Straumann® Solutions

Posterior restoration of hopeless dentition utilizing bone augmentation and guided surgery.

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Dr. Shelton is originally from Somerset, Kentucky. He attended the University of Louisville, earning a degree in biology in 2008. He continued at the University of Louisville to complete dental school, medical school, and his residency in Oral and Maxillofacial surgery. Dr. Shelton focuses his practice on dentoalveolar surgery, hard and soft tissue regeneration, and dental implants. He is in private practice in San Diego, California. Dr. Shelton is a Diplomate of the American Board of Oral and Maxillofacial Surgery.

Introduction

The following clinical case report is a great example of what is possible with the appropriate skill set and the Straumann library of products. Here we were able to remove hopeless teeth, augment a deficient alveolar ridge, perform a sinus lift, and place our implants very accurately with the help of our Smile in a Box 3D printed guide

Initial Situation

The patient is a 77 year old male with a history of hypertension and coronary artery disease, both of which are treated and well controlled. He did have 5 coronary stents placed in 2019 and has been without issue or functional limitation since that time. His current medications include: clopidogrel, atorvastatin, finasteride, levothyroxine, carvedilol, benazepril, and Aspirin.

Our patient's dentition was overall in good order with the exception of the area of teeth numbers 3 through 6 which we addressed. He has crown and bridge work throughout which was sound and without recurrent decay. He did not have any active periodontal disease that needed to be addressed and he maintains regular recall visits with his general dentist.

The patient was referred to our office for extraction of teeth #'s 3 and 6 which were found to have a hopeless prognosis by his general dentist. The patient was interested in discussing dental implants in order to restore his dentition. Tooth #3 was previously root canal treated and had a horizontal root fracture while tooth #6 had recurrent decay beneath a crown which ultimately failed due to the extent of the decay. His case was complicated by a pneumatized sinus and deficient alveolar ridge width in the areas of planned implant placement.


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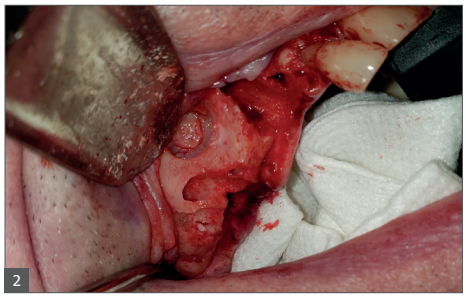
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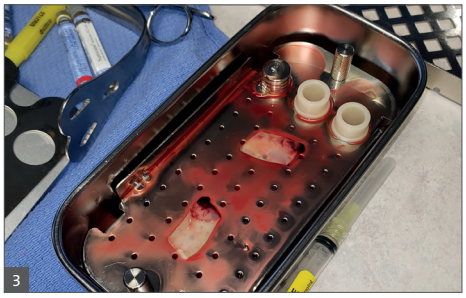
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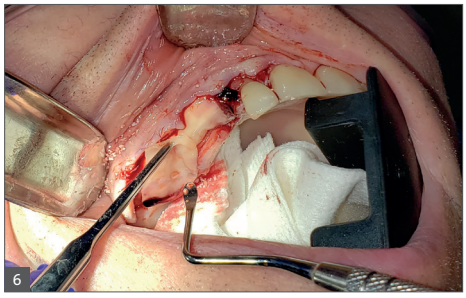
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Treatment Planning

1) Consultation: CBCT, examination, and development of plant

2) Phase I of surgery: Extraction of teeth #'s 3 and 6, ridge preservation, lateral window sinus lift, ridge augmentation at the 4 and 5 region.

3) Implant planning visit: CBCT and Trios scan to submit to Smile in a Box for guide design and printing.

4) Phase I of surgery: Guided implant placement at site #'s 3, 5, and 6 for an implant bridge and a single unit restoration at the #6 site. Stock healing abutments at site's 3 and 5, customizable PEEK abutment at the #6 site.

Site #: 3	**Site #: 5**	**Site #: 6**
Size:BLT RC 4.8x10	Size: BLT RC 4.1x 12|	Size: BLT RC 4.1x12
Ref #: 021.7510	Ref # 021.5512	Ref #: 021.5512
Lot #: AFR46	Lot # ALP73	Lot #: TG399

Surgical Procedure

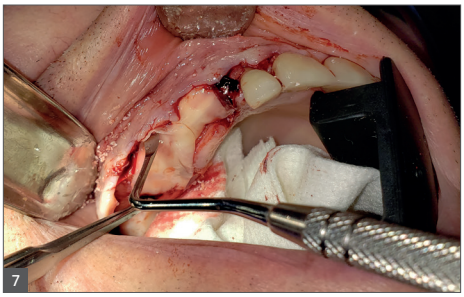
Phase I:

Performed under IV sedation.

A full thickness mucoperiosteal flap was elevated along the right maxilla. Tooth #3 was sectioned and delivered. Tooth #6 was carefully extracted using periotomes and forceps but was found to have an 80% buccal wall defect. At this point a round bur was used to create a window in the lateral sinus wall and the membrane was carefully elevated free of tears. A combination of Cerabone, Straumann Allograft c/c mix, and platelet rich fibrin were combined to make a "sticky bone" construct for grafting the sinus cavity.

This same biomaterial mix was then utilized to graft the sockets of #'s 3 and 6 as well as for our ridge augmentation. The flap was released for tension free closure with periosteal releasing incisions. A Jason membrane followed by PRF membranes were used to cover and compartmentalize the grafting materials. Tension free closure was complete with 4-0 vicryl and 4-0 chromic gut sutures.

The patient was managed post operatively with Augmentin, Peridex rinses, and appropriate pain control. His postoperative period was uneventful and his healing was satisfactory. We allowed 6 months of healing prior to moving forward with implant placement.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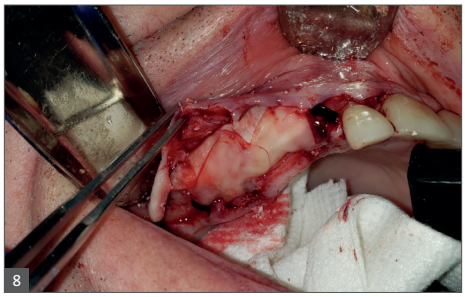
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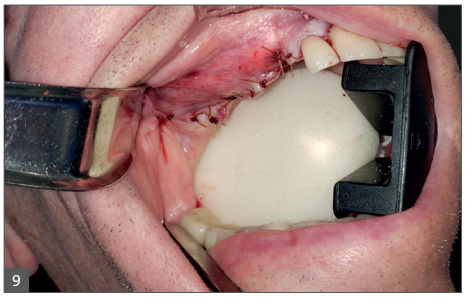
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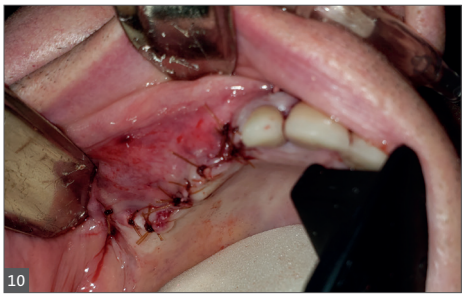
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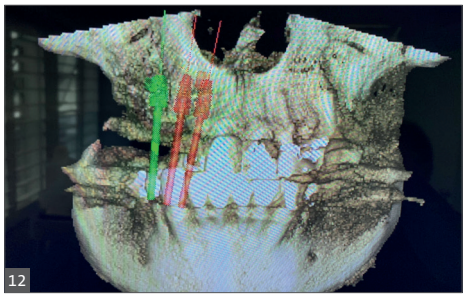
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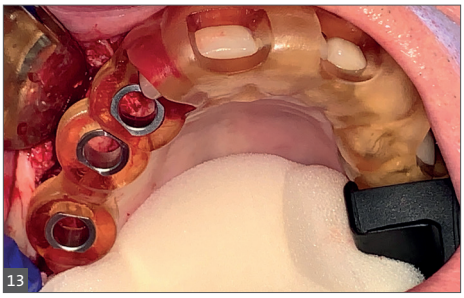
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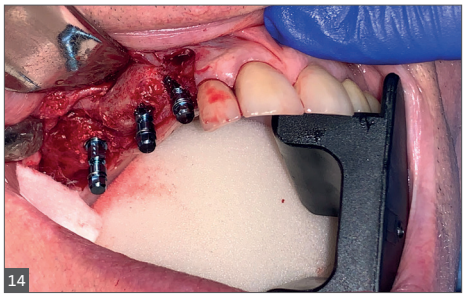
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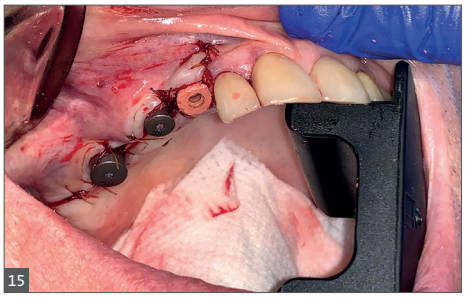
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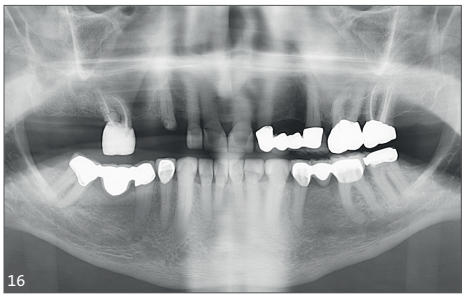
Phase II:
Performed under IV sedation.
Prior to starting we verified the fit of our 3D printed guide and that the guided handles fit within the sleeves as expected.

A full thickness mucoperiosteal flap was elevated along the right maxilla with care taken to translocate an appropriate thickness of keratinized tissue to the buccal of the planned implants. The standard guided drilling protocol was carried out while only drilling to approximately 75% of the planned depth on the last drill to ensure adequate primary stability. All 3 Straumann bone level tapered implants were placed with excellent primary stability (at or greater than 40 ncm). Stock healing abutments were placed at the 3 and 5 sites while a PEEK customizable abutment was placed and shaped with a round bur at the #6 site.

The tissue was then minimally trimmed to allow for passive adaptation around the healing abutments and closure was completed with 4-0 chromic gut sutures. The patient was managed post operatively with Amoxicillin, Peridex rinses, and appropriate pain control.

Treatment Outcome
At the time of this report the patient is still in the healing phase following implant placement. We will allow 3 months of healing prior to moving forward with the restorative phase of treatment. The final restorations will include a bridge supported by the implants at site #'s 3 and 5 with a single unit restoration at the #6 site.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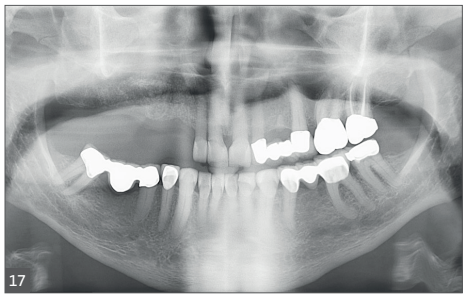
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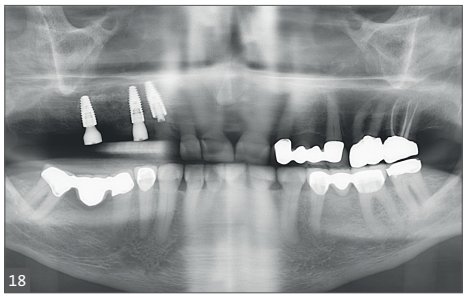
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