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Document heading: Case Report

## Full Mouth Rehabilitation with Fixed Partial Denture and Dental Implants: A Case Report

Nitin Sethi<sup>1</sup>, Ramandeep Singh<sup>2\*</sup>, Nikita Gupta<sup>3</sup>, Pooja Jarial<sup>4</sup>

<sup>1</sup>Prof., Department of Prosthodontics and Implantology, Himachal Institute of Dental Sciences, Paonta Sahib, Himachal Pradesh, India

<sup>2,3,4</sup>PG student, Department of Prosthodontics and Implantology, Himachal Institute of Dental Sciences, Paonta Sahib, Himachal Pradesh, India

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### Abstract

The major challenge in prosthodontics is restoring the function while maintaining the esthetics, especially considering the cases of full mouth rehabilitation. The use of a complete denture was thought to be the best solution in the past for these conditions but the perfect fit of the dentures raised questions in many cases. The advent of implants in dentistry proved to be a boon for such patients. Dental Implants are one of the most preferred treatment options for such cases as they help to support and retain the fixed or removable prosthesis. Implant-supported prosthesis gives an opportunity to such patients to lead a normal and healthy life considering their functional and esthetic demands. Successful osseointegration enables both dentist and the patient to accept full-arch implant-supported prosthesis. Here we present a case of full mouth rehabilitation with implants and fixed prosthesis.

**Keywords:** Prosthodontics, full mouth rehabilitation, implant supported dentures, fixed prosthodontics.

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### Introduction

Rehabilitation in case of a completely edentulous patient often presents a challenge to the dentist not only to get it correct functionally but also to get good esthetic results.[1] So it is necessary to understand the factors which control pattern or contours of occluding tooth surfaces that are desirable in planning for the maintenance of oral health and function[2] before starting the treatment plan. It is therefore important to follow the basics of prosthodontics to handle such patients which require complete prosthodontics rehabilitation.

In the past the only solution to such conditions was the use of complete dentures but it wasn't that easy because the patients often had a difficulty in adapting their prosthesis which could have been due to numerous physiological problems.[1]

With the recent advancements in the field of prosthodontics the solutions to such conditions became possible and in the present scenario we have the answer to such problems in the form of Implant supported fixed prosthesis. Success rates of fixed implant-supported prosthesis are high and postoperative complications are relatively low.[3,4] Long term success of the Implant supported prosthesis is abundant whereas, limited data is available on the long term prognosis of a combination of a tooth & implant supported prosthesis.[5]

### Case report

A 37 year old patient reported in Department of Prosthodontics and Implantology, Himachal institute of dental Sciences, Paonta sahib with a chief complaint of missing teeth in both upper and lower arches and wanted to be replaced by fixed prosthesis to restore esthetics and speech. A complete case history was recorded followed by thorough intraoral examination. On clinical examination, teeth 11, 13, 15, 17, 23, 24, 25, 27 were present in the maxilla and 31, 32, 34, 41, 43 in the mandible(Fig. I). Most of the remaining teeth required endodontic treatment before the final treatment plan for the prosthesis could be

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\*Correspondence

**Ramandeep Singh**

PG Student, Department of Prosthodontics and Implantology, Himachal Institute of Dental Sciences, Paonta Sahib, Himachal Pradesh, India.

E-Mail: [rmndeep59@gmail.com](mailto:rmndeep59@gmail.com)

made. The periodontal condition of the remaining teeth was found to be satisfactory. On radiographic examination (Fig. II) bone seemed to be normal and no bony lesions were observed in the mandibular region. Merits and demerits of the different prosthetic treatment options were explained to the patient. Since, the patient desired a long term prosthetic treatment, it was planned to retain the periodontally sound teeth and treat them endodontically before giving a fixed dental prosthesis. The treatment was done in two phases, a surgical phase which included the placement of dental implants in the mandibular region followed by a prosthetic phase.



**Figure I: Clinical picture showing damaged anteriors with loss of teeth in the posterior region**



**Figure II: Radiograph showing adequate amount of bone in the mandible**

Dental Implants Adin Touareg 3.5mm x 13mm, 3.5mm x 11.5mm and 3.5mm x 10 mm were placed in the region 34, 36 and 37 respectively. Adin Swell implants 3.5mm x 13mm, 3.3mm x 11.5mm, 3.3mm x 10mm were placed in the region 44, 46 and 47 respectively (Fig. III). Swell implants were placed using ridge split technique and the healing time between the surgical phase and prosthetic phase was 6 months.

The teeth were endodontically treated and crown cutting was performed. Impression was taken using medium body monophase and pvs putty 2 phase single step technique. For implants pvs light body and putty 2 phase single step for FPDs. Balancing of Occlusion was done with the help of a Facebow and Hanau articulator.



**Figure III: Implants placed in the posterior region with crown cutting in anterior tooth**

A combination of Implant and Tooth supported prosthesis was fabricated to replace missing teeth (Fig. IV). Splint prosthesis was made to avoid demerits of long span prosthesis. Patient was instructed to maintain proper oral hygiene and report after 1 week for review and the recall visits were scheduled after 1 month, 3 months followed by every 6 months. During each visit the oral hygiene maintenance, periodontal health status and fit of the prosthesis were assessed. An improvement in the masticatory function and esthetics was observed. The patient did not report of any difficulty in eating or speaking. No complications including fracture of prostheses, loosening of prostheses, abutments, or implants were found.



**Figure IV: Final prosthesis**

#### Disussion

In many cases the distribution of natural teeth in a partially edentulous patient may not be favourable for ideal fixed prosthesis, e.g. a case where all the posteriors are missing. In such cases dental implants can be put to a use. A combination of prosthesis which involves both the implants and the support of natural teeth not only look good esthetically but also have a functional advantage. Numerous advantages are enlisted of the combined prosthesis which include additional support, proprioception, better load sharing.[5] Implants are no doubt the best thing a prosthodontist gives to a edentulous patient but certain factors are to be kept in mind for its success.

The important factor for dental implants is the primary stability, which can be obtained by choosing the appropriate implant width and length and utilizing remaining cortical bone.[6,7] In case of prosthesis involving support from the implants and the natural teeth few complications may arise as there is a difference in the biomechanism of the prosthesis supported by the natural teeth and the dental implants. The masticatory forces are transferred to the periodontal ligament and then it further transfers to the surrounding bone but in case of an implant the forces are directly transferred to the bone concentration of the force is at the crestal bone level.[5] So, it is necessary to provide an implant protected occlusion in such scenarios to increase the long term prognosis. In the present case the dentition of a 37 year old patient was completely restored using implants and fixed prosthesis.

### Conclusion

The key to successful full-mouth rehabilitation is multifactorial which includes not only an appropriate diagnosis and treatment plan but also the skill of a prosthodontist and a commitment of the patient towards a good oral hygiene.

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