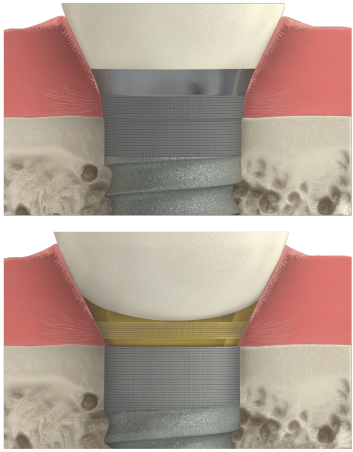




# CLINICAL, RADIOGRAPHIC, AND BIOCHEMICAL EVALUATION OF ONE-PIECE VS TWO-PIECE SINGLE IMPLANTS AFTER 5 YEARS OF FUNCTIONAL LOADING

Ippolito Caputo<sup>1</sup>, Francesco Pagnoni<sup>1</sup>, Rosemary Abbagnale<sup>1</sup>, Chiara Bramucci<sup>1</sup>, Alessio Zanza<sup>1</sup>, Rodolfo Reda<sup>1</sup>, Luca Testarelli<sup>1</sup>

<sup>1</sup>Department of Oral and Maxillo-Facial sciences, “La Sapienza” University of Rome, Italy



## AIM:

To compare the clinical and radiographic conditions and the expression of proinflammatory cytokines in peri-implant crevicular fluid (PICF) at two-piece/bone level (TP/BL) versus one-piece/tissue level (OP/TL) single implants with a laser-microgrooved collar after at least 5 years of loading.

## MATERIALS AND METHODS:

In total, 20 single TP/BL implants and 20 contralateral OP/TL implants, both with a laser-microgrooved collar surface, in 20 systemically and periodontally healthy subjects (12 males and 8 females, between the age of 36 and 64), were examined. Levels of IL-1 $\beta$ , IL-1RA, IL-6, IL-8, IL-17, b-FGF, G-CSF, GM-CSF, IFN, MIP-1 $\beta$ , TNF- $\alpha$ , and VEGF were assessed in PICF using the Bio-Plex 200 Suspension Array System. Plaque index (PI), probing depth (PD), bleeding on probing (BOP), and gingival recession (REC) were recorded. Radiographic crestal bone levels (CBL) were assessed at the mesial and distal aspects of the implant sites.

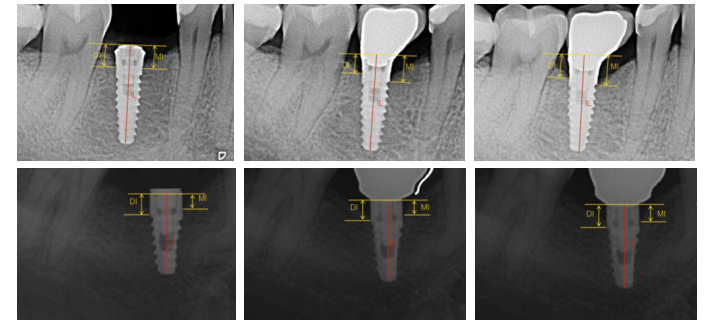
## RESULTS:

The mean PI, PD, BOP, and REC values had no significant differences in either group. A higher mean value of CBL with statistical difference was detected for TP/BL compared with OP/TL implants. The levels of IL-1 $\beta$ , IL-6, IL-8, GM-CSF, and MIP-1 $\beta$  and TNF- $\alpha$  were higher at TP/BL implants than at OP/TL implants. However, only IL-1 $\beta$ , IL-6, and TNF- $\alpha$  values presented significant differences between the groups.

## CONCLUSIONS:

This study, with split-mouth design, permitted an intra-individual comparison of clinical parameters (GI, PI, PD, BOP, and REC), radiographic CBL, and several biochemical parameters (IL-1 $\beta$ , IL-1RA, IL-6, IL-8, IL17, b-FGF, G-CSF, GM-CSF, IFN, MIP-1 $\beta$ , TNF- $\alpha$ , and VEGF) at TP/BL and OP/TL implants supported single metal-ceramic screwed crowns. Although after 5 years of loading single TP/BL and OP/TL implants with a laser-microgrooved collar surface presented similar good clinical conditions, a higher proinflammatory state and higher crestal bone loss were detected for TP/BL implants.

	TP/BL	OP/TL	<i>p</i> difference	<i>r</i>	<i>p</i> correlation
<b>TNF-<math>\alpha</math></b>	43.4 (18.9)	15.3 (10.1)	0.007	0.556	0.011
<b>IL-1<math>\beta</math></b>	435.8 (502.3)	326.5 (370.4)	0.018	0.516	0.007
<b>IL-6</b>	8.2 (2.1)	3.8 (2.4)	0.009	0.577	0.012



References