ABSTRACT

AIM: The aim of the present study was to evaluate the outcome of replacement of single mandibular molar tooth with two narrow diameter implants in terms of evaluation of implant success rate, bone loss, soft tissue and hard tissue healing, oral hygiene maintenance, patient satisfaction and complications.

MATERIALS AND METHODS: The study was conducted in the Department Of Oral and Maxillofacial Surgery, Ragas Dental college, Tamilnadu. Patients of either sex, having partial edentulism in the posterior mandibular arch who required preferably implant based fixed prosthesis were included in this study. Patients who were willing to undergo the double implant supported molar replacement, were included in this prospective study. After preoperative evaluation, two narrow diameter implants were placed parallel to each other under local anesthesia. All the patients underwent two stage implant protocol. Implants were loaded with screw retained metal ceramic prosthesis after three months of healing. Bone loss was measured using standard intra oral periapical radiograph which were taken periodically at six months and one year post operatively. The implant success were evaluated using International congress of oral implantology’s (ICOI) criteria, implant mobility index. Pain was assessed with visual analogue scale, and post-operative oral hygiene was evaluated using modified plaque index and
bleeding index. The overall satisfaction of the implant procedure was evaluated using a standard questionnaire.

**RESULTS:** Ten patients having partially edentulousness in either mandibular first or second molar area had replaced with twenty narrow diameter implant. The average mesio-distal length of the edentulous space is 12.5mm ± 1mm, average buccolingual width is 6.3mm ± 0.7mm. All 20 implants placed were of 3mm diameter and the length of the implant ranged from 10 mm to 13 mm depending on the available length. Post-operative crestal bone loss at six month follow up (T1) was 0.52± 0.13mm, 0.57± 0.12mm for mesial and distal implant. Post-operative crestal bone loss at 12 month follow up (T2) was 1.05± 0.20mm, 1.08±0.23mm for mesial and distal implant respectively. Comparison of crestal bone loss at 6 months and 12 months was done using paired t test and it was statistically significant( p value >0.05) for mesial and distal implant. Comparison of crestal bone loss between mesial and distal implants at 6 months and 12 months is not statistically significant (p value <0.05).These measurements were made with the help of intra oral periapical radiograph film. Soft tissue and hard tissue wound healing was good in all our patients except in two patients who had mild gingival hyperplasia over the healing abutment.

All the implants were successful as evaluated by ICOI criteria. 90% of all our patients had only mild or no pain at one year follow up. All our patients
had a score of $\leq 1$ in the modified plaque and bleeding index indicating good oral hygiene.

**CONCLUSION:** In our study all our mandibular molar tooth replaced with two narrow diameter supported implant prosthesis had 100% success rate, with good soft tissue and hard tissue healing and good oral hygiene maintenance at one year follow up. None of our patients had either implant fracture or abutment screw loosening or any other complications. Therefore, the use of two narrow diameter implants to replace a single molar is a logical treatment solution to avoid prosthodontic complications.

**KEYWORDS:**

Narrow diameter dental implant, Prosthetic complications, Bone loss, patient satisfaction