

## A Case Report

## Clinical Outcome of Single Implant Placed in Premolar Sites - A Case Report

Dr. Gaurav Gupta<sup>1</sup>, Dr D.K Gupta<sup>2</sup>, Dr. Priyanka Gupta<sup>3</sup>, Dr. Neeraj Chandra<sup>4</sup>

Private Practice<sup>1</sup>,  
BDS, MDS,  
Dept. of Pedodontics &  
Preventive Dentistry  
Wisdom Dental Clinics,  
Senior Consultant<sup>2</sup>,  
MDS  
Dept. of Oral & Maxillofacial Surgery  
Wisdom Dental Clinics,  
Jaipur, Rajasthan,  
Sr. Demonstrator<sup>3</sup>,  
MDS  
Pedodontics & Preventive Dentistry  
RUHSCDS Govt Dental College,  
Jaipur, Rajasthan,  
Senior lecturer<sup>4</sup>,  
Department of Periodontics  
Institute Of Dental Sciences,  
Bareilly

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## Abstract

The routine and frequent use of dental implants to replace missing teeth is accompanied by high expectations from patients. These expectations are not limited to function and esthetics but extends to patient comfort and time spent in receiving treatment. Replacement of anmissing maxillary premolars can be challenging when considering the concerns of patients. In this case report a single implant is placed in premolar region due to space loss over which two prosthesis is delivered.

## INTRODUCTION

Single implants are considered a successful and predictable treatment option to replace teeth that cannot be maintained or restored<sup>[1]</sup>, with high survival/success rates and low incidence of complications in the short-<sup>[2,3]</sup> and long-term<sup>[4,5]</sup>.

For acquiring osseointegration, primary stability was always considered fundamental. To facilitate the successful loading, the implant stability at the time of placement is essential<sup>[6]</sup> and implant surface modifications have significant role in measuring the success of osseointegration.<sup>[7]</sup>

However in case of immediate implant placement, critical aspects are related to it<sup>[8]</sup>. In fact, in the fresh extraction socket the stabilization of the implant may be technically difficult<sup>[9,10]</sup>. It is well known in the scientific literature that in absence of adequate primary stabilization, a fixture can fail hence primary stability is key for the survival and the success of an implant<sup>[10-12]</sup>. In a fresh extraction socket, the incongruity of size and shape between the fixture and the alveolus can represent a problem while placing an implant<sup>[9,10]</sup>. Still if in healed sites primary stabilization is obtained, in postextraction sockets residual bony defects always remain around implants<sup>[8,10]</sup>.

In the present case report a 60-year-old female patient wants to get her teeth restore but due to space loss in premolar

region it was difficult. Hence single implant is placed in the centre of mesio-distal space of missing teeth area over which two prosthesis is given.

## CASE REPORT

A healthy 60-year-old female patient came with the chief complain of missing teeth in upper posterior region and wants to get fixed prosthesis. On oral examination it was observed that two upper right premolars are missing. (Figure.1)



Figure.1 - Pre-operative picture of patient

Initially two implants with prosthesis were planned but severe bone loss was seen in missing tooth region. Patient was advised for CBCT. Report revealed that there was no bone in that region, either we have to do bone augmentation and wait for implant placement for 6-8 months or to go with

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another novel approach to place single implant to restore 2 missing premolars just like we restore as with a single molar missing.

In that approach a single implant is placed exactly in centre of mesio-distal distance of missing tooth region with good insertion torque. (Figure.2)



Figure.2 - Implant placement in the centre of missing of tooth

After 4 months ISQ was checked with reading of 83, establishing its excellent biological or secondary stability. (Figure.3)



Figure.3 - ISQ reading

Now implant level impressions were made (Figure.4) and screw retained prosthesis was delivered (Figure. 5a, b,c,d)



Figure.4 - Implant level impression taken



Figure. 5 a,b,c,d - Prosthesis delivered

Patient was instructed about oral hygiene maintenance. After 1 year of follow up, appropriate soft and hard tissue architecture was in place with stable occlusion. patient was satisfied with the result. (Figure.6)



Figure.6 - One year follow up

## DISCUSSION

Bone volume preservation should always be the main goal because loss of a tooth is followed by a major alveolar bone reabsorption compromising any future implant-prosthetic rehabilitation. In the present study due to space loss, single implant placement with two prostheses over it was attempted.

An essential factor for successful immediate or delayed implant placement is the initial stabilization of the implant into the post extraction socket or residual bone [7, 11-20]. The easier method to assess the implant stability during implant placement is to check Insertion torque (IT) [21]. Insertion torque (IT) It is the capacity of the implant to withstand loading in axial, lateral, and rotational directions [21]. It is related to bone quality and quantity bone, implant design and

geometry (surface, diameter, length, and type), patient characteristics, and the placement technique used (osteotomy size smaller than the implant diameter, pretapping, or self-tapping)<sup>[20–22]</sup> and also to the level of primary bone contact also under functional loading and the biomechanical properties of the surrounding bone<sup>[20–22]</sup>.

The routine and frequent use of dental implants to replace missing teeth is accompanied by high expectations from patients. These expectations are not limited to function and esthetics but extends to patient comfort and time spent in receiving the treatment. Replacement of a missing maxillary premolars can be challenging when considering the concerns of patients.

## CONCLUSION

In conclusion, single implant is reliable for oral rehabilitation in the premolar areas especially is case of deficient bone & loss of space. More related studies and long term follow up is required for its success to be proven.

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