Abstract

This is a retrospective study on 1592 consecutively performed operations in one private referral clinic. It reports data on peri-implantitis and late implant failures after first year of function in a large number of routine patients’ operations at one private referral clinic (efficacious study).

Background and Aim

Implant failure is based on clinical and radiographic information which is a clear and easy endpoint to study and report. The only factor to discuss may be where the cut-off time-point should be placed after implant surgery, separating “early” from “late” implant failures, resulting in either slightly under- or over-estimation of the two different observations. However, even though no obvious trend of increasing implant failure rates over time has been observed yet, much attention has lately been focused on mucosa health and bone loss at the implants, referred to as “peri-implantitis”.

The aim of the present study was to report problems with peri-implantitis and late implant failures in a large private referral clinic. The aim was also to analyze the impact of different clinical and patient factors over time with regard to clinical observations related to peri-implantitis, surgery related to peri-implantitis and late implant failures.

Methods and Materials

Retrospective study covering all consecutively treated patients provided with dental implants with an anodized, moderately rough, implant surface between March 2000 and December 2011 at one private dental referral clinic (IDDS Hadi Antoun, Paris).

In brief, amongst 1017 individual patients were treated at the referral clinic. Annual follow-up examinations, Annual clinical and radiological examinations were scheduled. Distribution of operations with regard to patient characteristics (periodontitis/smoker) and type of surgery is presented in Table 1.

peri-implantitis was in the present study diagnosed first after one year of implant function after prosthesis placement. Inflammation and bone loss was considered as a problem (peri-implantitis) when the patient presented bleeding on probing (BOP) and/or supputation in combination with marginal bone loss (more than one thread, ≥6 mm) at a radiographic examination after the first annual examination (> 1 year).

All patients with peri-implantitis problems were first referred to the periodontist at the referral clinic. Patients that responded well to the hygiene treatment were followed-up without peri-implantitis surgery. However, patients where suppuration and profound bleeding were persistent after the hygiene treatment were recommended surgery for removal of submucosal plaque and calculus, debridement of inflamed tissue, establish access for cleaning and when trying to do some guided bone regeneration.

Table 1: Distribution of operations with regard to patient characteristics (periodontitis/smoker) and type of surgery. Surgery could either be performed using an immediate placement, one-stage or two-stage protocol with or without immediate grafting procedure.

Table 2: Numbers of operations with regard to year in function.

Results

Altogether, 66 patients (92 operations) and 30 patients (34 operations) were identified with “peri-implantitis” and “surgery related to peri-implantitis” after first year in function. It was observed that the proportion of noncompliant patients with regard to follow-up increased by time from 2000 to 2011. Mean compliance per year of follow-up is presented in Figure 1.

It was observed that the proportion of noncompliant patients with regard to follow-up increased by time from 2000 to 2011. Mean compliance per year of follow-up is presented in Figure 1, indicating that about 60% of treated patients/operations were available for examination after 5 years at the referral clinic.

Distribution of operations with diagnosis of inflammation (0 to 1 year) and peri-implantitis, surgery related to peri-implantitis and late implant failures according to definition is presented in Table 2.

A total of 30 patients (34 operations) were treated surgically for problems with early or late (peri-implantitis) inflammation and bone loss at the implants, corresponding to 30% of all patients with a diagnosis (26% of operations).

The statistical analyses identified five and three clinical parameters significantly associated to the risk for surgery related to peri-implantitis (P<0.05). A majority of two-stage surgical loading protocols were used when GBR grafting techniques were used (85%).

Conclusions

Within the limitations of this large retrospective effectiveness study, the following conclusions could be made for routine clinical treatment after the first year of clinical function:

- Factors related to “smoking habits”, “surgical implant loading protocol” and “type of implant have a significant association to increased risk for late implant failures in routine practice (P<0.05).
- Factors related to “numbers of implants”, “treatment in partial (posterior) lower jaws”, “surgical loading protocol” and “year at surgery have a significant association to the risk for peri-implantitis (P<0.05). A majority of two-stage surgical loading protocols were used when GBR grafting techniques were used (85%).
- The risk for peri-implantitis increased with 28% per year from implant surgery performed year 2000 to 2011.
- Factors related to “lower jaw”, “immediate gingival grafting” and “year at surgery” have a significant association to the risk for surgery related to peri-implantitis (P<0.05). A majority of two-stage surgical loading protocols were used in combination with GBR grafting techniques (85%).
- The risk for surgery related to peri-implantitis increased with 110% per year from implant surgery performed year 2000 to 2011.
- When using a baseline at the first year of follow-up, it was shown that factors related “early inflammation at the implant” and “lower jaw” have a significant association to the risk for late implant failures (P<0.05).

References


