

Follow Up Examination of Cement-Retained Implant Restorations by Perioscopy Technology

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Summary

BACKGROUND: Implant restorations can be screw-retained or cement-retained. Cement-retained prostheses have become a major restoration method to treat implant patients. Thereby the careful removal of excess cement may become a problematic procedure, particularly if margins of the restorations are subgingival.

The removal of cement residues may be a critical risk for peri-implant health, and cement residues may lead to peri-implant inflammation (peri-implant mucositis, peri-implantitis).

The dental endoscope DentalView DV2 (DentalView Inc., Lake Forest, CA, USA) was developed to facilitate visualization of the subgingival environment as an aid in diagnosis and non-surgical root debridement in periodontology.

In this context so far there is no information available from the literature, which examines the appearance of excess cement at implants, or DentalView DV2 and implants, respectively.

The aim of this study was to determine the existence of excess zinc phosphate cement in fixed partial dentures, and single crowns with subgingival margins.

METHODS: In a prospective study a total of 31 implants (based on 25 subjects) were examined by the DentalView DV2 endoscope. This included the assessment of parameters such as probing depths (ST), bleeding on probing (BOP), position of gingival margin (KM), and depth of subgingival margins of single crowns and fixed partial dentures. A total of 6 sites of implants were determined subgingivally: mesiobuccal, buccal, distobuccal, mesiolingual, lingual, and distolingual.

RESULTS: Cement remnants were observed in 60 % of the subjects and in 51.6 % of the implants, with 17.7 % subjected to the implant sites. Most cement remnants were identified distolingually (30.3 %) and distobuccally (24.2 %).

Further, diagnostics showed that predispositional sites of premolars are in buccal and distolingual position; and those of molars are located distobuccally and distolingually. In case of cement residues found the amount of BOP positive sites was determined at 54.5 %.

Analysis of mean pocket depths gained a mean value at $3.1 \text{ mm} \pm 1.2 \text{ mm}$; if cement remnants were present the mean pocket depth was $3.5 \text{ mm} \pm 1.3 \text{ mm}$.

CONCLUSION: This study demonstrated that dentists should be aware of potential problems when cementing restorations with subgingival margins. Clinicians may leave cement remnants which may result in a possible peri-implant inflammation.

Dental endoscope DentalView DV2 should be used to control the remove of cement from subgingival margins of single crowns and fixed partial dentures, especially in restorations with deep subgingival margins.