

Effect of plaque accumulation and occlusal overload on peri-implant bone loss. A case report.

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Aim

The present case report describes the effect of plaque accumulation and occlusal overload on peri-implant bone loss and implant failure.

Methods

A 43-year-old male patient came for consultation because of crown loss on one implant (Winsix 3.8 x 11 mm) at the level of the left first molar in the mandible. The clinical and radiographic examination revealed severe peri-implant bone loss and gingival inflammation associated with poor oral hygiene (Figure 1). The patient had an Angle class type II and no history of clenching. Although the implant was considered failed, it was stable, so the decision was taken not to remove it. The patient was followed-up for 2 years, and the bone level was evaluated over time. Periapical x-rays, plaque index (PI), bleeding on probing (BOP) and probing depth (PD) were recorded at baseline (T0) and after 6 (T6) and 12 months (T12). After 12 months, the extractions of teeth 45, 46, 47 were performed due to destructive caries, and a provisional screw-retained composite crown was realized on the implant (site 36) in order to improve mastication (Figure 2-4). During the 2-year follow-up, professional oral hygiene sessions were performed every 6 months, and the patient received instructions for home dental care, but his compliance was very low. Six months after loading, the patient came to the Dental Department because of implant mobility, pain and suppuration at the implant level. The implant was removed (Figure 5-9).

Results

During the entire follow-up period, the patient presented a PI and BOP of 100% at the level of the implant site. Both at T0 and T12, the mean PD and mean peri-implant bone level next to the implant were 7 mm and 6 mm respectively, and 8.6 mm and 7 mm at T18 respectively (Graphic 1). At T24 suppuration, pain and implant mobility appeared.

Conclusion

In the present case report, the dental implant remained stable as long as the implant was not loaded, although a 100% PI was present. In contrast, as soon as an occlusal load was applied, peri-implant bone loss and implant failure occurred. Clinical trials based on a greater number of patients are needed to validate the present outcomes.

References

1. Pesce P, Menini M, Tealdo T, Bevilacqua M., Pera F., Pera P. Peri-implantitis: a systematic review of recently published papers. *Int J Prosthodont* 2014, 27, pp. 15-25.
2. Naert I., Duyck J., Vandamme K. Occlusal overload and bone/implant loss. *Clin Oral Implants Res* 2012, 23, pp. 95-107.
3. Chambrone L, Chambrone L.A., Lima L.A. Effects of occlusal overload on peri-implant tissue health: a systematic review of animal-model studies. *J Periodontol* 2010, 81, pp. 1367-1378.
4. Chang M., Chronopoulos V., Mattheos N. Impact of excessive occlusal load on successfully-osteointegrated dental implants: a literary review. *J Invest Clin Dent* 2013, 4, pp. 142-150.



Fig. 1 OPT realized at T0.



Fig. 2 Radiographic check after 6 months (T6).



Fig. 3 Polyether impression for provisional screw retained crown.



Fig. 4 Radiographic check after crown delivery (T16).



Fig. 5 Radiographic check after 2 months of loading (T18).



Fig. 6 Radiographic check after 6 months of loading (T24).



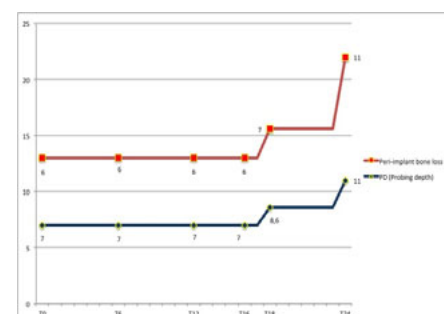
Fig. 7 Occlusal view before implant removal.



Fig. 8. Radiographic check after the extraction.



Fig. 9 The removed implant.



Graphic 1. Peri-implant bone resorption and probing depth (PD) during the follow-up.