Denmark), jaw motion tracer (JMA+; Zebris Medical GmbH; German), and facial scan (3D face app; Shanghai Jijia; China), enabling precision restorations design and fabrication digitally. Following provisional restorations delivery, iterative occlusal adjustments established an optimized functional occlusal relationship. Subsequent integration of intraoral scanning and digital jaw motion tracer captured the most stabilized occlusal relationship with associated kinematic parameters, enabling definitive prosthesis fabrication and application. Throughout the two-year follow-up period, all therapeutic outcomes remained clinically satisfactory with complete absence of TMD recurrence.

Discussion: For patients with TMD, precision rehabilitation is imperative to prevent disease recurrence. Compared to conventional methods, the digital approach enhances restorative efficiency while ensuring kinematic-dynamic harmony between temporomandibular joint movements and occlusal relationships.

Conclusion/clinical significance: Occlusal reconstruction with the aid of digital methods can achieve satisfactory results for patients. Digital methods merits wider application in occlusal reconstruction, especially in complex clinical cases.

Key Words: Occlusal reconstruction, Temporomandibular joint disorder, Digital restoration.

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CA4172

Digital Occlusal Transfer For Precise Reconstruction In Severe Tooth Wear

Guangmei Yang [*,1], Jian Wang [1], Xin Zhang [1]

[1] *West China School/ Hospital of Stomatology, Sichuan University, Chengdu, China*

Introduction: While digital technology is increasingly integrated into dentistry, precise occlusal transfer remains a critical hurdle for clinicians during occlusal reconstruction. This case report details the complete occlusal reconstruction process for a patient with severe tooth wear. A personalized matching bow was developed for occlusal transfer, achieving successful reconstruction of the patient's vertical dimension and excellent functional and esthetic outcomes.

Case description: We presented a 64-year-old male patient with severe generalized tooth wear attributed to parafunctional habits. After periodontal and endodontic treatment, occlusal reconstruction started with a 3-month occlusal plate period, with reviews every two weeks, preceding the diagnostic provisional restorations. A two-stage segmented silicone guide plate technique was utilized for intraoral fabrication of provisional restorations in segments, preventing guide plate subsidence. 1 month later, a personalized matching bow was designed based on the dentition after anterior teeth preparation. Utilizing this bow, a precise, step-wise matching process was performed. The matching bow was used to sequentially match models of: provisional restorations, the anterior teeth prepared dentition, and the fully prepared dentition. This process enabled the accurate transfer of vertical dimension of occlusion. Combining precisely recorded occlusal parameters with minimally invasive preparation and adhesive restoration, the final restorations achieved satisfactory esthetic and functional reconstruction.

Discussion: Severe tooth wear necessitated restorative treatment under minimally invasive principles. The matching bow innovatively ensured precise occlusal transfer, mitigating potential inaccuracies of traditional articulator cross-mounting.

Conclusion/clinical significance: Precise occlusal transfer in full-arch reconstruction is achieved by digital matching bow technology, improving accuracy significantly.

Key Words: Occlusal reconstruction, digital dentistry, occlusal transfer, tooth wear, multidisciplinary treatment.

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CA4787

Contemporary Digital Treatment Of Resorbed Avulsed Maxillary Incisors: Multidisciplinary Approach

Marjan Petkov [*,1], Julija Zarkova Atanasova [2], Vesna Trpevska [3], Daniela Veleska Stefkovska [1], Mihael Stanojevic [4], Marina Eftimovska [5], Vera Radojkova Nikolovska [1], Bruno Nikolovski [6], Vesna Jurukovska Shotarovska [7], Aneta Mijoska [7]

[1] *"St. Cyril and Methodius" University in Skopje Faculty of Dentistry, Скопје, North Macedonia;* [2] *Faculty of Medical Sciences, Goce Delcev University, Stip, Stip, North Macedonia;* [3] *Faculty of Medical Sciences, Goce Delcev University, Stip, Скопје, North Macedonia;* [4] *University in East Sarajevo, Medical faculty Foca, study program Dentistry, Sarajevo, Bosnia and Herzegovina;* [5] *"St. Cyril and Methodius" University in Skopje Faculty of Dentistry, Skopje, North Macedonia;* [6] *Goce Delcev University, Faculty of medical sciences, tip, Скопје, North Macedonia;* [7] *"St. Cyril and Methodius" University in Skopje Faculty of Dentistry, Скопје, North Macedonia*

Introduction: Traumatic dental injuries, particularly avulsion of maxillary incisors, present significant clinical challenges. Long-term prognosis is often compromised by complications such as root resorption, requiring a strategic and multidisciplinary treatment approach. The integration of digital technologies enhances precision in diagnosis, planning, and rehabilitation.

Case description: A 17-year-old patient with a history of traumatic avulsion of a maxillary incisor underwent root canal treatment and replantation. After eight years, the tooth exhibited root resorption, necessitating the extraction of all maxillary incisors. In the same stage, bone augmentation was performed using a Straumann xenograft and membrane. Two dental implants were placed in a second-stage surgery.

Discussion: The integration of digital technologies, including intraoral scanners, CBCT, and CAD/CAM systems, played a key role in precise planning and implant positioning. The use of 3D printed temporary crowns facilitated optimal temporary restoration during healing, while the CAD/CAM-designed monolithic zirconia screw-retained bridge provided a durable prosthetic solution. This approach not only ensured

functional restoration but also addressed the esthetic needs of the patient.

Conclusion/clinical significance: Severe dental trauma requires a well-coordinated multidisciplinary and digital approach to achieve predictable outcomes. This case underscores the importance of digital tools in enhancing precision and efficiency across all treatment phases, ensuring optimal long-term results in prosthodontic rehabilitation.

Key Words: Digital dentistry, dental trauma, avulsion, bone augmentation, dental implants, intraoral scanner, CAD/CAM, prosthodontic rehabilitation, multidisciplinary approach.

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CA4645

Considerations In The Occlusal Reconstruction For Severe Tooth Wear Patients

Fei Liu [*,1], Yu Meiqi [1]

[1] *West China School of Stomatology, Sichuan University, Chengdu, China*

Introduction: Severe tooth wear patients often exhibit shortened anterior teeth, deep overbite, with or without condylar displacement. Successful treatment requires establishing a stable mandibular position with condylar centric relation, typically through stabilization splint therapy before the final restoration, though the ideal condylar position remains debated.

Case description: Two representative cases were reported: Case 1, with severe tooth wear presented with posteriorly displaced condyles, has received approximately 3 months of stabilization splint therapy fabricated by conventional methods to achieve a stable mandibular position, ultimately resulting in significant anterior condylar displacement following the definitive reconstruction. Case 2, with severe tooth wear and normal condylar position, achieved a stable mandibular position within just 1 month of treatment using digitally-designed 3D-printed occlusal splints, while maintaining centric condylar position even after final restoration.

Discussion: The two cases showed significant differences in treatment duration and condylar positional changes. Cases with initial condylar displacement required a longer adaptation period, indicating the need for more extended neuromuscular compensatory adjustments. Notably, the final adapted condylar position may not conform to traditional "centric relation" standards. For cases with normal joint relationships, digital workflows demonstrated superior treatment efficiency.

Conclusion/clinical significance: Condylar displacement prolongs the treatment duration of occlusal reconstruction. The key to successful treatment should prioritize functional stability of the mandible over strict adherence to anatomical standards of condylar position within the mandibular fossa. Digital technologies can effectively enhance treatment efficiency.

Key Words: digital occlusal reconstruction, severe tooth wear, virtual dental patient, centric relation, stabilization splint.

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CA4089

Biologically Oriented Preparation Technique In Restoring A Surgical Extruded Tooth

Yu Lan [*,1], Hong He [1], Zhaowei Tai [1]

[1] *Department of General Dentistry, Shanghai Ninth People's Hospital, Shanghai Jiao Tong University School of Medicine, Shanghai, China*

Introduction: The biologically oriented preparation technique (BOPT), characterized by vertical tooth preparation without finishing line, demonstrates unique potential in improving gingival architecture. This report describes its application combined with surgical extrusion to address complex tooth fractures with 6 months follow-up.

Case description: A 26-year-old male presented with traumatic fractures of maxillary central incisors. The right incisor exhibited a complicated crown fracture with subluxation, while the left incisor showed a complicated crown-root fracture extending 2mm below the gingival margin. Following fragment removal and immediate root canal treatment, the left incisor underwent surgical extrusion to align the fracture margin with gingival contour. Both teeth were splinted for 8 weeks using a fiber-composite splint. Post-stabilization evaluation revealed compromised gingival symmetry, with the extruded left incisor displaying a narrower gingival margin width compared to the contralateral tooth. BOPT protocol was implemented through vertical preparation, followed by 2-month temporary restoration with resin crowns. Definitive zirconia crowns were delivered after gingival stabilization, achieving optimal profile and symmetry at 6-month follow-up.

Discussion: Surgical extrusion preserved the non-restorable fractured tooth but induced dimensional discrepancies in supracrestal tissue structure, leading to gingival recession and asymmetry. BOPT addressed these problems through dynamic gingival remodeling, leveraging provisional restorations as biological guides. The synergy between extrusion and BOPT achieved predictable periodontal recontouring, yet warranted further validation with long-term studies.

Conclusion/clinical significance: The integration of surgical extrusion and BOPT presents a viable solution for teeth with subgingival fractures, demonstrating therapeutic benefits both in functional rehabilitation and aesthetic harmonization.

Key Words: BOPT, crown-root fracture, surgical extrusion.

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CA3753

Occlusal Rehabilitation In TMJ Degenerative Disease: A Case Report

Zhongjie Li [*,1], Xiaojing Li [2], Lixia Yu [2]

[1] *The Affiliated Stomatological Hospital of Chongqing Medical University, Chongqing, China;* [2] *West China Stomatological Hospital, Chengdu, China*

Introduction: Severe tooth wear in early adulthood can cause disc displacement and degenerative joint disease in