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SHORT ORAL PRESENTATIONS

SOP-1

Evaluation of the Effects of Two- and Three-implant-retained Overdentures in the Mandible on Patient Satisfaction and Quality of Life

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Introduction: The aim of this study is to evaluate the effects of two- and three-implant-supported mandibular overdentures on oral health-related quality of life (OHRQoL) and general life satisfaction using the Oral Health Impact Profile-14 (OHIP-14) and Satisfaction with Life Scale (SWLS).

Methods: Sixty patients aged between 45 and 80, who were treated with mandibular implant-supported overdentures between 2020 and 2025, were included in the study. Participants were contacted via telephone and informed about the study. They were then administered the OHIP-14 and SWLS questionnaires to assess their OHRQoL and satisfaction levels. Descriptive statistical methods were used for data analysis.

Results: A total of 60 individuals participated in the study. In the evaluation performed with the OHIP-14 scale, item-based mean scores were generally found to be low, indicating a high level of OHRQoL among participants. The highest levels of dissatisfaction were observed in the categories of discomfort while eating [$\text{0.50} \pm \text{0.79}$] and dietary restrictions [$\text{0.54} \pm \text{0.67}$]. Conversely, social disability and inability to function [$\text{0.01} \pm \text{0.13}$] yielded the lowest complaint scores. Standard deviation values indicated partial differences among individuals; however, the overall distribution was clustered around low scores. Analysis of the SWLS revealed that patients' general life satisfaction levels were high [$\text{2.52} \pm \text{0.93}$].

Conclusion: This study demonstrates that implant-supported overdentures applied in cases of total mandibular edentulism positively influence patients' general life satisfaction. According to OHIP-14 data, patients suffer most from limitations in eating comfort and difficulties in dietary choices. Additionally, mild speech difficulties and subsequent temporary socio-psychological tensions observed in some patients are noteworthy factors during the prosthetic adaptation process. In conclusion, while the treatment enhances living standards, accurate management of patient expectations remains critical for maximizing functional success and psychosocial confidence.

Keywords: Dental implant, total edentulism, overdenture, OHIP-14, mandible, Satisfaction with Life Scale (SWLS)

SOP-2

Panoramic and Photo-based Interdisciplinary Approaches in Implant Planning: Different Perspectives According to Seniority Levels

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Introduction: Implant planning relies on accurate radiographic and clinical evaluation. Panoramic radiographs and clinical photographs are widely used; however, interpretation may vary depending on clinical experience and academic seniority. This study aimed to assess interdisciplinary differences in implant planning decisions based on panoramic and photo-based evaluations across different seniority levels.

Methods: A total of 109 participants, including assistants, specialists, and professors/associate professors, were enrolled. Participants evaluated implant cases using panoramic radiographs and clinical photographs and answered structured questions. Responses were compared across groups to determine differences in diagnostic interpretation and treatment planning. Statistical analyses were performed, and $p < 0.05$ was considered statistically significant.

Results: A discrepancy was identified in the implant planning question with respect to both academic title and departmental affiliation. In contrast, no significant difference was observed based on academic title for the questions concerning the most critical factor considered during clinical examination in implant surgery and the adequacy of panoramic radiographs for implant planning; however, a statistically significant difference was noted between departments for these items. Assistant-level roles tend to be more heterogeneous and make mid-level decisions; specialists and assistant professors are more selective and make strong decisions on specific questions; associate professors and professors exhibit a profile characterized by more standardized and clear-cut decisions.

Conclusion: Implant planning decisions based on panoramic and photographic evaluation vary significantly according to seniority level. Increased clinical experience contributes to improved accuracy and consistency in decision-making. These findings emphasize the importance of experience and interdisciplinary perspective in optimizing implant treatment planning.

Keywords: Implant planning, panoramic radiography, clinical photography, seniority, interdisciplinary approach

SOP-3

Effect of Demineralization Solution on the Surface Roughness of a Microhybrid Composite Resin

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Introduction: Composite resins are widely used in dentistry due to their favorable esthetic and mechanical properties. These materials may undergo changes in their surface characteristics when exposed to chemical and physical conditions in the oral environment. Surface roughness is a clinically important parameter affecting plaque accumulation, discoloration, and the long-term success of restorations. Therefore, evaluating the effects of demineralization processes on the surface integrity of restorative materials is essential. The aim of this study was to investigate the effect of a demineralization solution on the surface roughness of a microhybrid composite resin.

Methods: A total of 20 disc-shaped specimens were prepared from a microhybrid composite resin (Filtek Z250, 3M ESPE) using standardized molds. After polymerization, all specimens were stored in distilled water for 24 hours. Baseline surface roughness measurements were performed using a contact profilometer (Mahr, Marsurf PS1). The specimens were randomly divided into two groups (n=10): control (distilled water) and demineralization group (demineralization solution pH=4.8). Specimens were stored under standardized conditions for 30 days, after which surface roughness measurements were repeated. Data were analyzed using repeated measures analysis of variance with Bonferroni post hoc test ($p<0.05$).

Results: No statistically significant differences were found between the groups at baseline or after the experimental period ($p>0.05$). Within-group comparisons showed no significant change in the distilled water group ($p>0.05$), whereas a significant increase in surface roughness was observed in the demineralization group ($p<0.05$).

Conclusion: The demineralization solution significantly increased the surface roughness of the microhybrid composite resin, whereas distilled water did not cause a significant change. However, final surface roughness values in both groups exceeded the critical threshold of $0.2 \mu\text{m}$ for bacterial adhesion, suggesting a potential risk for plaque accumulation.

Keywords: Surface roughness, demineralization, resin composite

SOP-4

The Effect of Demineralization Solution on the Microhardness of Fluoride-releasing Composite Resin

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Introduction: This study aimed to evaluate the changes in the surface microhardness of a fluoride-releasing restorative material under intraoral demineralization conditions.

Methods: A single-shade fluoride-releasing composite resin (Beautifil II, Shofu, Japan) was used in the study. A total of 20 disc-shaped resin specimens were prepared using Teflon molds (5x2 mm) (n=20) and polymerized using an LED light-curing unit (Valo, Ultradent, USA) according to the manufacturer's instructions (1000 mW/cm²). The prepared specimens were randomly divided into two groups based on their storage conditions (n=10): a control group stored in distilled water and a group subjected to a demineralization solution. The aforementioned specimens were stored at 37 °C for 30 days. The demineralization solution used for this purpose was prepared in a laboratory environment according to appropriate formulations. Before and after storage in the solutions, microhardness values were measured using a Vickers microhardness tester (HMV-2, Shimadzu, Japan) from 3 different points on the top surfaces of the specimens with a load of 2.942 Newtons (HV0.3) for 15 seconds. The resulting indentations were visualized and measured under x40 magnification of the microscope. The measurements were performed 24 hours and 30 days after the specimens were fabricated. For statistical analysis, analysis of variance for repeated measures and the Bonferroni test for pairwise comparisons were used.

Results: Although no significant difference was found between the groups for the initial microhardness values ($p>0.05$), a statistically significant difference emerged between the groups after the procedure ($p<0.001$). While the decrease observed in the microhardness values of the group stored in distilled water was not statistically significant ($p>0.05$), a significant decrease in the surface microhardness values was detected in the group stored in the demineralization solution ($p<0.001$).

Conclusion: It was revealed that demineralization processes can negatively affect the surface microhardness of fluoride-releasing composite resins.

Keywords: Fluoride, microhardness, demineralization

SOP-5

Detection of DNA Residues on Orthodontic Clear Aligners: A Perspective on Biosafety and Personal Data Protection

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Introduction: DNA transferred onto the surface of clear aligners during use represents highly sensitive data containing an individual's identity and genetic information, classified in Türkiye as special categories of personal data under Law no. 6698. QR codes on aligner packaging and surfaces may further facilitate access to patient information. However, studies examining the presence of human DNA on clear aligners are limited. This study aims to detect and visualize human DNA on used clear aligners microscopically using DAPI staining, and to highlight potential data breach risks while raising awareness about the protection of genetic data.

Methods: Clear aligners were collected from orthodontic patients and categorized by duration of use (3-66 months). Thirty used samples were selected at defined intervals, while ten unused aligners served as controls. All samples were sectioned into small fragments, stained with DAPI, and examined using a fluorescence microscope (Zeiss Axio Observer Z1). Aligners exhibiting blue-stained cells were classified as DNA-positive.

Results: Forty aligners (30 used, 10 unused) were analyzed. DNA was detected in all used aligners, while no DNA was observed in the control group. As there was complete separation between groups, further statistical analysis was not conducted.

Conclusion: Used clear aligners were found to contain human DNA, demonstrating their potential as carriers of genetic material. These findings indicate that aligners should be regarded not only as medical waste but also as items relevant to personal data security, underscoring the necessity for proper disposal in compliance with biosafety protocols.

Keywords: Clear aligners, DNA, DAPI staining, biosafety

SOP-6

Content, Reliability, and Educational Analysis of YouTube Videos Regarding Fissure Sealants

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Introduction: The use of digital information sources in health education processes is increasing rapidly. However, the lack of supervision for content on video platforms raises questions regarding the scientific accuracy and reliability of the information. This study was planned to analyze the quality, reliability, and educational value of YouTube videos on fissure sealants using objective criteria.

Methods: A search was conducted on YouTube on March 9, 2026, using the keywords “fissure sealant”. Inclusion criteria were videos in Turkish, duration <30 minutes, verbal narration, and being advertisement-free. Non-commentable, or irrelevant videos were excluded. Descriptive data, interaction index, and view rates were recorded. Video quality was evaluated with the global quality scale (GQS), reliability with the reliability score, and content sufficiency with the guidelines-based total content score (TCS). Statistical analysis used Shapiro-Wilk, Mann-Whitney U, Spearman correlation, and chi-square tests ($p < 0.05$).

Results: Out of 29 videos, 41.4% featured dentists and 58.6% featured specialists. Specialist videos had significantly higher likes ($p=0.031$) and comment counts ($p=0.044$). No statistically significant difference was found between the speaker's title and the number of views or viewing rates. According to TCS analysis, 75.8% of the videos had “poor” content quality, and no videos were found in the “high” quality group. While a strong positive correlation was found between TCS and GQS ($r=0.608$, $p < 0.001$), no significant relationship existed between interaction rates and quality.

Conclusion: YouTube is a low-quality source for informing the public and students about fissure sealants in the Turkish language. The popularity of videos is not directly proportional to their scientific accuracy or educational quality. Dental authorities need to produce more comprehensive and high-quality content on this subject.

Keywords: Fissure sealant, YouTube, information reliability

SOP-7

Evaluation of Idiopathic Soft Tissue Calcifications in the Head and Neck Region via Panoramic Radiography

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Introduction: Idiopathic soft tissue calcifications in the head and neck region develop without systemic disorders or local tissue damage and are often detected incidentally on panoramic radiographs. Accurate diagnosis is critical for differential diagnosis and clinical management. This study aims to retrospectively analyze the prevalence and gender distribution of specific idiopathic calcifications.

Methods: Panoramic radiographs of patients at Bezmialem Vakıf University Faculty of Dentistry Hospital between 2023-2024 were retrospectively reviewed. The study screened for five types: laryngeal cartilage degeneration, sialoliths, antroliths, phleboliths, and rhinoliths. Data were systematically analyzed.

Results: A total of 37,698 panoramic radiographs were screened; 1,237 cases over the age of 70 and 7,328 cases under the age of 18 were excluded, resulting in a net analysis of 29,133 cases. A total of 127 idiopathic calcification cases were identified. Laryngeal cartilage degeneration was the most frequent finding (n=59, 46.46%), with 25.42% in males and 74.58% in females. Sialoliths, the second most common (n=36, 28.35%), were detected in 41.67% of male and 58.33% of female patients. Antroliths (n=22, 17.32%) were observed in 63.64% of males and 36.36% of females. Phleboliths (n=9, 7.09%) showed a prevalence of 77.78% in males and 22.22% in females, while the least frequent, rhinolith (n=1, 0.79%), was detected in only one female patient. Overall, 40.16% of cases were male and 59.84% were female.

Conclusion: Panoramic radiographs are significant tools for detecting idiopathic calcifications. Laryngeal cartilage degeneration and sialoliths were the most prevalent types, with findings exhibiting gender-based differences. Accurate identification by dentists is essential for patient health monitoring and clinical referrals.

Keywords: Panoramic radiography, idiopathic calcification, prevalence, laryngeal cartilage, sialolith

SOP-8

Evaluation of Dystrophic Soft Tissue Calcifications in the Head and Neck Region via Panoramic Radiography

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Introduction: Dystrophic soft tissue calcifications in the head and neck region are frequently detected incidentally on panoramic radiographs during routine dental examinations. Although generally asymptomatic, these calcifications are critically important for the early diagnosis of systemic diseases and differential diagnosis. This study aims to retrospectively evaluate the prevalence and gender distribution of specific dystrophic soft tissue calcifications detected via panoramic radiographs.

Methods: Panoramic radiographs of patients who applied to the Bezmialem Vakıf University Faculty of Dentistry between 2023 and 2024 were retrospectively analyzed. Five types of dystrophic calcification were screened: tonsilloliths, calcified atherosclerotic plaques, calcified lymph nodes, arteriosclerosis, and cysticercosis. Data were systematically recorded in Microsoft Excel and analyzed using SPSS 25.0 (IBM Corp.).

Results: Out of 37,698 screened radiographs, 29,133 cases were included after excluding patients under 18 and over 70. A total of 252 calcification cases were detected. The most common finding was tonsilloliths (n=162, 64.29%), observed in 59.88% of males and 40.12% of females. Calcified atherosclerotic plaques (n=49, 19.44%) were found in 36.73% of males and 63.27% of females. Calcified lymph nodes (n=20, 7.94%) showed an equal gender distribution (50%). Arteriosclerosis (n=19, 7.54%) was more prevalent in males (63.16%) than females (36.84%), while all cysticercosis cases (n=2, 0.79%) were detected in male patients (100%). Overall, 52.78% of cases were male and 47.22% were female.

Conclusion: Panoramic radiographs are vital tools for detecting dystrophic soft tissue calcifications. Tonsilloliths were the most frequent finding. Calcified lymph nodes and atherosclerotic plaques were more prevalent in women, while arteriosclerosis and cysticercosis were more common in men. Correct identification of these findings is essential for monitoring systemic health and ensuring necessary multidisciplinary referrals.

Keywords: Panoramic radiography, soft tissue calcification, tonsillolith, atherosclerotic plaque, calcified lymph node

SOP-9

Comparison of the Accuracy of Intraoral Scanners and Spectrophotometers in Dental Shade Selection

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Introduction: This study aimed to evaluate the shade determination performance of a digital spectrophotometer (VITA Easyshade Advance 4.0) and an intraoral scanner (Medit i700) based on different anatomical regions (incisal, middle, cervical) using the Ivoclar Vivadent A-D shade guide.

Methods: Ten consecutive measurements were performed with each device on 7 primary shade groups from the Ivoclar Vivadent A-D guide. To simulate the polychromatic structure, the first three measurements were taken from the incisal, the next three from the middle, the following three from the cervical, and the final measurement for control (middle) purposes (total n=140). Data were analyzed for regional accuracy rates, inter-device agreement (Cohen's kappa), and statistical significance (Wilcoxon signed-rank test).

Results: The highest accuracy rates were achieved in the middle third of the tabs (SP: 38.1%, IOS: 28.6%). Deviations toward the "D" group were observed in both devices in the incisal region due to translucency, while the Medit i700 systematically shifted shades toward the "B" group in the cervical region. No significant difference was found between the general accuracy performances of the devices ($p=0.423$), and the overall inter-device agreement was determined to be slight ($\kappa=0.04$).

Conclusion: Although intraoral scanners succeed in providing a general shade projection, they remain limited in interpreting optical variations in the cervical and incisal regions. The lack of a significant difference indicates that both methods can be used as auxiliary tools. Validating scanner data with a spectrophotometer is recommended for high-precision restorations.

Keywords: Medit i700, VITA Easyshade 4.0, Ivoclar Vivadent A-D shade guide

SOP-10

Assessment of the Mandibular Nerve Damage Following Extraction of Deeply Impacted Wisdom Teeth: A Retrospective Questionnaire Study

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Introduction: The aim of this study is to retrospectively evaluate the effects of mandibular nerve damage following the extraction of deeply impacted mandibular third molars on the severity of sensory loss, patient satisfaction, and social life through a survey study.

Methods: Thirty patients who underwent deeply impacted mandibular third molar extraction surgery were included in the study. Subjective evaluations of the patients were collected via a visual analog scale-based survey, including criteria for sensory loss level, treatment satisfaction, and impact on social life. On the scale, 0 represents the worst and 10 represents the best condition. Descriptive statistical methods were used in the data analysis.

Results: According to the results of the analysis, the mean general sensory level of the patients in the postoperative period was found to be 4.51 ± 4.35 . In contrast, the general treatment satisfaction scores of the patients remained at a very high level of 9.22 ± 1.49 . The impact of sensory impairment on social life (in a positive direction) was determined as 8.58 ± 1.91 .

Conclusion: The study findings indicate that although mandibular nerve damage following the extraction of deeply impacted third molars is perceived by patients as a moderate sensory loss on average, this situation does not dramatically decrease general treatment satisfaction or social adaptation. The high satisfaction rate despite the complication is considered a reflection of effective preoperative communication and a successful surgical process.

Keywords: Impacted third molar, mandibular nerve injury, patient satisfaction, quality of life

SOP-11

Evaluation of Mandibular Ramus Anterior Thickness in Class I, II and III Dentofacial Deformities

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Introduction: Dentofacial deformities can lead to structural disharmony in the jaws and teeth, potentially affecting the thickness and symmetry of the mandibular ramus. Accurate assessment of ramus morphology is critical for orthodontic and orthognathic surgery planning to minimize surgical risks. This study aims to evaluate and compare the anterior thickness of the mandibular ramus among individuals with Class I, Class II, and Class III dentofacial deformities using computed tomography (CT).

Methods: This retrospective and observational study was conducted on CT images from 42 patients (30 males, 12 females; mean age 23.14 ± 5.03) archived at Bezmialem Vakıf University. Participants were categorized into three equal groups (n=14) based on their skeletal classification. Group 1: Class I, Group 2: Class II, and Group 3: Class III. Anterior ramus thickness was measured digitally on both the right and left sides using standard reference points on CT records. Statistical analysis was performed using one-way analysis of variance to determine differences between the groups, with a significance level set at $p < 0.05$.

Results: The mean anterior ramus thickness for the right side was 14.82 ± 1.77 mm, and for the left side, it was 14.77 ± 1.73 mm. For the right side, the mean values were 14.83 mm for Class I, 15.08 mm for Class II, and 14.54 mm for Class III. For the left side, the mean values were 14.19 mm for Class I, 15.33 mm for Class II, and 14.79 mm for Class III. No statistically significant difference was found between the skeletal classes for either the right ($p=0.729$) or left ($p=0.228$) anterior ramus thickness.

Conclusion: Although previous literature suggests variations in ramus morphology among different malocclusions, this study did not find a statistically significant difference in mandibular ramus anterior thickness across Class I, II, and III deformities. These findings suggest that while ramus morphology is essential for surgical planning, anterior thickness may remain relatively consistent across different skeletal classifications in the evaluated patient population.

Keywords: Mandibular ramus, dentofacial deformity, computed tomography, ramus thickness

SOP-12

The Effects of Orthognathic Surgery on Phonetics and Articulation

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Introduction: Orthognathic surgery is widely performed to correct skeletal dentofacial deformities. Beyond functional and aesthetic improvements, surgical repositioning of the maxillofacial complex may affect adjacent structures such as the hyoid bone, larynx, and upper airway involved in phonation. Although previous studies have assessed speech using objective methods, subjective patient-reported data remain scarce in the literature. This study aimed to assess subjective changes in phonation and articulation following orthognathic surgery and to evaluate their impact on patients' quality of life.

Methods: A total of 118 patients (89 Class II, 29 Class III) who underwent bimaxillary orthognathic surgery and completed a minimum of 6 months postoperative follow-up at Bezmialem Vakıf University, Department of Oral and Maxillofacial Surgery were included. Participants completed the Turkish version of the Voice Handicap Index-10 retrospectively for the preoperative period and for their current postoperative condition. Statistical analyses were performed using non-parametric tests, and effect sizes (r) were calculated.

Results: No statistically significant differences were found between Class II and Class III groups regarding change scores ($p=0.060$, $r=0.17$), suggesting a borderline trend. In intragroup analyses, Class II patients showed a significant improvement ($p<0.001$, $r=0.59$), indicating a large effect size. Class III patients did not show significant changes ($p=0.093$), although a moderate effect size ($r=0.31$) suggested a potential trend.

Conclusion: Orthognathic surgery significantly improved subjective voice-related perceptions in Class II patients, while Class III patients demonstrated a non-significant yet generally positive clinical trend. These findings suggest that surgical effects on phonation and articulation may vary by skeletal classification but are overall favorable. Further studies with larger sample sizes are needed.

Keywords: Orthognathic surgery, phonetics, articulation, voice

SOP-13

Comparison of Aesthetic Perceptions of Patients Undergoing Clear Aligner and Fixed Orthodontic Treatment in Terms of Smile Aesthetics

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Introduction: An aesthetic smile is highly important for meeting patients' aesthetic expectations in dental treatments. In orthodontic treatments, aesthetic expectations can influence the choice of treatment method and post-treatment patient satisfaction. This study aims to evaluate the perceptions of smile aesthetic parameters among patients undergoing clear aligner and fixed orthodontic treatments and the relationship of these perceptions with treatment preferences.

Methods: This study was conducted on two groups consisting of patients receiving clear aligner and fixed orthodontic treatments. Within the scope of the study, data were collected via a survey using 13 smile photographs covering 6 categories (tooth color, gingival display, midline, buccal corridor width, occlusal cant, maxillary lateral tooth height) and a 5-point Likert scale (1, not aesthetic at all; 5, very aesthetic). Additionally, the survey questioned whether patients chose the treatment for aesthetic reasons. Pearson chi-square and Mann-Whitney U tests were used for intergroup comparisons in data evaluation.

Results: A total of 66 clear aligner patients and 66 fixed orthodontic treatment patients were included in the study. According to the analysis results, a statistically significant difference was detected in the perception of buccal corridor width depending on the treatment method ($p=0.015$). In the occlusal cant parameter, the success of clear aligner users (95.5%) in distinguishing ideal symmetry was found to be significantly higher than that of the fixed treatment group (81.8%) ($p=0.014$). When treatment motivation was examined, the rate of perceiving the cant among those who started treatment for aesthetic reasons (92.1%) was significantly higher than the other group (72.7%) ($p=0.011$). However, regarding lateral tooth dimensions, the success of aesthetically motivated patients in choosing the ideal visual (30.3%) was significantly low ($p=0.033$). No statistical difference was observed between the groups in overall aesthetic success scores ($p=0.128$). The median score for both groups was determined to be 3.00.

Conclusion: In conclusion, general aesthetic components do not show marked variations in patient preferences for orthodontic treatment; however, centering the patient's subjective expectations regarding micro-aesthetic details carries significant importance for achieving clinical success and patient satisfaction.

Keywords: Smile aesthetics, clear aligner, fixed orthodontic treatment, aesthetic perception, dental parameters

SOP-14

Evaluation of the Relationship Between Maxillary Labial Frenulum and Interdental Papilla Tip Using Clinical, Photographic, and Digital Measurement Methods

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Introduction: The position of the maxillary labial frenulum is of critical importance for periodontal health and aesthetic smile design. Accurate measurement of the distance between the frenulum attachment level and the interdental papilla tip is a decisive factor in treatment planning. This study aims to comparatively evaluate the alignment and reproducibility of traditional periodontal probing, digital photographic analysis (ImageJ), and three-dimensional (3D) intraoral scanning (IOS) methods in measuring this distance.

Methods: Twenty systemically healthy volunteers between the ages of 18-30 were included in the study. Periodontal statuses were recorded, and frenulum types were determined according to the Placek classification. Distance measurements were performed using a Williams periodontal probe, digital single-lens reflex camera-supported ImageJ software, and a Medit i700 intraoral scanner. Data analysis was conducted using Shapiro-Wilk, Friedman, and Mann-Whitney U tests; the agreement between methods was evaluated using the intraclass correlation coefficient (ICC).

Results: No statistically significant difference was observed among the three measurement methods ($p=0.705$). The overall agreement between methods was found to be at a moderate-to-good level (ICC: 0.701). In analyses based on frenulum type, distance values obtained for the gingival type were significantly higher than those for the papillary type across all clinical, photographic, and digital measurements ($p=0.002$, $p=0.014$, and $p=0.003$, respectively).

Conclusion: Within the limitations of this study, the findings confirm that digital photographic analysis and IOS methods exhibit high alignment with traditional periodontal probing. It is concluded that 3D digital approaches provide more objective and reproducible data compared to conventional methods. These digital methods are considered reliable alternatives for clinical evaluation and treatment follow-up processes.

Keywords: Maxillary labial frenulum, interdental papilla, intraoral scanner, ImageJ, periodontal probing

SOP-15

Effect of the Remineralization Solution on the Surface Roughness and Microhardness of Microhybrid and Fluoride-releasing Composite Resins

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Introduction: This study aimed to evaluate changes in surface roughness and microhardness of microhybrid and fluoride-releasing composite resins after immersion in a remineralization solution.

Methods: Microhybrid composite resin (Filtek Z250, 3M ESPE) and fluoride-releasing composite resin (giomer) (Beautifil II, Shofu) were used. A total of 40 disk-shaped specimens (8×2 mm) were prepared (n=20 per material) using teflon molds and polymerized with an LED curing unit (Valo, Ultradent, USA) at 1000 mW/cm² according to manufacturer instructions. Specimens were stored in distilled water at room temperature for 24 hours. Each material was divided into two groups (n=10): remineralization solution and air (control). Samples were stored for 30 days in 20 mL remineralization solution or in air. Surface roughness and microhardness were measured at baseline (24 h) and after 30 days from three points on the top surface. Surface roughness was assessed using a contact profilometer, and microhardness using a Vickers microhardness tester. Data were analyzed using repeated measures analysis of variance and Bonferroni tests ($p<0.05$).

Results: Air storage caused a significant decrease in microhardness and an increase in surface roughness for both materials. Remineralization significantly increased surface roughness. Microhardness remained unchanged in the fluoride-releasing composite, whereas a significant decrease was observed in the microhybrid composite.

Conclusion: Both air storage and remineralization increased surface roughness. However, their effects on microhardness varied by material: fluoride-releasing composite maintained its microhardness, while microhybrid composite showed a significant decrease.

Keywords: Microhybrid composite resin, fluoride-releasing composite resin, microhardness, surface roughness, remineralization solution

SOP-16

Analysis of Frenulum-induced Interdental Papilla Stress Using Conventional and Three-dimensional Digital Measurement Techniques

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Introduction: The frenulum is a mucosal fold that stabilizes lip movements and is classified into four types based on its attachment level: mucosal, gingival, papillary, and papilla-penetrating. High frenulum attachments (papillary and papilla-penetrating) may compromise periodontal conditions by promoting gingival recession, plaque accumulation, and orthodontic diastema formation due to mechanical stress during mastication and speech. This study aimed to biomechanically and objectively evaluate the tension stress exerted by the maxillary labial frenulum on the interdental papilla using heat maps generated through the superimposition of three-dimensional digital models.

Methods: Twenty healthy volunteers aged 18-30 years were included. Three-dimensional intraoral scans (Medit i700) were obtained in both resting and maximal retraction positions. The models were superimposed using the Medit Measurement app, and volumetric and dimensional changes were analyzed using the “deviation display” (heat map) mode. The results were compared with those obtained from the conventional tension (blanch) test. Data were analyzed using the Shapiro-Wilk, Friedman, and Mann-Whitney U tests, and agreement between methods was assessed using the intraclass correlation coefficient.

Results: No significant difference was found between the tension test and the heat map method in terms of stress detection ($p=1.000$). However, a significant association between frenulum type and stress presence was observed only with the heat map method ($p=0.018$), with papillary frenulum types showing higher stress levels.

Conclusion: The heat map method appears to provide an objective and digital approach for evaluating frenulum-induced stress, particularly highlighting the greater biomechanical stress associated with papillary-type attachments.

Keywords: Digital dentistry, interdental papilla, intraoral scanning, maxillary labial frenulum, stress analysis

SOP-17

Effect of pH Cycling on the Microhardness of Fluoride-releasing Composite Resins

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Introduction: This study aimed to evaluate the changes in the surface hardness of fluoride-releasing nanohybrid composites exposed to pH cycling.

Methods: A fluoride-releasing nanohybrid composite resin (Beautifil II, Shofu, Japan) was used in this study. A total of 20 disk-shaped resin specimens were prepared using teflon molds (8 × 2 mm) and polymerized with an LED light-curing unit (Valo, Ultradent, USA) at 1000 mW/cm² according to the manufacturer's instructions. The specimens were divided into two groups based on the storage conditions: pH cycling and air (control). According to their groups, specimens were stored in 20 mL solutions in closed containers, undergoing 16 hours of remineralization and 8 hours of demineralization daily for 30 days. Microhardness values were measured before and after storage in solutions and air at three different points on the top surfaces using a Vickers microhardness tester. For statistical analysis, repeated measures analysis of variance was used, and Bonferroni tests were utilized for pairwise comparisons ($p < 0.05$).

Results: Storage in the air environment and exposure to pH cycling caused a significant decrease in the surface microhardness of the composites.

Conclusion: Both air exposure and pH cycling had a negative effect on the surface microhardness of the fluoride-releasing composite resin.

Keywords: Fluoride-releasing nanohybrid composite resin, surface microhardness, pH cycling, demineralization, remineralization

SOP-18

Clinical Evaluation of Anterior Dental Treatments Performed Under General Anesthesia: 6-30 Month Follow-up

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Introduction: Resin-based restorations applied to anterior primary teeth are frequently preferred in young children with early childhood caries. The aim of this study is to evaluate the clinical performance of anterior resin restorations performed under general anesthesia (GA) according to jaw group and follow-up period.

Methods: A total of 82 anterior resin restorations applied under GA to children aged 36-72 months were evaluated for a 6-30 month clinical follow-up. Cases were compared according to jaw group (maxilla n=47, mandible n=35) and follow-up period (early period; 0-20 months n=41, late period; 21-30 months n=41) using the chi-square test ($p < 0.05$).

Results: In the comparison of jaw groups, success in surface integrity in maxillary restorations (83.0%, n=39/47) was found to be statistically significantly lower than in mandibular restorations (97.1%, n=34/35) ($p = 0.042$). No significant difference was found between the two groups in terms of marginal adaptation, secondary caries, color match, anatomical form, and retention ($p > 0.05$). In the comparison of follow-up periods, the success of surface integrity decreased from 97.6% (n=40/41) in the early period to 80.5% (n=33/41) in the late period, and this decrease was found to be statistically significant ($p = 0.013$). While anatomical form was preserved at a rate of 100.0% (n=41/41) in the early period, this rate decreased to 87.8% (n=36/41) in the late period ($p = 0.021$). No significant difference was observed between the periods in other parameters ($p > 0.05$).

Conclusion: Anterior resin restorations performed under GA demonstrated superior clinical success in the early period. However, surface integrity and anatomical form showed changes over time, and surface integrity was particularly negatively affected in maxillary restorations. These findings emphasize the importance of regular clinical follow-ups, especially for maxillary anterior restorations and long-term follow-up cases.

Keywords: General anesthesia, anterior primary tooth, resin restoration, clinical evaluation, early childhood caries

SOP-19

Integrated Endomotors with Apex Locators in Dentistry: Comparative Evaluation of Different Devices

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Introduction: Accurate determination of working length in root canal treatment is critical for treatment success. The aim of this study is to evaluate and compare the accuracy of working length measurements up to the minor apical constriction using three different endomotor systems integrated with apex locators.

Methods: After obtaining ethical approval, single-rooted maxillary anterior teeth were collected. Sixty teeth without calculus, resorption, caries, or restorations were selected using periapical radiographs. The length of each tooth was standardized to 20 ± 1 mm using a high-speed handpiece and fissure bur. After access cavity preparation, the actual length was determined by advancing a #10 K-file until visible at the apex and then subtracting 0.5 mm, measured with a digital caliper. Teeth were randomly divided into three groups (n=20): X-Smart Pro+, Endo Master, and BR Touch. Each group was placed in freshly mixed alginate within a training model (EduDent, İstanbul, Türkiye). Measurements were performed using a 15/.04 VDW Rotate files at 300 rpm and 1.3 Ncm torque settings with apex locator-integrated endomotors.

Results: In intra-group comparisons, no statistically significant difference was found between actual length and device measurements ($p>0.05$). Intergroup comparisons, no significant difference was observed among the three devices ($p=0.08$). The mean and median distributions of measurements were similar across all groups.

Conclusion: Within the limitations of this study, the X-Smart Pro+, Endo Master, and BR Touch systems showed similar accuracy in determining working length, with no statistically significant differences among them. All devices demonstrated clinically acceptable levels of accuracy.

Keywords: Working length, integrated apex locator, BR Touch, Endo Master, X-Smart Pro+

SOP-20

Orthognathic Surgery Planning in Patients with Maxillofacial Deformities Based on Cephalometry and Photographs: Interdisciplinary Approaches

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Introduction: Orthognathic surgery is widely performed to correct skeletal dentofacial deformities, aiming to improve both functional occlusion and aesthetics. Accurate diagnosis and treatment planning require close collaboration between orthodontists and oral and maxillofacial surgeons, however, differences in clinical perspective may influence decision-making. This study aimed to evaluate how clinicians from different specialties and experience levels assess deformities, perform surgical planning based on photographs and cephalometric analysis, and respond to practice-related questions.

Methods: This cross-sectional survey used records of a single patient, including frontal, resting, smiling, occlusal cant, and profile photographs with cephalometric measurements. Participants identified the deformity type and proposed an orthognathic surgical plan. The survey further explored approaches to digital planning, temporomandibular joint evaluation, psychiatric consultation, multidisciplinary collaboration, and the use of patient-specific implants (PSIs).

Results: Seventy-seven participants (47 surgeons, 30 orthodontists) were included. No significant differences were found between disciplines in deformity assessment or surgical planning ($p>0.05$). Among surgeons, the need for multidisciplinary collaboration was reported as “always” by most residents (87.5%) and less frequently by specialists (57.1%). Regarding PSI use, residents reported using it “sometimes” (57.5%) or “always” (40.0%), whereas specialists predominantly reported “sometimes” (71.4%) or “never” (28.6%). In orthodontics, only chin position evaluation differed ($p=0.016$).

Conclusion: Orthodontists and surgeons demonstrate similar approaches in deformity assessment and surgical planning. Clinical experience appears to influence decision-making, particularly within the surgical group, suggesting that treatment approaches may become more individualized with increasing experience. Differences in PSI use among surgeons indicate that residents tend to adopt new technologies more readily, whereas specialists follow a more conservative approach, reflecting a balance between technological advancements and clinical experience in surgical practice.

Keywords: Orthognathic surgery, maxillofacial deformities, treatment planning, multidisciplinary approach

SOP-21

Evaluation of the Relation between the Menstrual Cycle and the Pain Experienced at the Initial Application of Clear Aligners and Multibracket System Treatments

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Introduction: Orthodontic treatment-related pain is one of the primary concerns of patients initiating therapy. Hormonal fluctuations during the menstrual cycle are known to influence pain perception. This study aimed to investigate whether the phase of the menstrual cycle affects pain levels in female patients beginning clear aligner (CA) or multibracket system (MBS) orthodontic treatment.

Methods: A total of 61 female patients (30 MBS, 31 CA) were enrolled and divided into four groups based on treatment type and menstrual cycle phase at the time of initial appliance placement: MBS-follicular (n=15), MBS-luteal (n=15), CA-follicular [(CAF) n=16], and CA-luteal [(CAL) n=15]. The level of pain experienced by the patients was assessed using the visual analog scale (VAS) at four time points: on the evening of the day treatment was initiated and over the following three days. Depression and oral health-related quality of life were evaluated using the Beck Depression Inventory (BDI) and the Oral Health Impact Profile-14 (OHIP-14), respectively. Statistical analysis was performed using the Mann-Whitney U test.

Results: VAS scores were significantly higher in the luteal phase compared to the follicular phase in both treatment groups (MBF vs. MBL: $p < 0.001$; CAF vs. CAL: $p < 0.001$). MBS patients reported significantly greater pain than CA patients overall ($p = 0.013$). OHIP-14 scores were significantly higher in the luteal phase when all groups were considered ($p = 0.047$). No significant differences were found in BDI scores across any of the comparisons ($p > 0.05$).

Conclusion: The menstrual cycle phase significantly influences pain perception at the initiation of orthodontic treatment. Patients in the luteal phase experience greater pain regardless of treatment type. Scheduling orthodontic appliance placement during the follicular phase may help minimize initial discomfort. MBS treatment was associated with higher pain levels compared to CAs.

Keywords: Orthodontic pain, menstrual cycle, clear aligners, multibracket system, VAS, follicular phase, luteal phase

SOP-22

Knowledge and Attitudes Regarding the Pregnancy-periodontal Disease Relationship Among Medical and Dental Students at Bezmialem Vakıf University

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Introduction: Hormonal changes during pregnancy may increase the risk of periodontal diseases and have been associated with adverse systemic outcomes. This study aimed to compare the knowledge levels and attitudes of medical and dental students at Bezmialem Vakıf University regarding the relationship between pregnancy and periodontal disease.

Methods: This cross-sectional study was conducted among 294 volunteers from Bezmialem Vakıf University, including 172 medical students (4,5,6th grade) and 122 dental students (4,5th grade). Data were collected using a structured questionnaire via Google Forms, including items on demographics, knowledge of the pregnancy-periodontal disease relationship, and attitudes. Statistical analyses were performed using SPSS version 29. Pearson's chi-square test with Monte Carlo simulation was used to compare categorical knowledge responses between faculties, while the Kruskal-Wallis test was applied to analyze differences in attitude scores among student groups.

Results: A total of 294 students participated (mean age: 23.30±1.12 years; 64.3% female). Dental students demonstrated significantly higher knowledge of periodontal disease and its systemic associations than medical students ($p<0.001$). In contrast, medical students showed a higher misconception, particularly regarding the management of gingival bleeding during pregnancy ($p<0.001$). Attitudes toward oral health during pregnancy were generally positive; however, dental students exhibited more favorable attitudes in several domains ($p<0.05$). No significant difference was observed regarding the perceived importance of education on the pregnancy-periodontal disease relationship ($p=0.105$).

Conclusion: Dental students demonstrated higher levels of knowledge and awareness regarding the relationship between pregnancy and periodontal disease, likely due to their specialized clinical training. These findings emphasize the importance of incorporating pregnancy-related oral health education.

Keywords: Pregnancy, periodontal diseases, oral health, gum

SOP-23

Analysis of Gingival Color Using Polarized Digital Photographs Taken with Different Techniques

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Introduction: Gingival color is a significant indicator of periodontal health and plays a critical role in clinical evaluation regarding aesthetics, as well as early diagnosis. This study aims to compare the accuracy, reliability, and differences between gingival color analysis methods using mobile devices and professional clinical cameras equipped with cross-polarized filters.

Methods: The study included 63 dental students (32 female, 31 male) meeting these criteria: non-smokers, no medication or systemic diseases, probing depths <3 mm, no mouth breathing, and no anterior restorations. Images were captured with filtered mobile devices and professional cameras (filtered/non-filtered). CIELAB parameters (ΔE , CIEDE2000) and clinical indices. Additionally, plaque index, gingival index, bleeding on probing, clinical attachment level, and probing pocket depth were measured.

Results: Of 190 measurements (50.5% female, 49.5% male), the Mann-Whitney U test showed no significant gender differences for ΔE and CIEDE2000 ($p > 0.05$). Kruskal-Wallis results indicated significantly higher deviations for mobile devices compared to non-filtered professional cameras ($p < 0.001$). Overall, the professional camera with a polarized filter yielded the highest accuracy, statistically outperforming non-filtered methods.

Conclusion: Professional cameras with polarized filters provided the most accurate results in color detection and represent the most reliable method for clinical practice. The margin of error in color measurement for mobile device cameras was significantly higher than other methods. Therefore, their standalone use is not reliable for precise color selection. Gender has no statistical effect on the accuracy of measurements in color analysis processes.

Keywords: Cross-polarized filter, CIELAB, gingival color analysis

SOP-24

Comparison of the Solubility Effects of Acetic Acid, Maleic Acid, and EDTA on Biodentine

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Introduction: The behavior of calcium silicate-based materials in solvents is important for the removability of root canal filling materials during retreatment procedures. The aim of this *in vitro* study was to evaluate the effects of 2% acetic acid, 7% maleic acid, 17% ethylenediamine tetraacetic acid (EDTA), and distilled water on the solubility of Biodentine. The null hypothesis was that the tested solvents would increase the solubility of Biodentine.

Methods: Biodentine was prepared according to the manufacturer's instructions and standardized disc-shaped samples (4 mm in diameter and 6 mm in height) were fabricated using silicone molds. The samples were stored at 37 °C and 100% humidity for 21 days and then surface-polished to achieve standardization. Initial weights (mL) were recorded as the mean of three measurements. The samples were randomly divided into four groups (n=10) and immersed in 2% acetic acid, 7% maleic acid, 17% EDTA, and distilled water for 10 minutes. After immersion, the samples were rinsed, dried, and kept in an incubator for 24 hours. Final weights (m2) were measured, and solubility values were calculated according to ISO 3107 standards. Data were statistically analyzed, and the level of significance was set at $p < 0.05$.

Results: The effect of different solutions on weight change of Biodentine samples was evaluated using the Kruskal-Wallis test, and a statistically significant difference was found among the groups ($p = 0.002$). Pairwise comparisons revealed that the maleic acid group caused significantly greater weight loss compared to EDTA ($p = 0.037$), acetic acid ($p = 0.007$), and distilled water ($p = 0.002$) groups. No statistically significant differences were observed among EDTA, acetic acid, and distilled water groups ($p > 0.05$).

Conclusion: Seven percent maleic acid showed the highest solubility effect on Biodentine and may be considered a potential agent for facilitating material removal during retreatment procedures.

Keywords: Biodentine, chelating agents, solubility

SOP-25

Evaluation of the Solubility Behavior of NeoMTA Plus Under Different Chelating Agents

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Introduction: The removability of calcium silicate-based materials from the root canal is of critical importance in cases of endodontic treatment failure. The aim of this *in vitro* study was to evaluate the effects of 2% acetic acid, 7% maleic acid, 17% ethylenediamine tetraacetic acid (EDTA), and distilled water on the solubility of NeoMTA Plus. The null hypothesis was that the tested solvents would increase the solubility of NeoMTA Plus.

Methods: NeoMTA Plus was prepared per manufacturer instructions, and disc samples (4 mm diameter, 6 mm height) were formed using silicone molds. Samples were stored at 37 °C and 100% humidity for 21 days and surface-standardized. Initial weights (m1) were recorded as the mean of three measurements. Samples were divided into four groups (n=10) and immersed for 10 minutes in 2% acetic acid, 7% maleic acid, 17% EDTA, or distilled water. After rinsing and drying, they were incubated for 24 hours. Final weights (m2) were measured, and solubility was calculated according to ISO 3107. Statistical significance was set at $p < 0.05$.

Results: The effect of different solutions on the weight change of NeoMTA samples was evaluated using the Kruskal-Wallis test, and a statistically significant difference was found among the groups ($p = 0.001$). Pairwise comparisons revealed that the maleic acid group caused significantly greater weight loss compared to EDTA ($p = 0.004$), acetic acid ($p = 0.012$), and distilled water ($p = 0.006$) groups. No statistically significant differences were observed among EDTA, acetic acid, and distilled water groups ($p > 0.05$).

Conclusion: Seven percent maleic acid significantly increased the solubility of NeoMTA Plus compared to the other tested solutions. This finding suggests that maleic acid may be considered a potential solvent for facilitating the removal of NeoMTA Plus from the root canal.

Keywords: Chelating agents, NeoMTA Plus, solubility

SOP-26

Apex Locators in Dentistry - Comparative Evaluation of Different Devices

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Introduction: One of the crucial factors influencing the success of root canal treatment is the accurate determination of the working length. Recently, endomotors integrated with apex locators have become increasingly widespread. The aim of this study was to compare the performance of three different integrated devices as apex locators.

Methods: Following ethical committee approval, 60 maxillary anterior incisors without calculus, resorption, caries, or restorations were selected. The length of each tooth was standardized to 20 ± 1 mm using a high-speed handpiece and fissure bur, and access cavities were prepared. A #10K-file was advanced until its tip became visible at the apical foramen; and the actual working length was determined by subtracting 0.5 mm from digital caliper measurement. The teeth were randomly divided into three groups of 20 teeth each according to the devices used: BR Touch, Endo Master, and X-Smart Pro+. After embedding the teeth in freshly mixed alginate within an educational model (EduDent, İstanbul, Türkiye), the working lengths were determined using the apex locator mode of the integrated devices with a #15 K-file.

Results: In all three groups, comparisons between the actual tooth lengths and the measurements obtained using the apex locator modes of the integrated devices were evaluated with the Friedman test, and no statistically significant difference was found. Comparisons among the apex locator modes of the X-Smart Pro+, Endo Master, and BR Touch devices were evaluated using the Kruskal-Wallis test, and no statistically significant difference was observed among the results ($p=0.13$).

Conclusion: Within the limitations of this study, of the apex locator modes of the X-Smart Pro+, Endo Master, and BR Touch devices demonstrated similar accuracy in working length determination, with no statistically significant differences among them.

Keywords: Working length, integrated apex locator, BR Touch, Endo Master, X Smart Pro+