Immediate loading of single-tooth implants in the posterior region.

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Abstract

PURPOSE: The aim of this study was to evaluate the clinical response and safety of immediately loaded single-tooth implants placed in the posterior region of the maxilla and mandible.

MATERIALS AND METHODS: Single-tooth implants were placed in healed extraction sites in 20 adult patients. Temporary pre-fabricated acrylic resin crowns were prepared and adjusted. The crown occlusion was adjusted to obtain minimal contacts in maximum intercuspation. After 6 weeks a ceramometal or all-ceramic crown was cemented. Radiographic and clinical examinations were made at baseline and at 3, 6, and 12 months. Cortical bone response and peri-implant mucosal responses were evaluated.

RESULTS: The marginal bone level at the time of implant placement was preserved. The mean change in marginal bone level was 0.01 mm at 12 months. The mean Periotest value after 360 days was -4. The peri-implant mucosal adaptation to the anatomic form of the provisional crown resulted in a natural esthetic outcome, and a gain in papilla length was observed. One implant failure was recorded because of provisional luting cement impaction.

DISCUSSION: Clinical research has shown that immediate loading is a possible treatment modality. The immediate functional loading of implants placed in this study resulted in bone adaptation to loading. A satisfactory success rate with positive tissue responses was achieved.

CONCLUSIONS: The results of this limited investigation indicated that immediate loading of unsplinted single-tooth implants in the posterior region may be a viable treatment option with an esthetic outcome.
Retention and leakage of implant-supported restorations luted with provisional cement: a pilot study.

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Abstract

Few data exist regarding cement failure load and marginal leakage of castings cemented to implant-supported abutments subjected to load and thermal cycling, especially with newer cements. This study evaluated the cement failure load and marginal leakage of castings cemented to Steri-Oss abutment/analog assemblies with one of seven luting protocols (n = 5). Protocols consisted of a zinc phosphate control, zinc phosphate with petroleum jelly, TempBond, TempBond NE, ImProv, ImProv with petroleum jelly and Provilink. Cemented castings were subjected to cyclic axial compression of 75 N for 100,000 cycles, 1000 thermal cycles (5-55 degrees C), and immersed 24 h in 0.5% basic fuchsin. The castings were then loaded in tension until cement failure. Cement failure load was analysed using anova and Fischer's PLSD (alpha = 0.05). Marginal leakage on the intaglio of the casting was scored with the unaided eye on a scale of 0-2, and analysed with Duncan's multiple range (alpha = 0.05). Similar groups are noted by superscript. Cement failure load (from lowest to highest): ImProv with petroleum jelly(a), TempBond(a), ImProv(a), Tempbond NE(a), Provilink(a), zinc phosphate with petroleum jelly(b), zinc phosphate(c) (P < 0.0001). Marginal leakage scores (from lowest to highest): ImProv(a), Provilink(a), ImProv with petroleum jelly(a), zinc phosphate(ab), zinc phosphate with petroleum jelly(ab), TempBond(bc), and TempBond NE(c) (P = 0.01). Addition of petroleum jelly to zinc phosphate lowered cement failure load without affecting marginal leakage. ImProv and Provilink demonstrated relatively low cement failure load, as well as lowest marginal leakage.
Peri-implant microflora of implants with cemented and screw retained suprastructures.

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Abstract

The aims of this study were to compare clinical and microbiological features in the peri-implant area of implants carrying either screw retained or cemented suprastructures, and to investigate the relationship between the peri-implant microflora, the microbiota on the inner surface of removable suprastructures, and the periodontal microflora within the same subject. In 15 partially edentulous patients with ITI implants used as abutments for crown and bridge reconstructions, microbial samples were taken i) from the deepest periodontal pocket of each quadrant, ii) from the sulcus of the implants and iii) from the internal surface of the screw retained suprastructures. The samples were cultured using continuous anaerobic techniques. Five patients were found with both screw retained (S) and cemented (C) suprastructures. In these subjects the mean total cultivable counts were significantly higher in peri-implant samples from group C than in samples from group S. Furthermore, peri-implant samples of group S yielded a higher proportion of coccoid cells in the darkfield microscope and demonstrated absence of large spirochetes. From the 15 patients, Porphyromas gingivalis was detected in 10% of the periodontal samples and in only one peri-implant sample. Prevotella intermedia was detected in 33% of the periodontal and in 30% of the peri-implant samples. Fusobacterium spp. had a prevalence of 58% in the periodontal samples and was recovered from 50% of the peri-implant samples. Actinobacillus actinomycetemcomitans was not detected in any dental or peri-implant sample. In 1 case, however, the organism was recovered from the internal surface of the suprastructure. Linear regression analysis showed a significant relationship between the frequency of microorganisms in peri-implant samples of group S and in samples from the inner surface of the suprastructure. Furthermore, there was a significant correlation between the incidence of micro-organisms in dental samples and i) in peri-implant samples of group S and ii) in samples from the internal suprastructure surface. These findings indicate, that the microbial leakage through the gap between the suprastructure and the abutment plays an important role in the bacterial colonization of the internal part of screw retained crowns and bridges. The study furthermore confirms the impact of the dental microflora on the microbial colonization of implants. This factor appears to be more important than the mode of fixation of the suprastructure.
Outcome of implant-supported single-tooth replacements performed by dental students. A 10-year clinical and radiographic retrospective study.

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Abstract

AIM: To evaluate the treatment outcome of implant-supported single-tooth replacements performed by dental students as part of their undergraduate dental curriculum after a mean follow-up period of 10 years (range: 7.5 to 12 years).

MATERIALS AND METHODS: A total of 51 patients were consecutively treated by dental students with 55 implants supporting single crowns. The treatment was performed under supervision of dentists and oral and maxillofacial surgeons, all with special knowledge about oral implantology. Survival of implant crown, survival of implant, probing depth, bleeding on probing and peri-implant marginal bone level change were evaluated at the end of the follow-up period. In addition, biological and technical complications during the entire follow-up period were assessed.

RESULTS: A total of 45 patients with 49 implants were available at the end of the study. The survival of the implant crowns as well as the implants was 94%. The mean probing depth at patient level was 4.8 mm. The probing depth varied between 2 and 10 mm at the individual site. The mean bleeding on probing score was 0.57 at patient level and absence of bleeding around all sites of the implants was rarely observed. The mean bone level change was -0.14 mm (range: 1.2 to -1.1 mm) during the first year of loading and 0.16 mm (range: 1.4 to -1.8) after 10 years at patient level. Five episodes of peri-implant inflammation due to excess cement were registered in five patients. Moreover, a fistula was observed at two implants in two patients. Finally, five technical complications occurred in five patients.

CONCLUSIONS: Implant-supported single-tooth replacements performed by dental students as part of their undergraduate dental curriculum were characterised by high survival rates as well as few biological and technical complications. It seems acceptable to include implant therapy in the clinical undergraduate dental curriculum, provided a focus remains on straightforward cases with substantial supervision by trained dentists and oral and maxillofacial surgeons.
Abstract

BACKGROUND: Cement-retained restorations are commonly used on dental implants. Residual excess cement after placement of fixed partial dentures has been associated with clinical and radiographic signs of peri-implant disease. The purpose of this study was to explore the relationship between excess dental cement and peri-implant disease using the dental endoscope.

METHODS: Thirty-nine consecutive patients with implants exhibiting clinical and/or radiographic signs of peri-implant disease were studied. Patients were enrolled in the study during a 5-year period in a private periodontal practice. Twelve of these patients had similar implants without signs of inflammation; these implants served as controls. There were 20 controls and 42 test implants. All were evaluated using a dental endoscope initially, and all but one implant was evaluated at a 30-day follow-up. Results from both groups were assessed by two trained operators and recorded.

RESULTS: None of the controls and all 42 of the test implants had clinical signs of peri-implant disease at initial treatment. Excess cement was found in none of the controls and 34 of the test sites. Thirty days after cement removal, 25 of 33 test sites from which the cement was removed had no clinical or endoscopic signs of inflammation.

CONCLUSIONS: Excess dental cement was associated with signs of peri-implant disease in the majority (81%) of the cases. Clinical and endoscopic signs of peri-implant disease were absent in 74% of the test implants after the removal of excess cement.

Abstract

Implant dentistry has developed predictable treatment outcomes. Nevertheless, there are multiple reasons for implant failure. This case report documents a previously unreported type of implant failure that occurred 1 month after crown cementation. The implant failure is believed to be associated with retained excess subgingival cement.
Cement removal from restorations luted to titanium abutments with simulated subgingival margins.

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Abstract

STATEMENT OF PROBLEM: The process of removing excess cement from subgingival margins after cementation of restorations to implant abutments may lead to scratching of the abutments or incomplete cement removal.

PURPOSE: The purpose of this study was to investigate and to compare the surfaces of abutments after the removal of three cements (glass ionomer, resin, and zinc phosphate) by use of three instruments (gold coated scaler, rigid plastic scaler, and stainless steel explorer).

MATERIAL AND METHODS: Six investigators removed zinc phosphate, glass ionomer, and resin cements with explorers, gold coated scalers, and rigid plastic scalers with a model simulating clinical conditions. The surface of Brånemark abutments with cemented restorations were examined with a microscope at 20x for scratches and cement remnants.

RESULTS: Statistical analysis of the results were inconclusive about which combination of instrument and cement worked most effectively.

CONCLUSION: A surprising amount of cement remnants and scratching of abutments was observed. Although the six investigators were experienced in prosthodontic and implant procedures, there was variation in the results of their cement removal.

Complications associated with excess cement around crowns on osseointegrated implants: a clinical report.

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Abstract

The potential advantages and disadvantages of cement-retained implant crowns are reviewed, with a focus on complications related to residual excess cement. A series of 4 case reports illustrates the symptoms and treatment modalities associated with excess cement around implant crowns, and suggestions are offered for the prevention of such problems.