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Full-mouth rehabilitation of an elderly patient with Sjogren's syndrome by using implant-supported fixed dental prostheses including CAD/CAM frameworks

KEYWORDS
CAD/CAM;
Framework;
Implant;
Prosthesis;
Sjogren syndrome

Sjogren's syndrome (SS) is a chronic autoimmune disorder, which is characterized by lymphocyte infiltration of the affected exocrine glands such as salivary and lacrimal glands.[1,2] Oral and ocular dryness are the most prevalent symptoms in patients with SS. Xerostomia due to diminished salivary flow, rampant caries, and burning oral mucosa are considered as common oral manifestations in patients with SS.[3] Moreover, denture usage is remarkably challenging and often leads to unpleasant experience for most patients with SS.[3]

CAD/CAM technology revolutionized the field of implant dentistry,[4,5] resulting in elimination of distortion, better fit, fewer fabrication steps of frameworks.[4] Also, CAD/CAM surgical guides greatly improved the predictability of implant surgery.[5] Although there are few case reports regarding implant-supported restorations in patients with SS in the dental literature, there is no clinical report including full-arch implant-supported prostheses by using CAD/CAM technology. This report aimed to describe the design and fabrication of implant-supported screw-retained fixed dental prostheses (FDP) with CAD/CAM frameworks.

An 80-year-old man with SS, who had hopeless teeth and failing restorations, presented to our clinic (Fig. 1A). After CBCT scans, implants were virtually placed with 3-dimensional (3-D) software (NobelClinician, NobelBiocare, Yorba Linda, CA, USA) (Fig. 1B and C). Maxillary and mandibular interim complete dentures were fabricated before the extractions. The patient signed an informed consent before the extractions and implant placement. All existing teeth and restorations, and one implant (left lateral tooth area) were removed. After five implants were placed in the mandible, healing abutments were screwed on the implants.

After 3 months, an implant-level final impression was made with vinyl polysiloxane impression material (Aquasil, Dentsply, York, PA, USA) and the definitive cast was poured (ResinRock, Whip Mix Corp, Louisville, KY, USA). Maxillary and mandibular trial dentures were fabricated and then centric occlusion, esthetics, and phonetics were verified. Three scanning procedures were performed for the mandible; a) definitive cast with scanning abutments, b) definitive cast without scanning abutments (gingival contours), c) trial denture. The 3-D planning software superimposed those three different scans, and the contour and dimension of the framework were determined. A full-arch mandibular framework was milled from a titanium block by utilizing CAD/CAM technology. After the intraoral fit of the framework was verified, the denture teeth were transferred from the trial denture onto the framework. Finally, the implant-supported screw-retained mandibular

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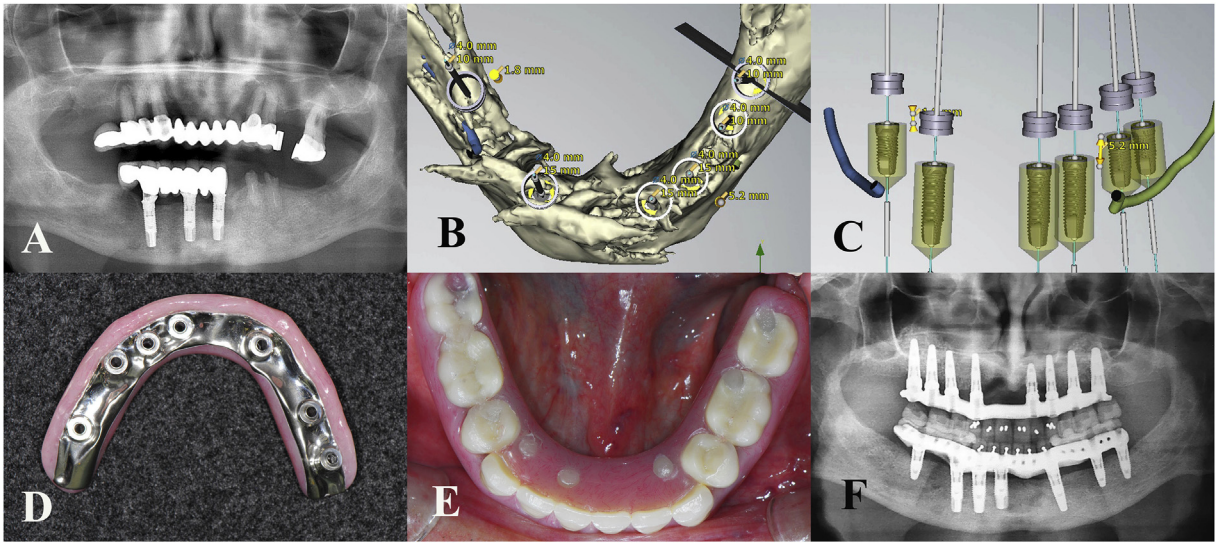

Figure 1 Clinical and radiographic photographs of the patient. (A) Panoramic radiograph of the patient before treatment. (B and C) Occlusal (B) and frontal views (C) of implants and inferior alveolar nerves during virtual implant placement. (D and E) Tissue-surface (D) and occlusal views (E) of the mandibular implant-supported fixed prosthesis. (F) Panoramic radiograph of the patient a year after implant placement.

FDP was fabricated, and then screwed on the implants (Fig. 1D and E).

For financial reasons of the patient, the maxillary treatment was initiated after the insertion of the mandibular prosthesis. Bilateral sinus lifting procedures with a direct surgical approach were performed. Three months later, 8 implants were placed in the maxilla with a flapless surgical approach. Six months later, the same steps elaborated above were followed to fabricate the maxillary FDP. During the follow up period of one year, all 15 implants remained stable and showed minor peri-implant bone loss (Fig. 1F). The outcomes of this report indicate that the treatment modality presented here may be a viable option to restore edentulous arches in patients with SS, and helps avoid issues associated with removable complete dentures.

Conflicts of interest

The authors have no conflicts of interest relevant to this article.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.jds.2019.06.004.

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