

# Clinical case

Guided surgery and the All-on-4® treatment concept in the maxillary arch

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**All-on-4® treatment concept with NobelGuide enables minimally invasive solutions to full arch rehabilitation.**

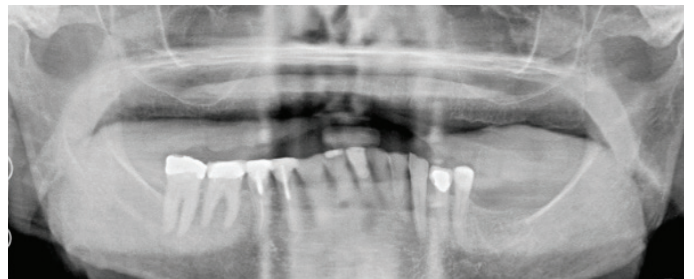
**Patient:** A 77 year old female presented with a fully edentulous maxilla for which she had had an upper removable denture for 12 years. Lower arch is partially edentulous with a continuous arch from 35 to the 47.

**Chief complaint:** Lack of retention and stability of the upper removable denture, reduced chewing function with reduced appetite, difficulty with speech and loss of confidence. Patient was interested in replacement of the removable denture with an implant supported prosthesis.

**Oral Examination:** Moderate bone resorption in the maxilla with approximately 10-13mm vertical bone height between the second premolar sites. Insufficient bone height and volume for implant placement over Maxillary sinuses. Good zone of keratinized mucosa over the edentulous ridge. Moderate bone resorption noted in the mandible in the 36 site. Natural teeth show moderate number of restorations and generalized moderate gingival recession. Normal probing depths were recorded and oral hygiene generally good. Moderate to low smile line.

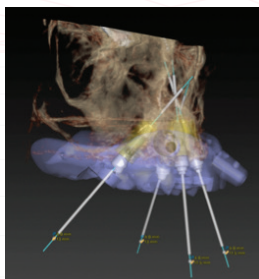


Initial presentation of the full upper denture with poor aesthetics and function. Atrophy provided adequate prosthetic space as indicated by the height of the denture. Low smile line was also identified. No limitations of mouth opening were noted.



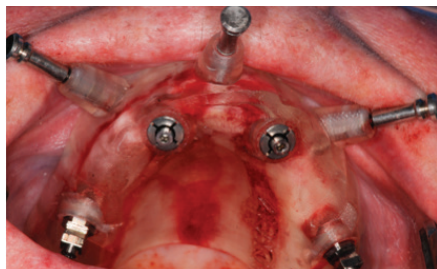
Pre-operative OPG in conjunction with CBCT imaging was used to assess the bone volume and density. There was a relative lack of bone in the posterior maxilla due to proximity of the sinuses. Some loss of ridge height also noted around the midline of the maxilla

**Treatment plan:** Fixed implant supported hybrid bridge with the All-on-4® treatment concept using the NobelGuide Protocol with a flapless surgical approach and immediate provisionalisation. Conventional single tooth implant replacement of the missing 36 to provide improved mastication on the left side.



Digital treatment planning was undertaken using NobelGuide. A scanned denture was used to provide a prosthetic driven placement of 4 dental implants. Detailed assessment of the maxillary sinus facilitated angulated fixture placement to minimize distal cantilevers.

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NobelGuide treatment planning enabled the fabrication of a fully guided surgical template. The template is secured into position with 3 anchor pins. Further stability is achieved following the placement of the first 2 implants (anterior) though the placement of template abutments.



Immediate post-op occlusal view of the implant placement using flapless guided surgery. No incisions, no sutures, minimal bleeding. Straight Multi-unit abutments were placed on the 2 anterior implants. 30° Multi-unit abutments were placed on the 2 distal implants

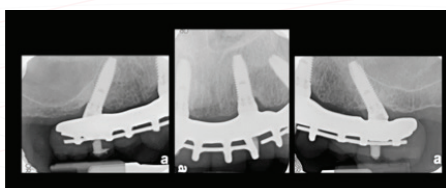
An immediate provisional all-acrylic fixed bridge was fabricated following a pick-up at the time of surgery. A temporary bridge was fitted one day after surgery. Following integration (4 months), a NobelProcera® implant bridge (PIB) with a Ti framework wrapped in pink acrylic was fitted. A single tooth screw retained implant crown was placed on the 36 implant.



Immediate provisional bridge on Ti temporary cylinders joined on laser-welded Ti frame and acrylic wrap around fabricated overnight and delivered the day after surgery. The provisional bridge provides immediate function and aesthetics for the patient.



Final Procera Hybrid bridge with flat tissue surface. Careful attention to the design of the tissue surface of the bridge is important to facilitate maintenance of oral hygiene under the bridge.



Post-op periapical radiographs shows the successful restoration of the All-on-4® treatment with NobelSpeedy groove implants restored with milled Ti framework (PIB) in the maxilla. Further retentive elements were added in laboratory to assist with retention of acrylic wrap around.



Final bridge placed 4 months following implant placement surgery. The final restoration was a Procera milled Titanium framework with acrylic wrap around.