides a thorough analysis of both the diagnostic patient approach and the respective treatment plans that are described in detail, followed by a discussion including current views for the treatment of such patients.

Key Words: Interdisciplinary Approach; Cooperation; dentofacial Anomalies

Oligodontia of Permanent Dentition: (Case Reports)

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CASE REPORT (CR)
Balk J Stom, 2004; 8:76-78

SUMMARY

Oligodontia is defined as the congenital absence of 6 or more teeth, excluding the third molars. Genetic factors play an important role in the aetiology of oligodontia, which can occur as an isolated finding (Oligodontia I) or as part of a syndrome (Oligodontia S). Characteristic dental symptoms are a reduced number of teeth, reduction in tooth size, anomalies of tooth form and delayed eruption.

This article presents 3 cases of relatives (sister, brother and a cousin) with oligodontia. Sister and brother's family had a consanguineous marriage. While sister (case 1) had an associated familial Mediterranean fever (FMF), no FMF were found in other cases.

Key Words: Oligodontia; Familial Mediterranean Fever

Epidermolysis Bullosa: A Case Report

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CASE REPORT (CR)

Balk J Stom, 2004; 8:79-82

SUMMARY

Epidermolysis Bullosa (EB) is a group of rare genetic-related skin disorders. It is characterized by bullae and vesicles on the skin and mucosa that result from friction, trauma, or heat. Generalized enamel hypoplasia appears to be limited to junctional EB, although rampant dental caries is associated with many individuals having generalized recessive dystrophic EB.

This article reports a case of EB with oral manifestation. The patient with simplex EB had typical cutaneous lesions and dental involvement. This patient's teeth were severely affected by hypoplasia.

Key Words: Epidermolysis Bullosa; Enamel Hypoplasia