

Full Arch Restoration using Small Diameter Dental Implants and Traditional Crown and Bridge

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Thirty years of advancements of materials, designs, and techniques have allowed the endosseous dental implant to become the standard of care for tooth replacement therapy.

However, a patient driven need has been identified within the practice of dental implantology for an approach that is not only less invasive but also more time and cost-effective, than traditional endosseous implants.

The Small Diameter Dental Implant (SDI), also known as a “mini”, is an emerging treatment modality that appears to accomplish the aforementioned patient desires.

The diameter of the SDI affords the implant the ability to be placed in minimal amounts of bone. In most cases, the necessity for ridge augmentation and sinus lift procedures are eliminated.

The potential for immediate loading of both fixed and removable dental prosthesis also adds to the SDI’s clinical attributes.

Case Study

A 39-year-old male patient presented with generalized gross caries accompanied by many retained roots. He stated that he “could not chew” and was “in constant pain”. (Figure 1)



Fig 1.

The patient desired full mouth rehabilitation of the dentition, retaining as many of his natural teeth as possible. A panoramic radiograph was taken and reviewed with the patient. (Figure 2)



A treatment plan incorporating traditional crown and bridge techniques as well as dental implant placement was proposed.

The proximity of the maxillary posterior residual ridges to the maxillary sinuses would have required sinus lift procedures to accommodate traditional endosseous implants.

The patient declined the lift procedures due to time and monetary restraints.

An alternate treatment plan was then presented incorporating the same traditional crown and bridge techniques along with the placement and restoration of SDIs. This approach would circumvent the need for ridge augmentation/sinus lift procedures.

The patient agreed to the second treatment plan. After impressions, photos, and bite-registration were taken, the case was sent to Samuel Shatkin FIRST Laboratory ⁽¹⁾ for fabrication of implant placement stents and assessment of appropriate small diameter implant sizes.

Clinical Treatment

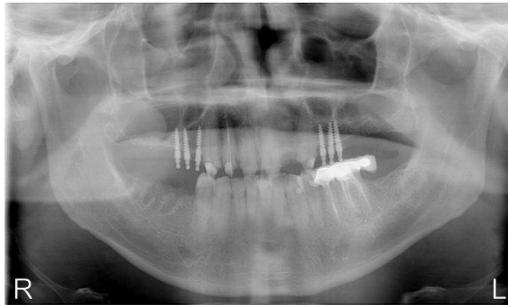
Six- 2.5 mm x 11.5 mm Intralock MDL implants were placed in the right and left maxillary residual ridges. The surgical stents were used for pilot drill and implant placement guidance. (Figure 3)



The remaining maxillary teeth were prepared. (Figure 4,5)



Fig 4.



R L Fig 5.

A temporary acrylic bridge was then fabricated. (Figure 6,7)



Fig 6.



Fig 7.

Full arch maxillary and mandibular impressions were taken along with bite-registration. The temporary bridge was cemented and the patient appointed for prosthetic delivery.

The final restorations were seated and the patient was given an oral irrigation device and oral hygiene instructions. (Figures 8,9,10,11)



R L Fig8.



Fig 9.



Fig 10.



Fig 11.

Closing Comments

The continuing evolution of implant dentistry requires the dental surgeon to remain aware of changes in techniques and modalities in order to better serve their patient.

The small diameter (mini) dental implant has proven itself for several years as a method of removable prosthesis stabilization. This implant is now becoming a viable option for many fixed prosthetic applications.

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It is this author's opinion that the small diameter (mini) dental implant will enable the implant practitioner to provide the patient with a fast, less invasive, less costly approach to dental restoration.

{References}

1. Samuel Shatkin *FIRST Laboratories, 2500 Kensington Ave. Amherst, NY 14226*
2. T.Shatkin DDS,S. Shatkin DDS,MD B.Oppenheimer DDS, A.Oppenheimer, MD. *Mini Dental Implants for Long Term Fixed and Removable Prosthesis: A Retrospective Analysis of 2514 implants placed Over a 5 Year Period Compendium Feb 2007*
3. Christensen G.J. *The "mini" implant has arrived. Jor of AmDent Assoc. 2006; 137:387-390*