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Study:



Peri-implantitis – onset and pattern of progression

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Relevant background to study:

Although the epidemiology and histopathology of peri-implantitis have been the subject of extensive research, the onset and pattern of progression have not been thoroughly investigated until now.

Study aims:

The aim of the present study was to retrospectively analyse the starting point and overall amount of peri-implant marginal bone loss in patients with existing peri-implantitis nine years after implant placement.

Methods:

Out of a randomly selected sample of 2,765 patients from the Swedish Social Insurance Agency, 596 individuals who attended the nine-year follow-up were selected. Peri-implantitis was defined as bleeding on probing and >2 mm of radiographic bone loss since delivery of restoration. Fifty-three patients with 105 implants with peri-implantitis with baseline as well as follow-up radiographs were included.

The data analysis was based on recorded continuous variables and performed by building a curved relation growth model. The point of onset of peri-implantitis was calculated by analysing the cumulative percentage of implants showing various amounts of bone loss for each year.

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Results:

A mean of 4.1 radiographs were taken per implant and the mean bone loss accumulated to 3.5 ± 1.5 mm after nine years. The mean annual bone loss was 0.38 mm and was estimated to increase over time. Depending on the definition of the onset of

peri-implantitis (0.5 or 1.0 mm of radiographic bone loss) at year three, a respective 66% or 47% of the implants and 81% or 57% of the subjects presented with peri-implantitis.

**Limitations,
conclusions
and impact:**



Limitations:

The onset of peri-implantitis in this study was based solely on radiographic signs of marginal bone loss, and therefore the presence/absence of inflammation at the time of onset was lacking.

Patients were not enrolled in a standardised maintenance programme and therefore might have had different benefits from supportive care.

The reasons for tooth loss and implant placement were not reported. The data presented cannot be related to pre-existing periodontitis or other risk factors for peri-implantitis.

Conclusions:

Peri-implantitis shows a progressive pattern of bone loss and detectable bone loss occurs in most cases within the first three years after implant loading.

Impact:

The first years in function are critical for implant survival and the clinician should aim for a well-structured maintenance programme already in this period, in order to increase the probability of long-term implant success and survival.