



The Effect of Periodontal and Peri-Implant Disease on Gingival Crevicular Fluid and Peri-Implant Sulcus Fluid: A Cross Sectional, Pilot Study

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Objective:

Periodontal and peri-implant diseases are similar and can result in the destruction of supporting tissues. Although clinical indexes and radiological examinations are the standardized method of diagnosis, the literature is concerned with the diagnostic potential of gingival crevicular fluid (GCF) and peri-implant sulcus fluid (PISF). This cross-sectional study aimed to evaluate the effect of periodontal healthy and diseased conditions on the volume of GCF and PISF.

Material and Methods:

Study group:

n=40 patients / n=159 sites (80 implants /79 teeth)

- 26 periodontally healthy (H)
- 27 gingivitis (G)
- 26 periodontitis (P)
- 26 healthy implants (HI)
- 27 peri-implanter mucositis (PM)
- 27 peri-implantitis (PI)

Inclusion criteria

- For healthy teeth and implants “absence of bone loss around the teeth or implant and bleeding on probing (BOP)(-)”
- For peri-implantitis, “radiologic bone loss (RBL)>1 mm around the implant and BOP(+)”
- For peri-implant “mucositis RBL<1 mm around the implant and BOP(+)”
- For gingivitis “no RBL and attachment loss, and BOP(+)”
- For periodontitis “attachment loss and BOP(+)”

Clinical recordings:

- ✓ Periodontal pocket depth (PPD)
 - ✓ Gingival index (GI)
 - ✓ Plaque index (PI)
 - ✓ Clinical attachment level (CAL)
 - ✓ Radiologic bone loss (RBL)
- One intraexaminer calibrated clinician (H.G.), kappa values were 0.96 (PPD), 0.86 (CAL), 0.93 (RBL) and 0.88 (GI, PI).

GCF and PISF Samples

- ❖ Collected from the mesiobuccal or distobuccal regions of the single-rooted tooth /or bone level implant
- ❖ Measured in a PERIOTRON 8000 device and the results were converted into volume by using MSCONVERT software.

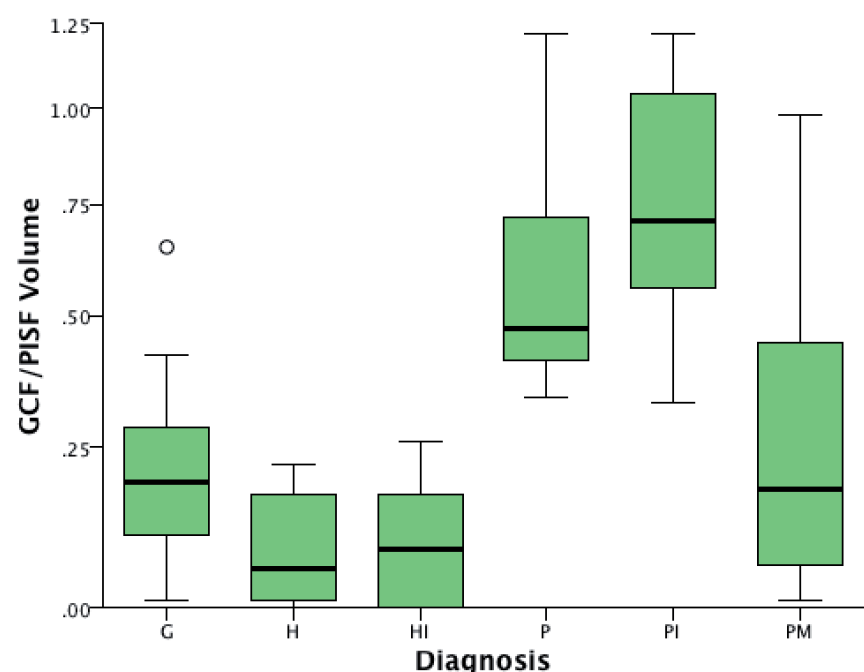
Statistical analysis:

- ❖ SPSS v24
- ❖ Mann-Whitney-U test
- ❖ Spearman correlations

Results and Discussion

Although we found a statistically significant difference between the G and P, PM and PI, H and P, and HI and PI groups ($p<0.005$), no statistically significant difference was found between the HI and PM, and H and G groups ($p>0.005$).

GCF PISF Volume (μL)		
	Mean	Std. Deviation
G	.2059	.14793
H	.0857	.08847
HI	.0974	.09714
P	.5820	.24802
PI	.7876	.29609
PM	.2732	.25535



Conclusion

- ❖ Despite the limitations of our study, it can be said that GCF volume increases in the presence of periodontal and peri-implant disease especially in patients with periodontitis and peri-implantitis, and that PISF and GCF can be used in addition to radiological examinations during the differential diagnosis of peri-implant diseases.
- ❖ In future studies, effort should be made to verify the presence of a volumetric threshold value and assess its consistency among different sites.

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- This clinical trial was approved by the local ethics committee of the University of Gaziantep and all participants were given information about the research, and oral and written informed consent was obtained from all participants.