

## Bone Volume Maintenance and Increase by Implant-Supported Complete Denture

Qingqing Wu<sup>1</sup>, Chen Y<sup>1</sup>, Yili Qu<sup>2</sup> and Yi Man<sup>3,\*</sup>

<sup>1</sup>State Key Laboratory of Oral Diseases, West China Hospital of Stomatology, Sichuan University, China

<sup>2</sup>Department of Prosthodontics, State Key Laboratory of Oral Diseases, West China Hospital of Stomatology, Sichuan University, China

<sup>3</sup>Implant Center, State Key Laboratory of Oral Diseases, West China Hospital of Stomatology, Sichuan University, China

\*Corresponding author: Yi Man, Department of Prosthodontics, State Key Laboratory of Oral Diseases, West China Hospital of Stomatology, Sichuan University, China, Tel: +86 28-85503579; E-mail: manyi780203@126.com

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### Clinical Images

Demographic trend, the increase in size and age of the older population, will outpace the decline in edentulism. The default treatment for edentulous patients is complete removable maxillary and mandibular denture. However, this kind of treatment, especially the mandibular denture cannot ensure patients good stability and retention. To provide a more satisfying restorative result for older people, implant-supported denture has become a more popular choice.

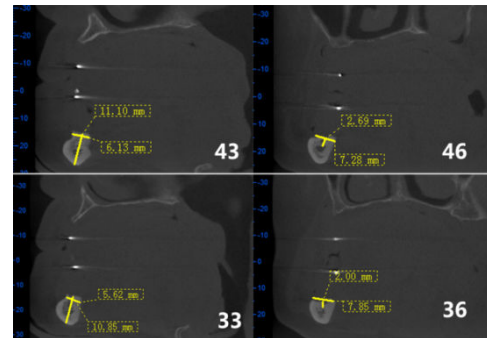


**Figure 1:** Frontal and occlusal view with/without the maxillary and mandibular removable full dentures. The patient suffered from severe mandibular alveolar ridge resorption and complained of denture instability during talking and mastication.

Here we present one clinical case showing a 60-year-old woman who has been wearing her complete removable mandibular denture for over 5 years. Due to the lack of stability and masticatory efficiency, the patient wanted to have a fixed implant-supported mandibular denture. Examination showed reduced vertical dimension and severe bone resorption especially in the posterior mandible where implant placement was too risky (Figures 1 and 2). CBCT was used to plan implant positioning (Figure 3). With the help of a surgical guide, four implants were inserted between the bilateral mental foramina (Figure 4).

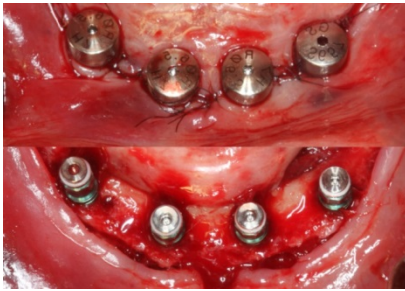


**Figure 2:** The vertical dimension was reduced with deepened nasolabial groove due to long-term edentulousness.



**Figure 3:** Preoperative CBCT.

The implants were splinted and the vertical dimension was rehabilitated by an immediate prosthesis (Figures 5 and 6). Oral hygiene instruction was emphasized. After 3 months of healing, the framework of the fixed denture was casted and tried in to achieve passive seating. After one week, final restoration was screwed in (Figure 7). 3 months later CBCT showed peri-implant bone volume increased a little (Figure 8), indicating that the implant-supported complete denture favored bone maintenance as well as function rehabilitation.



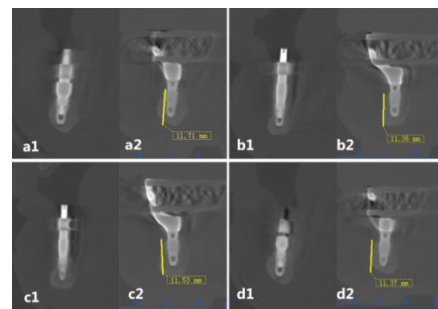
**Figure 4:** Four implants were inserted between the bilateral mental foramina. Healing abutments were seated.



**Figure 7:** The occlusal and frontal view of final restoration.



**Figure 5:** The four implants were splinted and restored immediately.



**Figure 8:** CBCT immediately after operation (a1-d1) and three months after final restoration (a2-d2).



**Figure 6:** The vertical dimension was rehabilitated by the immediate prosthesis.