3 mm

MINIMAL CONTACT POINT TO CREST DISTANCE SUGGESTED FOR FULL PAPILLA DEVELOPMENT BETWEEN CONTIGUOUS IMPLANT FIXTURES: A PROSPECTIVE CLINICAL STUDY ON PLATFORM SWITCHED IMPLANTS

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OBJECTIVES

To evaluate the influence of the inter-implant distance (IID) and the contact point to bone crest distance (CPB) on inter-implant bone resorption and peri-implant soft tissues stability, when adjacent platform switched implants are placed in the posterior maxilla and mandible.

MATERIALS AND METHODS

Eighty-nine implants (OsseoSpeedTM, Astra Tech Implant SystemTM, Dentsply IH S.r.l.) were placed in the posterior maxilla and mandible without any bone regeneration and loaded with a conventional protocol (after 3 to 6 months). Fourty-nine inter-implant sites were clinically and radiographically evaluated at follow-up recalls. Of these: 24 spaces presented an inter-implant distance (IID) below 3 mm (group A) and 25 above 3 mm (group B) at a mean follow-up of 17.8 months after prosthetic finalization.

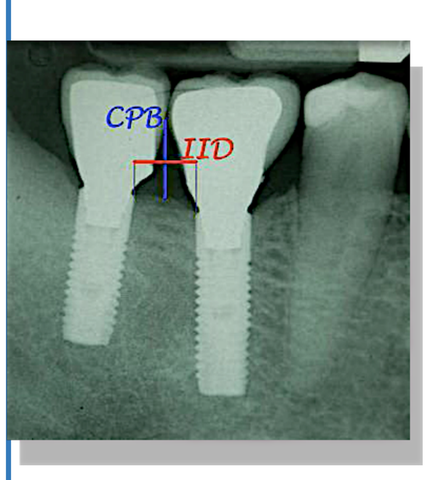
	GROUP A IID ⩽ 3	GROUP B IID > 3	TOT
Jemt 0	2	0	2
Jemt 1	7	8	15
Jemt 2	7	10	17
Jemt 3	8	7	15
Jemt 4	0	0	0
TOT	24	25	49

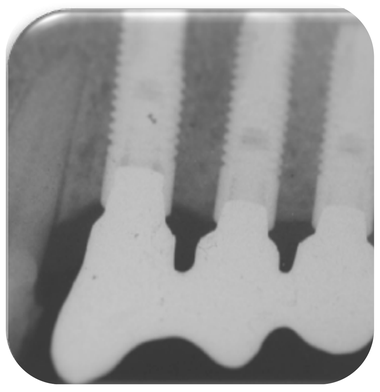
Image 1

	3 - 4.5 mm			>4.5 mm				
	3 - 3.5	3.5 - 4	4 - 4.5	4.5 - 5	5 - 6	6- 7	> 7	TOT
Jemt 0	0	0	0	0	1	1	0	2
Jemt 1	2	0	2	3	2	1	4	14
Jemt 2	1	2	1	2	5	3	3	17
Jemt 3	6	3	5	1	0	1	0	16
Jemt 4	0	0	0	0	0	0	0	0
TOT	9	5	8	6	8	6	7	49
	22			27				

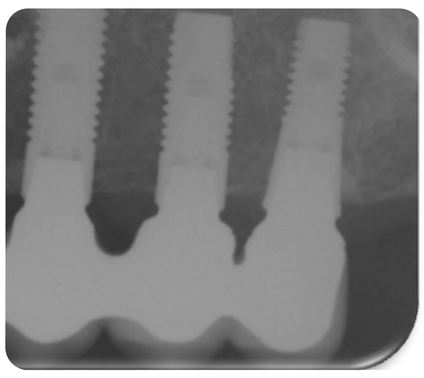
Image 2

GROUP A - IID < 3 mm





GROUP A - IID < 3 mm



	IID ⩽ 3 mm	IID > 3 mm
Range	-0.33 / -0.77	-0.28 / -0.80
Media	-0.44	-0.45
SD	17	0.17

Image 3

RESULTS

Implant survival and success rates were respectively 100.00% and 97.76% according to the Albrektsson et al. criteria. The mean inter-implant bone resorption was 0.44 mm in group A (IID ⩽ 3 mm) and 0.45 mm in group B (IID > 3 mm). Complete papilla formation occurred in 37.5% of cases from group A (n=9/24) and in 28.0% of cases from group B (n=7/25). In 87.5% of the full papilla formation cases (14 out of 16) the contact point to bone crest distance (CPB) varied between 3.0 to 4.5 mm.

CONCLUSION

Results from this study suggest that a minimal IID of 3mm might promote the development of healthy inter-implant soft tissues but does not appear to be influential on the inter-implant bone resorption rate. In addition, a significant correlation between the development of a full papilla and the presence of a 3.0 to 4.5 mm CPB was observed.

References

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2. Hermann, J.S., Cochran, D.L., Nummikoski, P.V. & Buser, D. (1997) Crestal bone changes around ti- tanium implants. A radiographic evaluation of unloaded nonsubmerged and submerged implants in the canine mandible. Journal of Periodontology 68: 1117 – 1130.
3. Elian N, Jalbout ZN, Cho SC, Froum S, Tarnow DP. Realities and limitations in the management of the interdental papilla between implants: three case reports. Pract Proced Aesthet Dent. 2003 Nov-Dec;15(10): 737-44;