

Differences in intra- and periimplant biospectrum comparing conical vs. tube in tube connection. First data of a randomised, prospective, in vitro studie using Camlog and Conlog implants

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Objectives

Many authors have postulated that a conical implant-abutment connection is superior to other connection geometries in terms of micro leakage and its consequences. The purpose of this prospective, in vivo, split mouth study was to compare the Implant-Abutment interface of 80 implants over a period of 24 month. We compared the Tube in Tube Camlog connection vs. the conical Conelog connection in terms of technical and biological differences. To exclude most of the bias factors associated with an in vivo study we designed a clinical setup that delivers the highest possible homogenous microclimate around the implants for reproducible and comparable data.

Materials and Method

Our study setup was chosen to gain detailed information on technical as well as biological differences and their consequences of the two connection geometries.

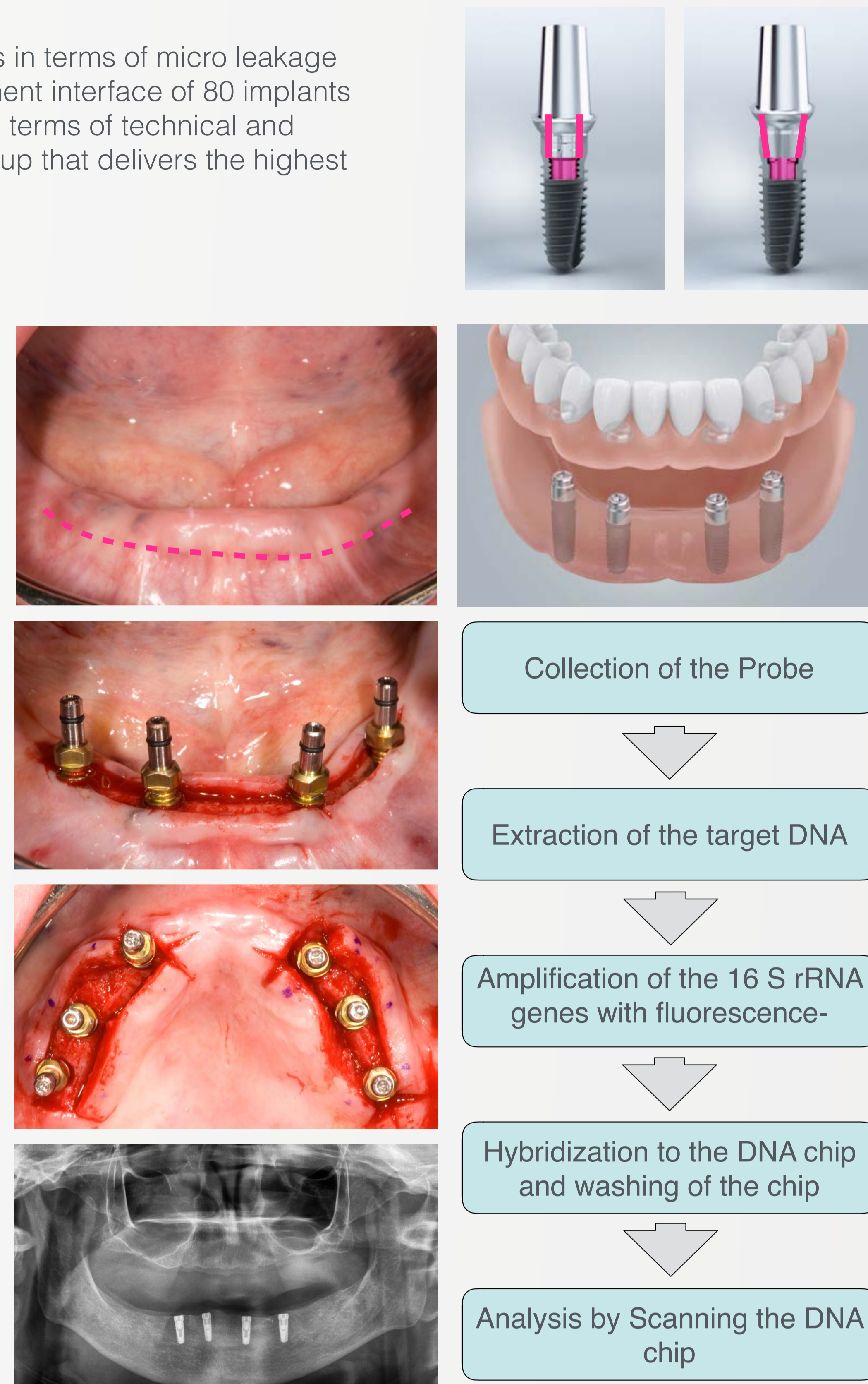
Study Set Up

- Edentulous patients matching the inclusion criteria are included in the present study
- Pre operative to the implant treatment the OHIP-14 score is documented.
- 80 Implants (40 Camlog 3,8mm and 40 Conelog 3,8mm) are placed in edentulous upper and lower jaws and are treated with a Locator fixed full denture.
- A minimum of two Implants are placed and randomly divided alternately in Camlog 3,8mm and Conelog 3,8mm Implants.
- After a healing period of 4 month the Implants are loaded with a Locator Abutment and connected to the full denture.
- 6 month after the functional loading the Mombelli bleeding index and the OHIP-14 score is documented to be compared to the pre operative score.
- 12 month after the functional loading the bleeding index is evaluated.
- 18 month after the functional loading biological probes are collected (1) from the periimplant sulcus and (2) from within the inner geometry of the implant after unscrewing the Locator abutment. 20 different pathogens bacteria specimens were evaluated.
- 24 month after the functional loading, radiological comparison of the peri implant bone level and bleeding index

Technical complications such as Abutment loosening, mechanical wear of the matrices and fractures of any prosthetic parts were evaluated during the recall appointments.

Study Design and Status 2016

Pre operative	6 mo post loading	12 mo post loading	18 mo post loading	24 mo post loading
OHIP-14	OHIP-14	bleeding index	biological probes	radiological contr.
	bleeding index	tech. complications	tech. complications	tech. complications
				bleeding index
80 Implants	n 52 Implants	n 24 Implants	n 8 Implants	n 0 Implants
	ongoing	ongoing	ongoing	ongoing



Specimen Analysis using DNA chips and Polymerase Chain Reaction

20 different Bacteria specimen were tested duringg this study. The principle is based on the detection of the pathogenspecific 16S rRNA gene. From the intraoral probe taken, the bacterial DNA is extracted. A DNA fragment of about 300 nucleotides, is amplified in the presence of a pair of primers with the a polymerase chain reaction. Single stranded DNA fragments are than formed and labeled with a fluorescence Cy5 primer. After hybridization, analysis can be performed with a microarray scanner. For detection, a wavelength of ~532 nm (Cy3) and ~635 nm (Cy5) is used.

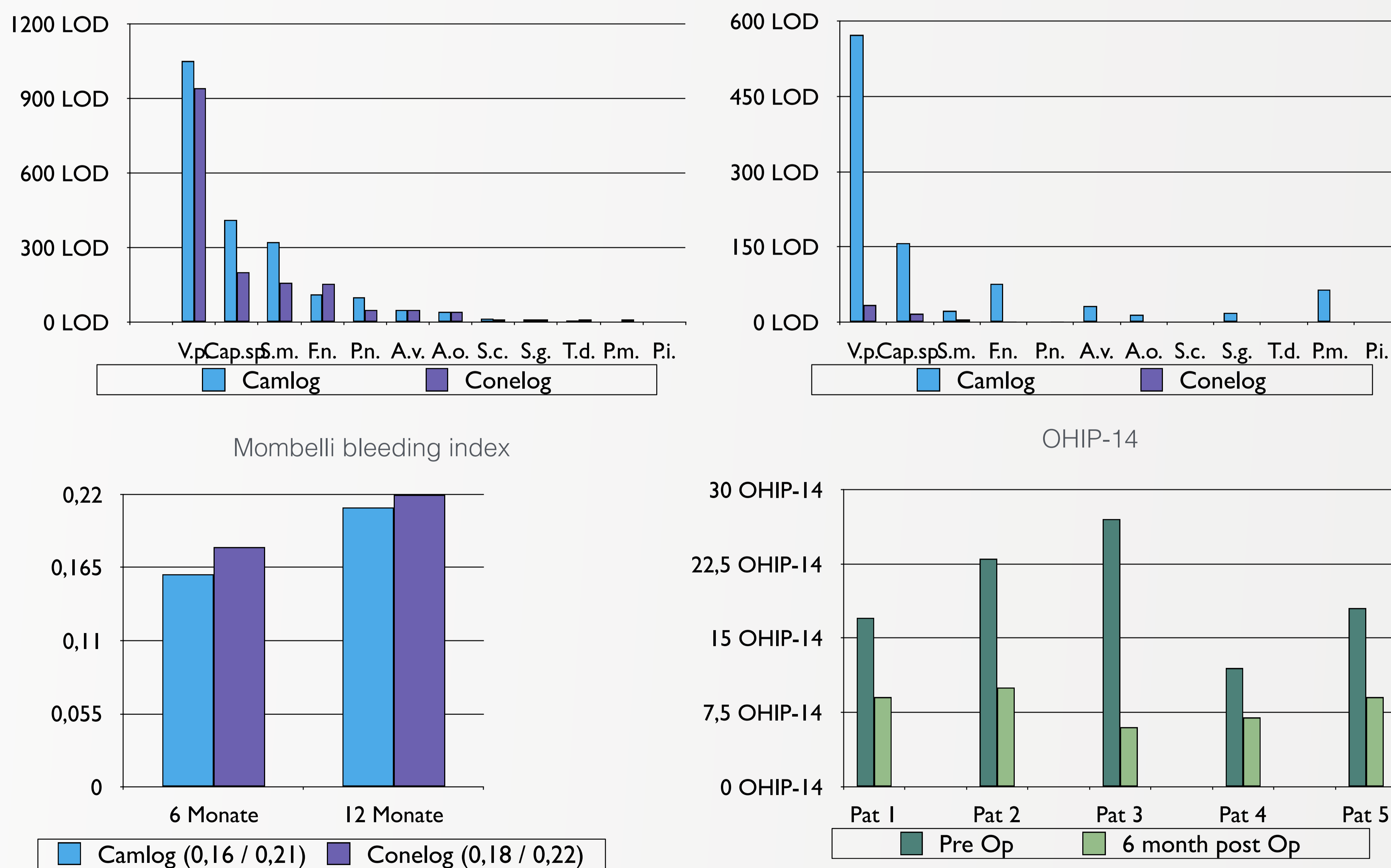
In the present study the Parocheck 20® by Greiner Bio-One GmbH Austria is used.

Specimen tested:

Actinobacillus actinomycetemcomitans, Actinomyces viscosus, Actinomyces odontolyticus, Tannerella forsythia, Campylobacter concisus, Campylobacter gracilis, Campylobacter rectus, Capnocytophaga sputigena, Eikenella corrodens, Eubacterium nodatum, Fusobacterium nucleatum, Peptostreptococcus micros, Porphyromonas gingivalis, Prevotella intermedia, Prevotella nigrescens, Streptococcus constellatus group, Streptococcus gordonii group, Streptococcus mitis group, Treponema denticola, Veillonella parvula

Results

The Data evaluated up to this point shows a significant difference in the peri- and intra implant Bacterial load. xxxxxxx



- Camlog vs. Conelog
- 0 fractures
 - 0 fractures
 - 0 loosening matrices
 - 0 loosening matrices
 - 1 changing matrices
 - 2 changing matrices
 - 3 abutment loosening
 - 0 abutment loosening

Conclusion

Within the first data collected in this study there seems to be a clear correlation between the connection geometry and the bacterial load around and inside the implants.

J Clin Microbiol. 1998 Jun;36(11):157-60. Detection of Porphyromonas gingivalis from saliva by PCR by using a simple sample-processing method. Matto J, Saarela M, Alaluuska S, Oja V, Jousimies-Somer H, Aiskanen S.