Posterior Mandibular Residual Resorption in Patients With Implant Overdentures Retained By Bar or Ball Attachments: 6 Years Prospective Comparative Study

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Abstract

Purpose: The aim of this study was to investigate posterior mandibular residual ridge resorption following the use of four endosseous implants either connected to ball attachments or splinted with a bar to retain complete mandibular overdentures over 6 years follow up period. Materials & methods: Fourteen completely edentulous male patients were divided into two equal groups, Group 1 (OD): Patients received a mandibular overdenture retained by four implants after attaching ball and socket attachment system. Group 2 (BOD): Patients received a mandibular overdenture retained by a bar connected to the four implants. Panoramic radiographs were obtained from all patients in both groups after stage two surgeries and 6 years later. Proportional area measurmnets were used to determine changes in mandibular posterior residual ridge in both groups. Calculations were performed by a computer program to calculate the change in posterior area index (PAI) for each patient from base line to 6 years. Results: there was a statistically significant difference in mandibular posterior residual ridge resorption between the two treatment protocols in favor of group 2. For group 1 (OD) the mean change in PAI was 0.088+-0.037, while group 2 (BOD) was 0.043+-0.035. Regression analysis revealed no correlation between PAI and initial mandibular ridge height, while age had a statistically significant effect on PAI. Conclusion: Bar retained mandibular overdentures appear to be associated with reduced posterior mandibular ridge resorption when compared to ball retained ones.

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