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Discussion and conclusions: Overall, ultra-translucent monolithic zirconia was found to be more translucent than the super translucent multilayer zirconia. The translucency showed to decrease when zirconia thickness increases.

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Translucency of HT lithium disilicate specimens with different thicknesses – preliminary study

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ABSTRACT

Introduction: The main advantage of using an all-ceramic system is to achieve a superior aesthetic result by increasing the translucency [1]. When dealing with darkened substrates, it is important to understand the level of translucency of the restorative materials according to their thickness, in order to adapt their application to specific clinical situations. Studies evaluating the translucency of different thicknesses of lithium disilicate, for CAD/CAM technology, are limited. This study aims to evaluate and compare the translucency of high translucency (HT) lithium disilicate with different thicknesses.

Materials and methods: Lithium disilicate blocks IPS e.max® CAD HT (Ivoclar Vivadent®), shade A3, were sintered in a furnace (Vita Vacumat 6000 MP). The sintered blocks were cut, with a hard tissue microtome (Accutom-50; Struers Inc), in quadrangular specimens ($n=20$). Four subgroups ($n=5$) were defined, according to thickness (0.5, 1.0, 1.5, and 2.0 mm). The translucency of the specimens was measured using the spectrophotometer SpectroShade Micro (MHT S.p.A., Arbizzano di Negar, Italy) ($\lambda=410\text{--}680\text{ nm}$). All measurements were made from 6 different areas of each specimen against a white background (Commission Internationale de L'Eclairage (CIE) $L^*=94.5$, $a^*=-0.3$, $b^*=-1.5$) and against a black background (CIE: $L^*=6.1$, $a^*=1.4$, $b^*=-4.0$), in order to obtain their L^* (value coordinate), a^* (red-green coordinate) and b^* (yellow-blue coordinate) values under natural light (D65) [2,3]. Based on the obtained values, the translucency was calculated using the translucency parameter (TP) and the contrast ratio (CR) formulas [4]. Resulting TP and CR data were submitted to descriptive statistical analysis.

Results: Mean TP values ranged from 15.5 (± 0.4) to 31.6 (± 2.3) and mean CR values ranged from 0.65 (± 0.03) to 0.84 (± 0.01). Thinner thicknesses showed higher translucency.

Discussion and conclusions: Translucency is a fundamental optical property and a determinant factor when it comes to selecting the restorative material for highly aesthetical areas. This study had, therefore, the purpose of understanding which data may or may not be useful in clinical practice. The dentist should be familiar with the properties and characteristics of new and innovative materials in order to pick the one that better adapts to a certain clinical situation [3]. HT Lithium disilicate specimens showed that as thickness decreases, translucency values increase.

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Treatment of infra-bony periodontal defects using a collagen membrane and a bone substitute of equine origin – a pilot study

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ABSTRACT

Introduction: One of the main goals of periodontal treatment is the regeneration of lost tissues, in order to improve the prognosis of the involved teeth [1–3]. Guided tissue regeneration (GTR) involves the use of a barrier with or without the use of bone substitutes [4]. Given the great diversity and constant evolution of materials, it is necessary to maintain a permanent evaluation of their clinical effectiveness. This study intends to evaluate the success and predictability of GTR using a new membrane and bone substitute of equine origin (Heart® and Mix Granules® – Bioteck SpA, Turin, Italy), in the treatment of infra-bony defects with two or three walls [5].

Materials and methods: This study was approved by Egas Moniz Ethics Committee and all patients signed an informed consent form. Patients were selected among those referred to the Department of Periodontology/EMDC, with indication for surgical periodontal treatment, presence of 2–3-wall infra-bony defects, probing depth (PD) ≥ 5 mm, infra-bony component ≥ 4 mm deep (evaluated radiographically) and attached gingiva ≥ 2 mm. Exclusion criteria were: cases with Plaque Index (PI) $>20\%$, smokers, extension of the defect to the furcation zone, mobility grade III, endodontic pathology, diabetes or other pathologies that interfere with bone remodelling and metabolism or contraindicate periodontal surgery. All surgeries were performed by the same operator. The clinicians involved in the evaluation of the results had no intervention in surgery. The following clinical and radiographic parameters were evaluated at one, three and six months after surgery: PI, Gingival Index (GI), Probing pocket depth (PPD), Bleeding on Probing (BoP); Gingival recession (GR), height of keratinised gingiva (KG) and radiographic angle of the defect (RAD). In addition, the presence of possible intra-surgical or post-operative complications was also evaluated. The assessment of the defect depth reduction was based on standardised periapical radiographs obtained through the use of an individualised device (parallelizer).

Results: A total of six participants (83% females, 17% males), with a mean age of 61.6 (± 8.1) years, were enrolled in the study. The number of defect walls was: 3 walls (50%), 2 walls (33.3%) and 2/3 walls (16.7%). After six months, an average clinical attachment level gain of 3.3 (± 1.4) mm, mean radiographic bone filling of 72 ($\pm 29\%$) and a BoP reduction of 66.6% were observed. RAD average was 21.3 ($\pm 1.2^\circ$) and GR changed from 2.2 to 2.7 mm. Membrane exposure was observed in 33.3% of the cases, however, there were no cases of infection or severe pain.

Discussion and conclusions: The use of collagen membranes and corticocancellous bone grafts of equine origin seems to be a viable alternative in the regeneration of infra-bony periodontal defects.

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