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Digital Dentistry: When Evolution Becomes Revolution!

Sikri A[1,*] and Sikri J[2]

[1]*Senior Lecturer, Department of Prosthodontics, Santosh Dental College, Santosh Deemed to be University, Delhi, India*
[2]*Senior Lecturer, Department of Conservative Dentistry & Endodontics, Santosh Dental College, Santosh Deemed to be University, Delhi, India*

[*]**Corresponding author:** Sikri A, Senior Lecturer, Department of Prosthodontics, Santosh Dental College, Santosh Deemed to be University, Delhi, India; E-mail: arpitsikri@gmail.com

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Editorial Article

Digitization in dental sciences is ever changing the globe, and medicine is not any exception. The overview of a plethora of digital devices namely the digital scanners both intraoral & extra oral with the advent of facial scanners in conjunction to the 3D diagnostic modalities like CBCT (Cone Beam Computed Tomography), along with designing modality namely CAD (Computer Aided Designing) & machining/milling of the prosthesis i.e., CAM (Computer Assisted Milling) has totally changed the whole landscape of the dental sciences.

Classically, 2D diagnostic technologies namely the IOPA (Intra Oral Peri Apical) radiographs, OPG (Panoramic radiographs) & Cephalometric radiography, have been used in the past. There was a gradual shift over to the 3D diagnostics with the inception of digitization in dental sciences.

In today's era of advancement, digitization is ever changing the workflow and consequently ever-changing operational procedures. The unique workflow generally uses the phases namely accretion of the image, knowledge preparation/processing, the assembly, and application of the same in clinical practices. Image acquisition generally uses tools like digital cameras, intraoral scanners, and CBCT. Digital photography in conjunction with the image process & virtual patient is collectively known as Digital Smile Design (DSD) concept, a ubiquitous tool in trendy dental medicine [1-4].

Digital Scanners combine both Intraoral as well as Extraoral scanners. Intraoral scanners or in other words the optical or digital impression helps us to capture details of the maxillary and mandibular dental arches. In addition to the hard tissues, the soft tissue details can also be captured to a greater extent as a diagnostic data or a part of dental laboratory communication. Furthermore, this becomes a tool for patient communication & motivation. Even during the procedure, intraoral scanners with a broader coverage can be used for impressions of the partially edentulous or completely edentulous dental arches. However, its use pertaining to the soft tissue scanning is still questionable and needs further studies. For tooth preparations and dental implantology, scanners have done wonders. The dimensional accuracy of the impressions in contrast to the conventional impressions speaks for itself. The disadvantages of the conventional impressions have been overcome with the advent of digital scanning technologies. Even, the laboratory (extra oral) scanners have been used in cases where a combination of conventional & digital impression technology is employed [5-7].

The impressions from the digital devices are sent to the software for further designing in CAD depending upon the choice of the restoration. During this procedure, laboratory personnel may communicate with the associated dental practitioner and this further improves the dental practitioner & laboratory personnel relationships.

The designed data is sent to milling of the prosthesis (removable or complete denture, inlays, on lays, half-crowns, full crowns, maxillofacial prosthesis etc.) with the help of CAM which uses a pre-sintered block to mill the prosthesis through subtractive manufacturing & RP i.e., Rapid Prototyping, which uses additive or layer by layer manufacturing of the prosthesis.

The digital workflow is a boon in the field of Prosthodontics. In addition to this, the field of Orthodontics has sufficiently enjoyed the use of digital scanners to capture the details for fabrication of

aligners. Not only this, in field of Dental Implantology, the surgical templates or guides have done wonders. The use of template guided implantology has improved the accuracy and precision of the dental implant placement and further the implant prosthetic treatment outcome.

The use of CBCT as a low dose radiation has helped to achieve the diagnosis to par excellence in the field of dentistry. Previously, CT (Computed Tomography) had been in picture for quite a long period of time for medical imaging diagnosis but later its use was discouraged keeping in view the larger amounts of radiation dosage associated with the modality. CBCT as a 3D modality has always been superior to the conventional 2D modalities available. CBCT has really done miracle in the field of dental implantology and ultimately been fruitful to the dental world.

The use of digital diagnosis along with digital scanners, designs and machining has totally changed the landscape of dentistry, giving birth to a new field of dentistry i.e., Digital Dentistry & hence proving the statement "*When Evolution becomes Revolution*".

References

1. Reich S, Wichmann M, Nkenke E, Proeschel P. Clinical fit of all-ceramic three-unit fixed partial dentures, generated with three different CAD/CAM systems. Eur J Oral Sci. 2005; 113: 174-179.
2. Mehl A, Gloger W, Kunzelmann KH, Hickel R. A new optical 3-D device for the detection of wear. J Dent Res. 1997; 76: 1799-1807.
3. Webber B, McDonald A, Knowles J. An in vitro study of the compressive load at fracture of Procera AllCeram crowns with varying thickness of veneer porcelain. J Prosthet Dent. 2003; 89: 154-160.
4. Reiss B. Cerec standard 3-D occlusal contouring in comparison with the new biogeneric occlusal morphing: a case report. Int J Comput Dent. 2007; 10: 69-75.
5. Sorensen JA, Choi C, Fanuscu MI, Mito WT. IPS Empress crown system: three-year clinical trial results. J Calif Dent Assoc. 1998; 26: 130-136.
6. Sorensen JA, Cruz M, Mito WT, Raffeiner OA. Clinical investigation on three-unit fixed partial dentures fabricated with a lithium disilicate glass-ceramic. Pract Periodontics Aesthet Dent. 1999; 11: 95-106.
7. Taskonak B, Sertgoz A. Two-year clinical evaluation of lithia-disilicate based all-ceramic crowns and fixed partial dentures. Dent Mater. 2006; 22: 1008-1013.