

Digital radiographic evaluation of two designs of precision attachment partial denture. Cairo Dental Journal, 19 (1):1-11, January, 2003.

Abstract:

The decision to use either intracoronal or extracoronal attachment is usually based on the size and shape of the abutment. Intracoronal attachments create a rigid or movable connection between the teeth and the denture, an inquiry might be made about the effect that these different designs of attachments have on the health of the supporting structures. This study was carried out to investigate this specific point. Thirty partially edentulous female patients having completely dentulous upper arch and class II modification I Kennedy's classification lower arch were selected and randomly divided into three equal groups, ten patients each. The control group patients received lower skeleton partial dentures with the same design as the second group except that non-rigid intracoronal attachment was incorporated between the pontic and the major connector. The non-rigid group patients received lower skeleton partial dentures with the same design as the second group except that non-rigid intracoronal attachment was incorporated between the pontic and the major connector. The Digora system and an individually constructed radiographic acrylic template were used for making standardized digital images for all abutment teeth and the distal extension ridge area in all groups. Densitometric measurements were made using digital images at the beginning of the study period then at three, six, nine, and twelve months later, except of the distal extension edentulous area and bone height measurements which were recorded only at the beginning of the partial denture loading and at the end of the study period. The results showed an increase in the bone density of the abutments and residual ridge in all the studied groups, which can be considered as positive response to the applied force. Also, the recorded reduction in the marginal bone height mesial and distal to the abutments could not be interpreted as a pathological change but, it could be due to constant trauma to the distal gingival papillae of the second abutments as a result of movements allowed by the stress-breaking action of the resilient extracoronal attachment used in this study. In this study, tooth movement in the distal direction of both the first and second abutments was observed in the three groups. However, the control group demonstrated significantly greater movement of the second abutment than both attachment groups, which is most probably the result of the natural tendency of teeth to drift into edentulous spaces. It could be thus concluded that, the split-pontic design followed in this study was accepted from the patients' point of view.