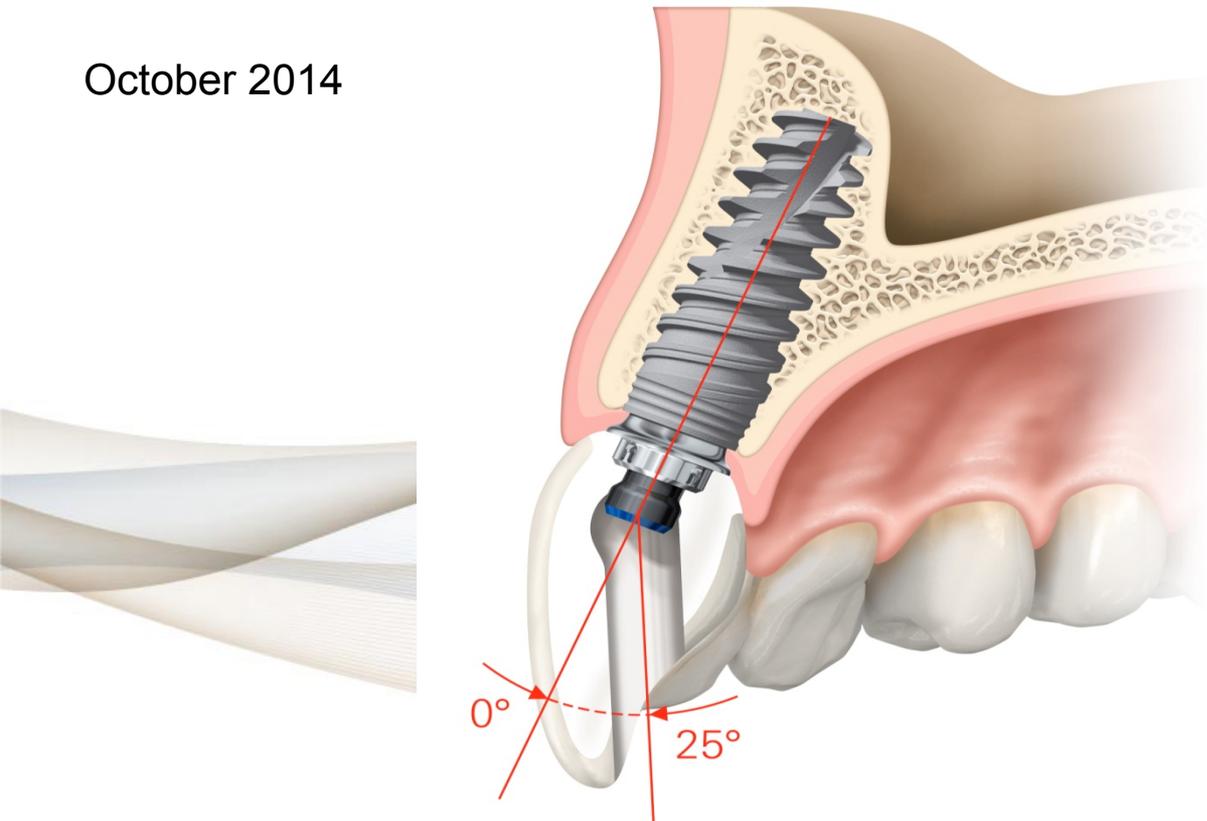


# NobelProcera<sup>®</sup> ASC Abutments

October 2014



# Common challenges experienced by clinicians when restoring dental implants



## **POSTERIOR CASE**

- Handling?
- Vertical space issue?
- Limit use of cement?
- Access to implant for maintenance?

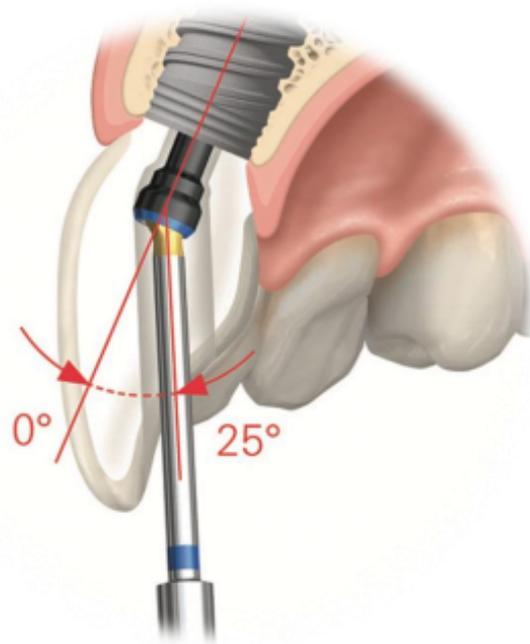
## **ANTERIOR CASE**

- Esthetics – position of screw access hole?
- Limit use of cement?



# Anterior challenge

For many anterior cases the screw access hole of the abutment needs to be covered by a cement-retained crown if an esthetic outcome is to be achieved.



- ✓ Esthetics - ability to place the screw access hole in a position that creates optimal esthetics.
- ✓ Cement-free - Intelligently designed mechanically retained adapter.



# Posterior challenge

- Secure handling and access with tooling in the posterior region is challenging when there is limited interocclusal (vertical) distance
- Occlusal function may be hindered due to position of screw access hole on screw-retained crowns
- Risk of leaving residual cement



Courtesy of S. Holst and P. Rutten

- ✓ Easy access to restoration - option to position screw access hole mesially
- ✓ Optimum occlusal function as screw access hole can be freely positioned
- ✓ Work easily with the pick-up function + securely hold the screw
- ✓ Cement-free: Intelligently designed mechanically retained adapter



# Example: clinical issues caused by excess cement

- Residual cement in the mucosal margin affects the patient's soft tissue
- Risks of soft-tissue hyperplasia or recession and may even lead to bone loss
- Even the most diligent of clinicians may miss residual sub-mucosal cement .

→ Clinicians are recommending to prescribe screw retained implant restorations over cement retained



# Example: clinical issues caused by excess cement

## Fewer complications

- Screw-retained solutions exhibit fewer technical and biological complications 7.50 vs. 9.81 per 100 life years. And, two-piece were lower than one-piece screw-retained\*.
- Frequency facts: Loss of retention occurred nine times more frequently, whereas abutment loosening nearly 4 times more frequently.\*\*

## Lower risk of peri-implantitis

- Excess cement was a factor in 81% of cases\*\*\*
- 3/4 of cases resolved upon cement-removal.
- peri-implant disease occurred as little as 4 months to 9 years after placement

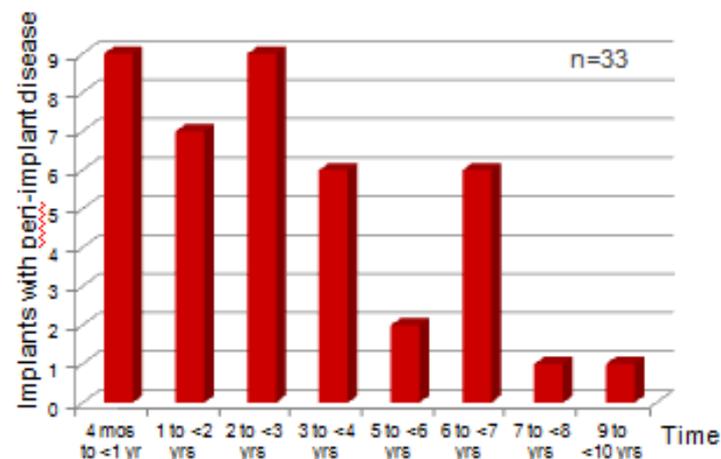


Figure 1: Time to peri-implant disease\*\*

\*: Wittneben J-G, Millen C, Bragger U. Clinical performance of screw vs cement-retained fixed implant-supported reconstructions – A systematic review. Int J Oral Maxillofac Implants. JOMI. 2014;29 Suppl:84-98

\*\*Cicciu M, Beretta M, Risitano G, Maiorana C. Cemented-retained vs screw-retained implant restorations: an investigation on 1939 dental implants. Minerva Stomatol. 2008;57(4):167-79.

\*\*\*: Wilson TG, Jr. The positive relationship between excess cement and peri-implant disease: a prospective clinical endoscopic study. J Periodontol. 2009;80(9):1388-92.

# NobelProcera® ASC Abutment

## Four key take-aways



1 Esthetic screw retained solution

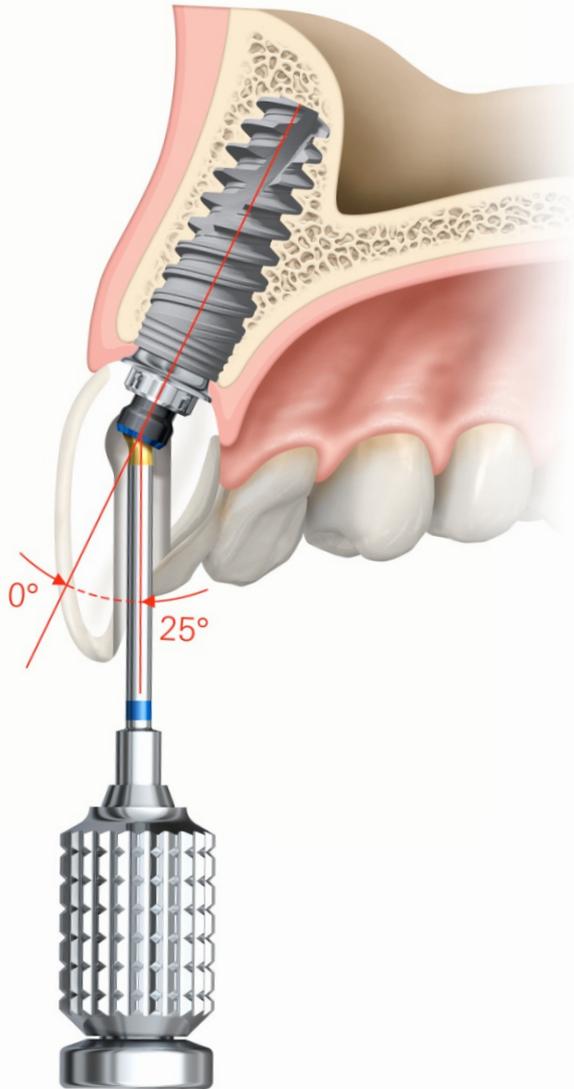
3 Easy to use  
Omnigrip Tooling

2 Predictable  
& completely  
cement free

4 For all indications  
in the mouth



# Choose where the access hole should be



## Anterior - “Esthetics”

- Ability to place the screw access hole in a position to achieve optimal esthetics (0 -25°)

## Posterior - “Access”

- Ability to place the screw access hole more mesially



# One restoration for anterior and posterior cases

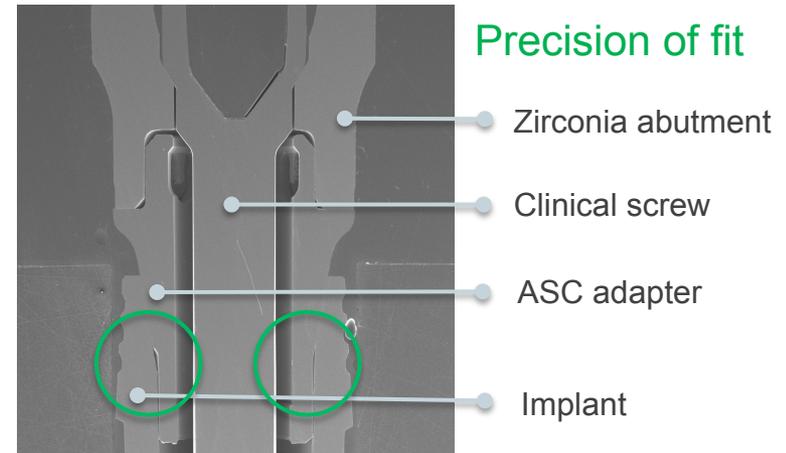
- Metal adapter interface now enables Conical Connection Zirconia abutments to be used in posterior region



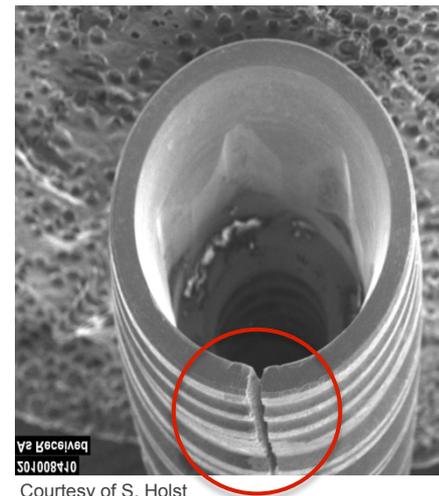
# Assure predictable restorative outcome with ASC designed as part of a system

Designed to avoid:

- implant and/or restoration fracture due to fatigue, to screw loosening or screw fracturing
- biological complications e.g. bone loss, bacterial penetration into the connection
- strain between implants for multi-unit restorations due to poor precision e.g. fracture of framework, screw loosening



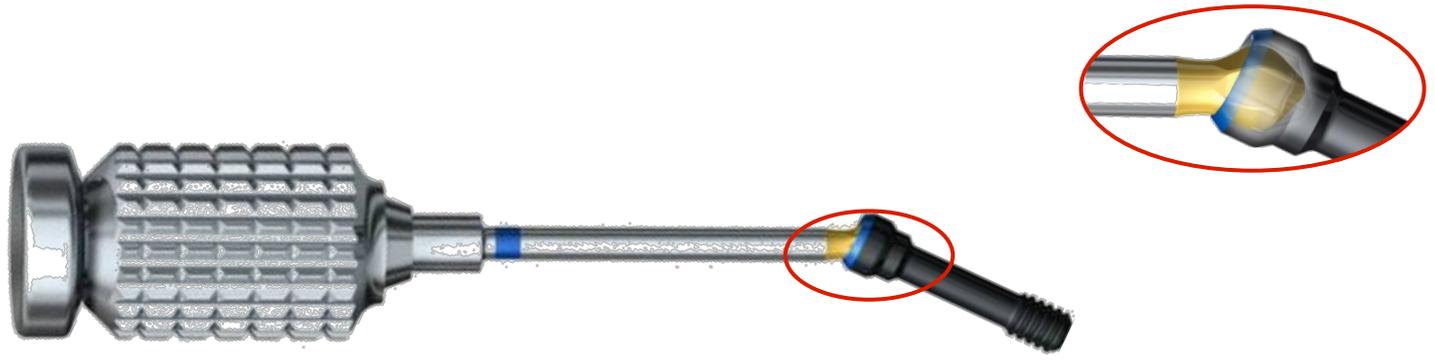
Source: Nobel Biocare 2014



Courtesy of S. Holst

Risks for patient when non-original components are used

# Offer efficiency to your clinicians



Omnigrip Tooling (screw + screwdriver) has a unique & patented connection allowing:

- Effective handling of the screw despite to the  $<25^\circ$  angulations
- Exceptional pick-up function of the screw

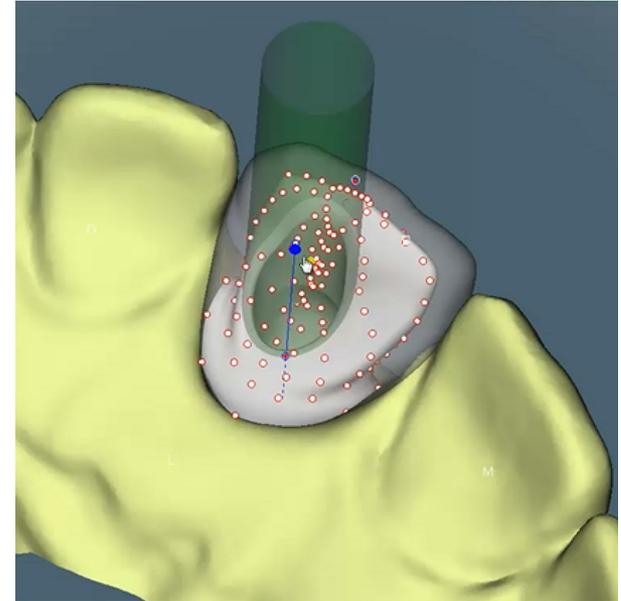


# Benefits of Screw Retained Restorations

1. Less clinical issues with cement-free restoration
2. High patient satisfaction with high esthetics and optimum occlusal function
3. Easy access to restoration - option to position screw access hole mesially
4. Low maintenance cost – remove, repair & re-tighten
5. Work efficiently with the pick-up function + securely hold the screw with Omnigrip
6. Predictable retention
7. Cost-effective (simple & fast protocol)



# How do you support it?



1. Readily available from your NobelProcera System (latest software release)
2. Efficient screw-retained design with cut-back function
3. Intuitive handling of the screw access hole position



Thank you very much

---



# How do you support NobelProcera ASC



## Omnigrip Screwdriver Machine



Omnigrip  
Screwdriver Machine  
35mm  
37382



Omnigrip  
Screwdriver Machine  
30mm  
37381



Omnigrip  
Screwdriver Machine  
25mm  
37380



Omnigrip  
Screwdriver Machine  
20mm  
37379

## Omnigrip Screwdriver Manual



Omnigrip  
Screwdriver Manual  
36mm  
37378



Omnigrip  
Screwdriver Manual  
28mm  
37377



Omnigrip  
Screwdriver Manual  
20mm  
37376

## Omnigrip Screws



Omnigrip Clinical  
Screw CC RP  
37368



Omnigrip Clinical  
Screw CC NP  
37367



Omnigrip Lab Screw  
CC RP  
37375



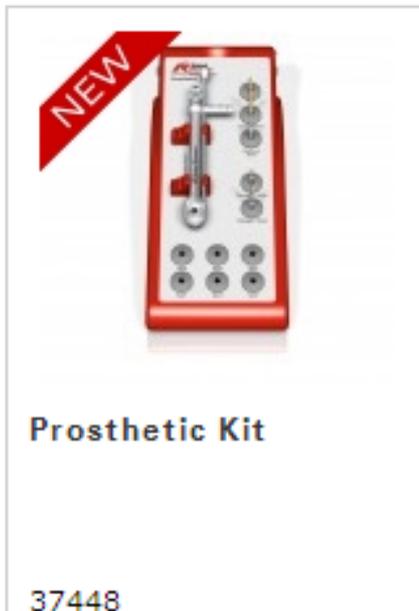
Omnigrip Lab Screw  
CC NP  
37374



# How do you support NobelProcera ASC



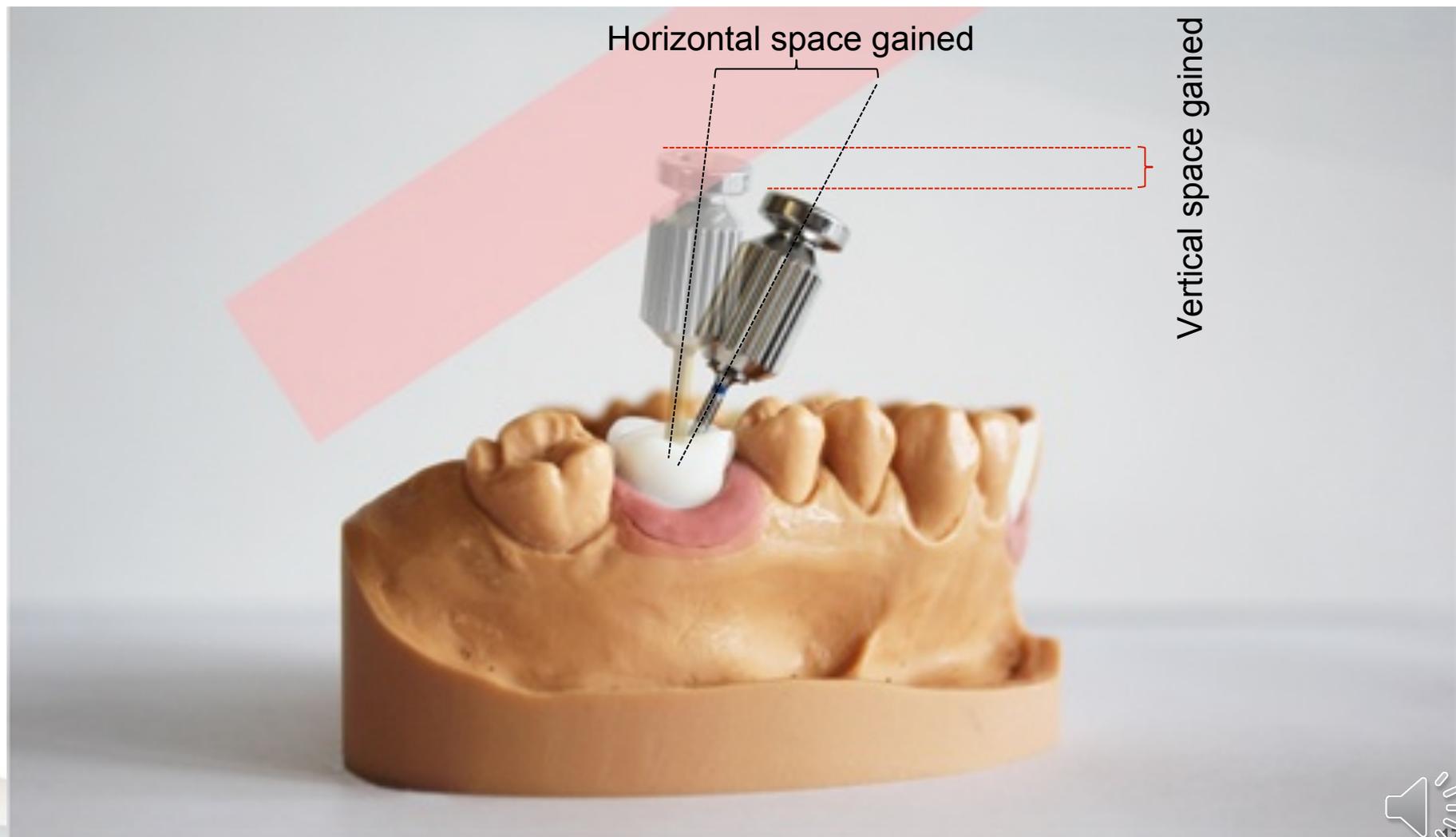
## Prosthetic Kit – includes Omnigrip Screwdriver



## Zirconia Abutment Rescue Instrumentation



# Better access for cases with limited vertical space



# The Positive Relationship Between Excess Cement and Peri-Implant Disease: A Prospective Clinical Endoscopic Study



By: Thomas G. Wilson Jr.\*

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.

## The Positive Relationship Between Excess Cement and Peri-Implant Disease: A Prospective Clinical Endoscopic Study

Thomas G. Wilson Jr.\*

**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. *J Periodontol* 2009;80:1388-1392.

### KEY WORDS

Dental cement; dental implants; endoscope.

\* Private practice, Dallas, TX.

Cemented implant prostheses have become popular as a result of their relative simplicity, elimination of prosthesis screw loosening, passivity of fit, improved esthetics, easier control of occlusion, and economy compared to screw-retained prostheses.<sup>1</sup> This simplicity comes with a price: the possibility of leaving excess cement on the implant or in the surrounding soft tissues,<sup>2</sup> which has been associated with peri-implant disease.<sup>3,4</sup> The most likely genesis of the problem is that this cement retains microbes, similar to those responsible for inflammatory periodontal diseases, and the rough surface of the cement inhibits the removal of the microorganisms, which can lead to peri-implant disease.<sup>5,7</sup>

The definition of peri-implant infections is confusing. In this article, the term "peri-implant disease" is used. This has been defined as "disease that affects the tissues associated with an oral implant and/or abutment. Bacteria play a major role in the etiology of peri-implant diseases, which can be restricted to soft tissue (mucositis) or progress to the supporting bone and induce its destruction (peri-implantitis)."<sup>8</sup> This study was designed to explore the relationship between retained cement, determined by dental endoscopy, and the clinical signs of peri-implant diseases.

doi: 10.1902/jpp.2009.090115

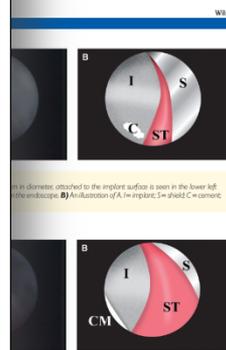


Figure 1. An implant seen in Figure 1 after cement removal. (A) An illustration of A. (B) An illustration of B. I = implant; S = soft tissue; CM = cement.

brown or yellow. A material assumed to be biofilm was gray/blue. Biofilm can be easily dislodged with an endoscope's explorer, whereas cement and calculus cannot. The subgingival deposits can be more easily identified using the moving images seen when an endoscope is used in a clinical setting compared to static screen grabs (Figs. 1 and 2). The device was used by individuals trained and experienced in its use. At least two individuals, the periodontist and a dental hygienist, confirmed the presence or absence of cement. If excess cement was found, its presence was recorded, and its removal was attempted using tried hand scalers as well as piezoelectric and ultrasonic mechanical devices while visualizing the cement with the dental endoscope. In three cases, a flap approach was necessary to accomplish cement removal.

The restorative dentist who cemented the restoration was contacted, and information on the type of cement used was recorded. This information was

Peri-implant disease was first diagnosed in the test implants loaded from 4 months to 9 years after cementation of the single-unit fixed partial dentures (Fig. 3).

### DISCUSSION

The majority of the tissues surrounding the implants (81%) in this study demonstrating signs of peri-implant disease had retained excess cement in the subgingival spaces. Additionally, the removal of the excess cement with a closed procedure using the dental endoscope or, when necessary, a surgical flap procedure eliminated signs of inflammation after 1 month in most (25 of 33) of the treated implants. This

### Table 1. Type of Cement and Number of Implants

Type of Cement	Test Implants (n)
Resin modified glass ionomer (two manufacturers)	27
Zinc polycarboxylates	7
Resin cement	4
Glass ionomer	1

There was no apparent relationship between the type of cement used and the presence of peri-implant disease. Information on the type of cement used was not available for three of the test implants.

### End and Diagnosis of Peri-Implant Disease



Figure 2. The percentage of test implants with peri-implant disease at different time points after cement removal.

to be used, alternative approaches can include abutments that raise the crown/abutment margin coronally or abutments offset internally in relation to the coronal margin of the implant shoulder. In all cemented cases, due diligence should be paid to removing all excess cement at the time of placement of the fixed partial denture. The delay in the appearance of peri-implant disease is particularly troubling and indicates that cemented implant prostheses should be evaluated periodically for peri-implant disease.

### ACKNOWLEDGMENTS

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# Cement-associated peri-implantitis: a retrospective clinical observational study of fixed implant-supported restorations using a methacrylate cement



## CLINICAL ORAL IMPLANTS RESEARCH

Michael Korsch  
Ulrsula Obst  
Winfried Walther

### Cement-associated peri-implantitis: a retrospective clinical observational study of fixed implant-supported restorations using a methacrylate cement

**Key words:** cement-retained dentures, excess cement, implants, peri-implantitis

**Abstract**

**Background:** Cement-retained fixed implant-supported restorations involve the risk of excess cement, which on an abutment post-implant. In connection with routine therapy using a methacrylate cement (Premier Implant Cement, Premier® Dental Products Company, Plymouth Meeting, PA, USA) to retain fixed implant-supported restorations, complications, that is, inflammation, were developed in some cases. After removing the superstructure and the abutment, residual excessive cement was found. For this reason, all implant-supported restorations that had been fixed with this type of methacrylate cement were re-evaluated and retreated. **Method:** In a retrospective clinical observational study including 71 patients with 126 implants, the findings made during retreatment were documented. In all cases, the superstructure and the abutment were removed. For inflammation, Temp Bond (Dentaur Dental Specialties, Washington, D.C., USA) was used. If no inflammation had developed, a follow-up appointment was scheduled 3–4 weeks later. **Results:** In 59.5% of the implants, cement residues were identified. Bleeding on probing was diagnosed at 80% of the implants with excess cement and suppuration at 21.3% of the implants. After removal of the excess cement and re-cementation with Temp Bond, a 76.9% reduction in bleeding on probing was found at follow-up. Suppuration was not found around any of the implants at follow-up.

**Author's affiliations:**  
Michael Korsch, Winfried Walther, Dental Academy for Continuing Professional Development, Karlsruhe, Germany  
Ulrsula Obst, Institute of Periodontics, Karlsruhe Institute of Technology (KIT), Karlsruhe, Germany

**Corresponding author:**  
Michael Korsch  
Dental Academy for Continuing Professional Development  
Sophienstrasse 39, 4, 76133 Karlsruhe, Germany  
Tel.: 0049 72191811000  
Fax: 0049 72191811002  
e-mail: michael.korsch@kit.edu

**Conclusion:** Excess cement left in the implant-neck interface caused bleeding on probing in most cases and suppuration in some. The removal of excess cement after cementation should be given high priority. In this retrospective observational study, an unusually high number of implants with excess cement after cementation was found with the methacrylate cement applied in the study.

Compared with cement-retained restorations, screw-retained restorations on implants proved a better marginal fit (Korsch et al. 1999; Gschler et al. 2000) and, in addition, are easier to remove. A disadvantage is the risk of screw loosening (Michalski et al. 2003). In contrast, however, in the wider marginal gap between the abutment and the restoration, which favours bacterial colonisation (Quintan & van't Hof-Grootenboer 1998). Besides, compared to screw-retained restorations, cemented restorations are more difficult to remove after cementation (Michalski et al. 2003).

Another very significant risk when inserting cement-retained restorations is the excess cement that might be left in the post-implant soft tissue (Paukert et al. 1999). Several authors have dealt with this complication (Capels et al. 2004; Callan & Cook 2009).

**Table 1 Material composition of Premier Implant Cement**

Component	Material
Matrix	Polymethylmethacrylate
Filler	Polymethylmethacrylate
Initiator	Alkylamine
Stabilizer	Alkylamine
Colorant	Alkylamine



At the end of April 2009 to February 2010, 102 patients were treated with fixed, implant-retained conventional restorations in the outpatient department of the Karlsruhe Dental Academy for Continuing Professional Development. In the process, 108 crowns were placed on implants. The position of the abutment should be placed as planned, appressed and usually, directly and vertically orthogonal, not deeper than 1.5 mm. In all cases, a methacrylate cement was used for fixing the superstructure to the implant. The methacrylate cement used was a temporary 2-component cement consisting of a carrier and a base material (Table 1).

The cement was applied as recommended by the manufacturer. The protocol for the cementation of implant-cemented crowns in the Karlsruhe Dental Academy for Continuing Professional Development was recorded and applied by every clinician. The crowns were not fixed completely with cement, because the clinical indication of the crowns was varied with cement using a brush. After cementation of the superstructure, any excess cement possibly left in the tissue was removed. In all fixed implant-retained restorations, the cement was removed. The cement was removed by the dentist in the post-implant soft tissue (Paukert et al. 1999). Several authors have dealt with this complication (Capels et al. 2004; Callan & Cook 2009).

## By: Korsch, Obst & Walther

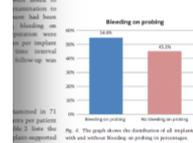
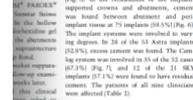
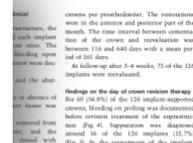
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**Findings on the day of crown reinsertion therapy for 64.8% of the 126 implant-retained crowns.** Bleeding on probing was documented before removal of the superstructure (Fig. 4). In the assessment of the implant-supported crown and abutment, cement was found between abutment and post-implant tissue at 75 implants (59.5%) (Fig. 6). The implant systems were involved in varying degrees. In 20 of the 51 Astra implants (39.2%), excess cement was found. The Ceram implant system was found in 12 of the 12 CER implant systems (100%).

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# Conclusion

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- Thank you for your attention

- [info@dentistbraincandy.com](mailto:info@dentistbraincandy.com) (Bryan McLelland)

- [nickgrishin@hotmail.com](mailto:nickgrishin@hotmail.com) (Nick Grishin)

[www.dentistbraincandy.com](http://www.dentistbraincandy.com)

