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### RESEARCH ARTICLE

#### REHABILITATION OF COMPLETELY EDENTULOUS MANDIBULAR ARCH USING IMPLANT SUPPORTED FIXED PROSTHESIS - A CASE REPORT.

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#### Abstract

Teeth are important structures in the oral cavity with many associated functions. Loss of teeth may be inevitable due to several reasons. Replacement of teeth should be done to restore the functions like mastication, phonetics, and esthetics. Modern dentistry aims to return patients to normal oral health and function in a predictable fashion. Satisfying a completely edentulous patient is always considered as a difficult task. Various treatment options for completely edentulous patients are available: conventional complete dentures, overdentures, implant supported overdentures, implant supported fixed prosthesis. Full arch implant supported fixed prosthesis is a well established treatment modality for edentulous patient.

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#### Introduction:-

Due to increase in life expectancy of edentulous population, clinicians are facing problems with the growing need to offer patients with solutions to fabricate prostheses that provide a replacement for loss of natural teeth which allows optimum satisfaction and improved quality of life.<sup>1</sup> Patients had a great dissatisfaction due to dentures because of pain, areas of discomfort, poor denture stability, and difficulties in eating as well as lack of or compromised retention capability. A solution for such conditions is the implant supported fixed prosthesis.

This article narrates a case report in which patient with completely edentulous mandibular arch was rehabilitated with cement retained porcelain fused metal fixed prosthesis.

#### Case Report:-

A 54-year-old male patient reported to Department of Prosthodontics, Manav Rachna Dental College, Faridabad with complaint of difficulty in eating food due to an ill-fitting lower denture. No relevant medical history reported. The patient was looking for complete oral rehabilitation to resolve his masticatory function. The clinical examination revealed a completely edentulous mandibular arch. He had existing mandibular complete denture. Despite of all efforts to make him comfortable with the existing denture, he desired a long term definitive solution that would not interfere with his social life, improve his self-image, and provide overall comfort and practical function, which left us with the option of using implants. He was adamant about not wanting removable prostheses on mandibular arch.

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**Treatment Planning:-**

A definitive treatment plan was made before starting the treatment which included fabrication of porcelain fused metal fixed prosthesis to rehabilitate mandibular ridge. The treatment plan included placement of 4 endosseous implants in canine and second premolar region. A clear acrylic resin surgical stent was prepared on diagnostic cast with the small steel balls of known diameter placed over the proposed implant site.

A second OPG was performed with stent in the patient's mouth to assess the height of available bone height accurately. Later in the same stent, the steel balls were removed and the resultant holes were used as a surgical guide during implant placement. The mandibular rehabilitation was initiated with the implant surgery followed by loading after 3 months.

**Surgical Phase:-**

Local anesthetic infiltration injections are given to the patient in combination with sedation if required. Antibiotic prophylaxis and preoperative anti-inflammatory medicines were prescribed for the patient and continued after the procedure as prescribed. Additionally, the patient is instructed about oral hygiene practices including the use of a chlorhexidine mouthwash during the healing process. Full thickness flaps were raised with crestal incisions to expose the bony ridge. Implants are positioned one anterior to the mental foramen and one posterior to the foramen. The use of surgical guide assists in ensuring the placement of the implants with correct positioning, angulation and emergence.

**Prosthetic Phase:-**

The silicone polysiloxane impression material (Coltene Affinis Addition Silicone) was used intra-orally for indexing the position of the abutments. A provisional all-acrylic resin prosthesis was constructed and issued to the patient within. Occlusion was carefully adjusted so that there were contacts only in the inter-canine region and no premature contacts posteriorly. Canine guidance was prescribed for lateral excursive movement with no other lateral interferences. The patient was issued instructions for oral hygiene instruction with chlorhexidine mouthwash and a soft diet recommended over the next six weeks. The patient was reviewed after 1 week, at 3 weeks, 3 months and then annually. At the 3 month appointment, fabrication of the definitive bridge was started. The occlusal vertical dimension (OVD) was measured by making two marks on the face (chin and nose) to measure the height, which was maintained during the bite registration process. Facebow transfer was made and lower cast was mounted with centric relation record. Taking occlusal vertical dimension into consideration, abutments length were milled. Coping trial was done. Final cement retained porcelain fused metal prosthesis was given to patient after 3 months of implant placement.

The patient was thoroughly educated and instructed regarding the prosthesis. Post cementation and oral hygiene instructions were imparted and routine follow up appointments were scheduled.

**Occlusal Scheme:-**

A canine guided occlusion was incorporated in the prosthesis so that during laterotrusive movements of mandible only the canines will contact and thereby protecting the entire dentition from the adverse occlusal torsional forces. Horizontal forces are minimized by limiting the contact of supporting cusps to their opposing fossae near the intercuspal position.

**Discussion:-**

Treatment of partial and total edentulism with dental implants has evolved into a predictable procedure for majority of patients and is expected to play a significant role in oral rehabilitation. Surgical placement of dental implants is a well-documented treatment for edentulism.<sup>2</sup> Cement-retained definitive prostheses were selected rather than screw-retained alternatives, to facilitate esthetic and occlusal considerations. The patient was previously restored with conventional complete denture which revealed his dissatisfaction with his removable prosthesis. Treatment success rates were high and postoperative complications were relatively less. Successful implant treatment involves osseointegration of implants that are placed in ideal positions for fabrication of a dental prosthesis.<sup>3</sup> Periodic clinical assessment of the implant fixture, prosthesis, and surrounding tissue is critical for clinical success. In the present case, patient was called for every 3, 6, and 12 months, professional removal of supragingival and subgingival deposits on a regular basis was done. The fixed restoration provides a psychological advantage and feeling similar to that of the natural teeth..



**Fig 1:-** preoperative OPG



**Fig 2:-** Post implant placement OPG.



**Fig 3:-** Facebow transfer



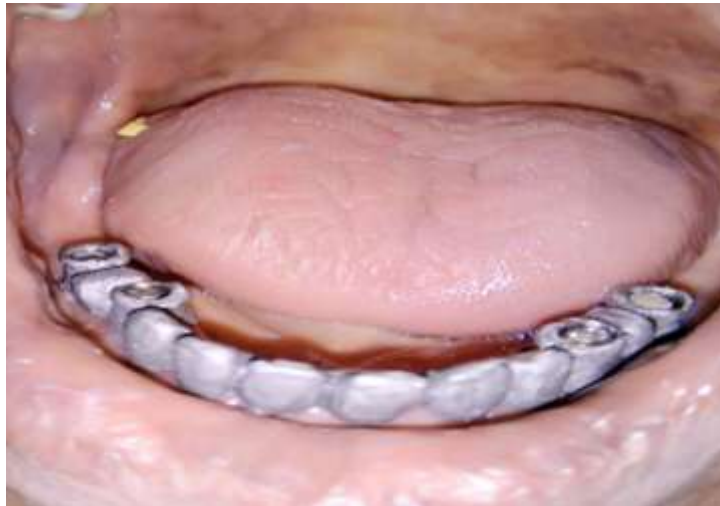
**Fig 4:-** Record transferred on articulator



**Fig 5:-** Abutments placed 3 months after implant placement



**Fig 6:-** Wax pattern for copings fabrication



**Fig 7:-** Copings placed in patients mouth for evaluation of margins.



**Fig 8:-** vertical dimension at occlusion is evaluated



**Fig 9:-** Final porcelain fused metal cement retained prosthesis cemented.



**Fig 10:-** Final occlusion after cementation of prosthesis

### **Conclusion:-**

The restoration of the mandibular arch up to the first molars with 4 implants and a full-arch fixed restoration presents a viable and cost effective treatment plan in patients with adequate bone volume and favorable ridge relationships. Decision to treat an edentulous arch with an implant supported fixed prosthesis is influenced by five crucial considerations<sup>4</sup>

Number of implant abutments. • Location of implants. • Quality of the host sites. • Quantity of the host bone sites or the amount of residual ridge reduction. • Amount of circum oral activity or generosity of patients smile line.



**References:-**

1. Thumati P et al. "All-On-4/DIEM 2" A concept to rehabilitate completely resorbed edentulous arches. Journal of Dental Implants 2015; 5(1):76-81.
2. Adell R, Errikson B, Lekholm U, Branemark PI, Jemt T. Long-term follow-up study of osseointegrated implants in the treatment of totally edentulous jaws. Int J Oral Maxillofac Implants 1990; 5: 347-59.
3. Jacobs R, Andriansens A, Verstreken K, Seutens P, van Steenberghe D. Predictability of a three-dimensional planning system for oral implant surgery. Dentomaxillofac Radiol 1999; 28:105-11.
4. George AJ. The Edentulous Predicaments. In: Zarb, editor. Text book of prosthodontic Treatment for Edentulous Patients, 12th ed. Noida: Elsevier publishers; 2004. p. 3-5.