conferenceseries.com 25th Global Dentists and Pediatric Dentistry Annual Meeting

April 25-26, 2019 | Rome, Italy

Digital smile design in implant dentistry

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 $\boldsymbol{\gamma}$ orkflow, benefits & Identify the protocols and benefits of applying digital smile design (DSD) principles to implant dentistry. With the rising tide of the digital workflow in all aspects of dentistry, the benefits of incorporating digital planning and digital smile design (DSD) into daily practice are considerable. The first and most important aspect is to motivate and stimulate the patient into making an emotional connection with the treatment plan. In cases where a considerable amount of treatment is required, the ability to offer patients a very clear indication of how their final prostheses could look is a very powerful tool. In addition, being able to fabricate provisional healing prostheses designed with digital smile design protocols allows the patient to have excellent esthetics from the start of treatment. In normal circumstances, the modification of a temporary denture into a healing bridge provides lessthan-perfect esthetics and potential patient dissatisfaction. Patient esthetic expectations are becoming increasingly stringent. With better education and more exposure to dental case reports on social media platforms, patients quite rightly — wish to obtain a result that is realistic and lifelike. In the past, full arch implant cases would run in a linear fashion, starting with tooth removal, implant placement, and final prostheses provision. Implants would be placed where the bone was ideal, and the final bridge would be manufactured to suit. However, with the onset of DSD, we can work backwards from an ideal esthetic result and assess where implants need to be placed to facilitate this ideal result. Using facial landmarks, we can ascertain ideal tooth spatial dimensions and confirm optimal prosthetic envelope for the teeth. This allows us to decide on the breadth of smile, the smile curvature relative to the lower lip, and the position of the upper teeth relative to the wet border of the lower lip. Once the 2D planning is complete, digital scans of the upper and lower arches are taken, and the STL files sent to the laboratory. From these, the 3D planning commences, and a digital wax-up can provide a diagnostic template that can be used to carry out a mockup intraorally. Digital videos can be used to assess esthetics, function, and phonetics. Following mutual agreement regarding the esthetics, implant planning can then begin. The CT DICOM file and the 3D planning STL files can be superimposed, and this allows the clinician to ascertain where the implants are best suited to enable the dentist to fabricate the healing/permanent prostheses. From here, the surgical guides can be printed and can offer partial or full surgical guide.

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