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Medical software (Materialise, Leuven, Belgium). By means of these software six linear and six angular distances were calculated on the digital models. 3D method, based on CBCT digital models' measurements, was compared with the 2D method, based on PA cephalograms measurements, both form a quantitative and a qualitative point of view. Regarding the quantitative approach, right/left ratios between corresponding variables, calculated in 2D and 3D, were compared and the results were analysed through Student's T test or Wilcoxon test for paired samples, depending on the normality or not of data distribution.
RESULTS: there was no statistically significant difference between the 3D and the 2D methods as regards the quantitative level. However, PA cephalograms provide less information about the aetiology of facial asymmetry and they are susceptible to distortion, superimposition of different anatomical structures and other limits. On the other hand, the 3D method exposed the patients to a higher dose of radiation and it is more expensive.
CONCLUSIONS: According to the results of the present study, even though 3D methods seems to be more sensitive and accurate than 2D ones, in the comparison between left/right variables the difference is not so significant to validate the use of 3D models as a first level exam in the diagnosis of facial asymmetry. PA cephalograms can represent a valid first step exam to approach and understand this condition. However, 3D models should be preferred when the aetiology of facial asymmetry is multiple and difficult to properly detect or when the asymmetry requires a surgical maxillofacial treatment.

Digital impression on transmucosal vertical neck® implants: evaluation of soft tissues stability

P. Lomelo, F. De Angelis, A. Visca, M. Senatore, G. Pignatiello, S. Di Carlo

Dipartimento di Scienze Odontostomatologiche e Maxillo Facciali, Sapienza Università di Roma, Rome, Italy

BACKGROUND: The literature indicates that 0.5 to 1.5 mm of gingival recession most often occurs within the first months after implant placement or abutment connection. The aim of this study is to test the validity of the new Biotype implant design (Vertical Neck®) to evaluate the effect of a concave transmucosal profile on the vertical stability of soft tissues at the facial aspect of dental implants, taking advantage of the benefits deriving from intraoral digital impression.
METHODS: The study was carried out at the Department of Oral and Maxillofacial Sciences, Sapienza - University of Rome. A 45-years-old patient was selected. He didn't show periodontal and systemic diseases. Mono edentulous sites were either in maxilla (1.6) and in mandible (3.6). After the sign of the informed consent form, according to the World Medical Declaration of Helsinki, the surgical phase was performed. Mini-invasive osteotome sinus floor elevation in atrophic maxilla was used to insert a transmucosal Vertical Neck® implant with 4.8 mm diameter and 8 mm length. In mandible was used a transmucosal Vertical Neck® implant with 4.1 mm diameter and 8 mm length. Six months later a digital impression was taken with an intraoral optical scanner (CS3500, Carestream Dental, Atlanta, GA, USA). A Simbiosi® Scan Body was applied on implants. Periapical radiographs were taken in order to show the right linkage between devices and implants. Straight titanium abutments were used and periapical radiographs were made to evaluate a correct marginal fit on implants. Two monolithic zirconia crowns were realized with a CAM system.
RESULTS: No recession in soft tissue was observed. The gingival level remained stable at 12 months. Vertical Neck® implants have shown a good relationship with bone and soft tissues. Also the aesthetic goals have been reached.
CONCLUSIONS: Biotype transmucosal Vertical Neck® implants have been projected to allow the placement of prosthetic border into an area of 2 mm of eight instead of predetermined point. Because of its intrinsic feature, the biological width is respected. Thanks to the management of the impression into a digital format (intraoral scan and CAD/CAM system), the final crowns resulted to be more accurate than with a traditional system; infact, common mistakes linked to clinical and laboratory process have been avoided.

Evaluation of the accuracy of intraoral scanner on a totally edentulous maxilla: a comparison of two different techniques of scanning and accuracy in case of different anatomical landmarks definition. A 3d analysis

G. Ruggiero, R. Sorrentino, F. Zarone

Department of Neurosciences, Reproductive and Odontostomatological Sciences, University "Federico II" of Naples, Naples, Italy

BACKGROUND: The first aim of this study was to compare the accuracy of an intraoral scanner (TRIOS 3 Pod, 3Shape) on two similar completely edentulous typodonts of the maxilla characterized by a different definition of the anatomical landmarks. The second aim was to evaluate the accuracy of two different techniques of scan with the same intraoral scanner.
METHODS: Two reference identical typodonts in polyurethane resin (PRIMA-DIE, Gerhò) of an upper totally edentulous jaw were made, one ("typodont-1" - WT) with marked palatal rugae, the other (ST) without palatal rugae and with smoother ridge surfaces than WT. Both reference typodonts were scanned using an industrial 3D metrological machine (Atos Core 80, GOM), obtaining 2 digital reference scans (rWT and rST), saved in ".stl" format. All the areas needed for the construction of a complete maxillary denture were included in the scans. In the first technique of scanning (T-1), the authors proceeded longitudinally along the ridge's occlusal side of the full arch, starting from the left maxillary tuberosity and ending at the right one, then continuing on the buccal side and, eventually, on the palatal side. In the second technique (T-2) the authors scanned the casts starting from the buccal side of the left maxillary tuberosity, moving the scanner with bucco-lingual and linguo-buccal alternate movements along the ridge, from one side to the other, until the entire cast was scanned. 4 groups of scans were performed (each group including 10 scans): the first group on WT with T-1 (WT/T-1), the second on WT with T-2 (WT/T-2), the third on ST with T-1 (ST/T-1) and the fourth on ST with T-2 (ST/T-2). These 40 scans were saved in ".stl" format for the comparison. All files were imported into a dedicated software (Geomagic Control X), and the accuracy evaluated calculating trueness and precision, measured in µm (micrometres).
RESULTS: Trueness values (95% confidence interval) were: WT/T-1 49,1 [37,9-60,3]; WT/T-2 66,3 [54,3-78,2]; ST/T-1 48,4 [42,5-54,3]; ST/T-2 56,8 [43,9-69,8]. Differences between groups were statistically significant only between: WT/T-1 and

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