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Influence of attachment type on stress distribution in mandibular implant-retained overdentures

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Objective: The objective of this study was to evaluate the stresses transmitted to the supporting structures of implant retained mandibular overdenture with different types of attachment.

Materials & Methods: An acrylic model resembling the edentulous mandibular arch was manufactured with simulated mucosa covering the residual ridge. Two implants were installed in the canine region one on each side. Complete lower overdenture was constructed on the model. Three different types of attachments were used successively like ball and socket, magnet and bar/clip system. Eight strain gauges were attached to the lingual and labial/buccal aspects of the two implants and first molar area on the right and left side of the model. Microstrain readings were collected from the digital strain meter and statistically analyzed.

Results: When the load was applied anteriorly, there was significant difference between the three types of attachments regarding stress distributions (a) on the implants with the highest stresses produced by the bar/clip attachment, (b) on the first molars with the highest stresses produced by the magnet attachment. When the load was applied posteriorly, there was significant difference between the three types of attachments regarding stress distributions (a) on the implants (loaded and nonloaded) with the highest stresses produced by the bar/clip attachment, (b) on the first molars (loaded and nonloaded) with the highest stresses produced by the magnet attachment.

Biography

Ahmed Ibrahim Mahrous has been associated with Al-Farabi Colleges in Riyadh from KSA . Ahmed has published many articles to the credit and attended many international conferences.

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