

CASE REPORT

Implant Supported Fixed Prosthetic Restoration of a Mandibular Arch in a Patient with Marfan Syndrome

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ABSTRACT:

Implant rehabilitation of an edentulous mandible presents significant improvements over conventional complete denture therapy with regards to efficient function, esthetics and therefore improve the quality of life to patient's satisfaction. Choosing the right treatment plan to meet the patient's expectations is the prime objective considering his edentulous status and health. Several implant prosthetic models of treatment have been developed and successfully utilized in clinical practices.

This clinical case describes dental rehabilitation using implants in a patient with Marfan syndrome. The patient came to the Dept of prosthodontics with two- implant supported mandibular overdenture and was not comfortable with the removable prosthesis and wanted to get a fixed prosthesis done in his mandibular arch. The patient had seven Endosseous root form implants placed in the Dept of Oral surgery. Once the patient came back with the implants placed a fixed prosthesis was planned and executed. At the six months follow-up, the prosthesis made was in immaculate condition and the patient was satisfied with treatment and reported that his expectations were met.

This article describes the prosthetic design and technical steps in the fabrication of a fixed implant-supported mandibular prosthesis.

Key words: Dental Implants, Marfan syndrome, Implant supported Fixed Prosthesis.

INTRODUCTION

Treatment strategies differ between dentist and individual case regarding the choice of a fixed prosthesis or an overdenture when restoring the edentulous mandible by means of oral implants. Many factors are involved in prosthodontic treatment decision making. According to Brånemark et al, he mainly focused on fixed prosthesis.^{2,5} The choice between a fixed prosthesis and an overdenture supported by implants in the edentulous mandible

is influenced mainly by treatment modalities, treatment results and patient's economy,^{2,5} etc. Unlike the maxilla, there is in the mandible no significant difference in survival rate for implants supporting either a fixed or an overdenture. Some long term denture wearers even seem to prefer the overdenture solution. Only with a fixed implant supported prosthesis, however has it been shown that patients psychologically experience the prosthesis as part of their own body.² Implant overdentures requires greater maintenance and exhibit more frequent prosthesis-complications than fixed restorations.¹

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Fixed Ceramometal prosthesis is similar in design to a conventional fixed prosthesis used to replace partially edentulous ridges. The Ceramometal prosthesis can be cemented to transmucosal abutments or secured with gold alloy screws. Optimal esthetic, phonetic and hygiene are possible with the design.¹

The present case reports a full-mouth rehabilitation of an edentulous patient using full-arch implant supported fixed prosthesis in Mandible.

CASE REPORT

A 20- year's male patient was referred to the Department of prosthodontics, Kamineni Institute of Dental sciences, Narketpally, Nalagonda. With a complaint of difficulty in managing his existing implant supported overdenture.

Patient presented with a chief complaint of missing teeth in upper and lower jaws, and forwardly placed lower jaw since childhood. On examination, patient had excessively long arms and legs, with the patient's arm spanning more than his height. The fingers and toes were long and slender, with hyper mobility. He was a known case of Marfan syndrome.

Extra oral examination revealed long and narrow face with concave profile due to prognathic mandible (Fig 1A). Mouth opening and TMJ movements were within normal limits.

The dental history revealed that he had numerous missing maxillary and mandibular teeth, some partially erupted teeth (Fig 1B&C), high arched palate, thin knife edged mandibular ridge and Class III malocclusion.

The definitive treatment plan included fabrication of implant supported fixed Ceramometal prosthesis to rehabilitate mandibular edentulous ridge. The treatment plan included placement of seven Endosseous root form implants in the edentulous ridge. The surgical part of the treatment was performed by the Department of Oral-surgery.

After 3months of healing and radiographic evaluation, the second stage surgery for the

mandible was planned. The cover screws of the implants in the mandible were exposed; impression copings were attached to the implant bodies.

An elastomeric impression (Aquasil, Soft putty/ Regular set Impression material; DENTSPLY, Germany) using a closed tray technique was made (Fig 2A). After the impression was made the impression copings were unscrewed from the implant bodies and implant analogs were attached to them. The implants copings were repositioned into the impression and cast was fabricated using dental stone (Fig 2B). The abutments were fixed on the implant analogs in the mandibular cast (Fig 2C). Interocclusal record was made using Regisil Rigid (Vinyl Polysiloxane Bite Registration Material; DENTSPLY, Germany) between the upper conventional fixed prosthesis and lower implant abutments. Face bow transfer was made to orient the maxilla to a semi adjustable articulator and the bite was transferred to the articulator (Fig 3A).

The cast was surveyed and the abutments were adjusted and milled (Fig 3C). The ceramometal prosthesis was fabricated in two sections: a right and left half. This was done to avoid any flexural forces. Occlusal adjustments were carried out at the bisque stage and occlusal scheme was established. The final prosthesis was cemented on the abutments (Fig 4).

The patient was instructed and explained about the maintenance of the implant supported prosthesis and its importance. The patient was recalled after 6months and one year to evaluate the hygiene and long term success of the restoration. Patient has continued to report excellent comfort and function and is pleased with the treatment outcome.

DISCUSSION

The procedure explained in this clinical report for the rehabilitation of the edentulous mandible results in well fitted, esthetic and functionally efficient prosthesis. In this clinical case report the patient was previously restored with a Implant supported Overdenture and expressed his dissatisfaction with his removable prosthesis. There is scientific evidence that a lower rate of implant survival and a higher

frequency of prosthetic complications exist for implant supported overdenture.³ Hence, for this patient, use of full- arch implant- supported fixed prosthesis provided a prosthetic solution. There were other treatment options for this patient. The fixed restoration provides the psychological advantage of acting and feeling similar to natural teeth¹. The advantage for fixed prosthesis compared to removable prosthesis also includes less repair and maintenance and they often last till the life of the implant support.



Fig: 1 (A) Preoperative lateral cephalogram.



Fig: 1 (B) Preoperative Intra Oral photograph.

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Fig: 1 (C) Preoperative Ortho-pantamogram.



Fig: 1 (D) After placement of Implants Ortho-pantamogram.



Fig: 2 (A) Elastomeric impression.



Fig: 2 (B) Implant Coping Repositioned into the Impression.

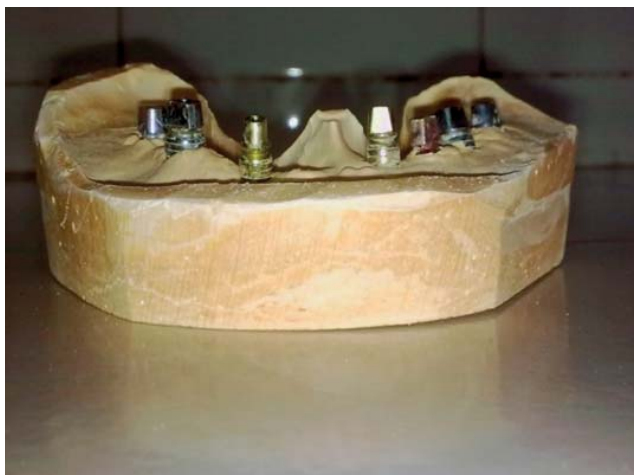


Fig: 2 (C) Abutments fixed on the implant analogs in the mandibular cast.



Fig: 3 (A&B) Face Bow transfer on to the Semi-adjustable articulator.



Fig: 3 (C) Abutment adjustments and Milling.



Fig: 4 Final Prosthesis cemented onto the abutments.