Discussion

All experimental teeth restored with the IFP system offered a greater resistance under loading than the standard restorations. This probably resulted from the larger diameter of the IFPs, particularly at the cervical portion. The IFPs do not require additional preparation of the middle third of the tooth. Consequently, the post contains more glass fibers, offers increased resistance, and requires less cement. A smaller thickness of cement results in a more regular distribution of the occlusal loads and limits contraction of the resin cement during polymerization, thus reducing the consequent polymerization stress. The poorer adaptation of SFPs to the canal results in a lever arm that is proportional to the thickness of the cement used and transmits any tension to the root walls, thereby increasing the probability of failure.[2,4,5] The fractures in the teeth with IFPs were favorable in 70% of the cases because they were located in the cervical part of the tooth. In the specimens restored with SFPs, the fractures were located in the unfavorable apical part of the root.

Conclusion

Within the limitations of this experimental design, it can be suggested that the use of IFPs warrants longitudinal clinical trials to further analyze the results.

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Literature Abstract

Osteotome sinus floor elevation without grafting material: A 1-year prospective pilot study with ITI implants

The aim of this pilot study was to evaluate: *(1)* the predictability of an osteotome sinus floor elevation procedure with ITI-SLA implants without placing a bone grafting material, and *(2)* the possibility of gaining bone height without filling the created space with a bone grafting material. Seventeen patients received 25 implants protruding in the sinus. Most implants (21/25) were 10 mm long. Eight were inserted in type 2 bone, 12 in type 3, and 5 in type 4. At implant placement, the mean residual bone height (RBH) under the maxillary sinus was 5.4 ± 2.3 mm (5.7 ± 2.6 mm on the mesial side and 5.1 ± 1.9 mm on the distal side). Nineteen implants had less than 6 mm of bone on at least 1 side and 6 implants had less than 6 mm on both sides. A healing period of 3 to 4 months was allowed before abutment tightening at 35 Ncm. The percentage of stable implants at abutment tightening and at the 1-year control was calculated. The endosinus bone gain and crestal bone loss (CBL) at the mesial and distal sides were measured. Abutments were tightened after 3.1 ± 0.4 months. All implants except 1 (96%) resisted the applied 35 Ncm torque. At the 1-year control, all implants were clinically stable and supported the definitive prosthesis. All showed endosinus bone gain (mean, 2.5 ± 1.2 mm). The mean CBL was 1.2 ± 0.7 mm. Endosinus bone gain and RBH showed a strong negative correlation ($r = –0.78$ on the mesial side and -0.80 on the distal side). A good correlation ($r = 0.73$) was found between implant penetration in the sinus and endosinus bone gain. The authors concluded that elevation of the sinus membrane alone without addition of bone grafting material can lead to bone formation beyond the original limits of the sinus floor. Despite a limited RBH at implant placement, a healing period of 3 months was sufficient to resist a torque of 35 N cm and lead to a predictable implant function at the 1-year control.

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