INTRODUCTION

Long-term treatment outcome with TiOblast™ implants is well-documented and shows good clinical results with high success rates and marginal bone preservation.1,2,3 Recently Astra Tech has changed the implant surface in order to enhance the osseointegration process. Osseospeed implants are grit-blasted with titanium dioxide particles followed by an additional treatment with diluted fluoride acid, which results in a nanoscale surface topography. Results from an experimental study suggest that osseointegration is enhanced during the first weeks of healing.4 Hence, more demanding indications, such as immediate loading or implant insertion in compromised sites can have benefit when these implants are used. The aim of this study is to determine 2-year survival and success of Osseospeed™ implants.

MATERIALS AND METHODS

All patients treated from November 2004 until December 2006 were invited for a 2-year recall. No patients were excluded. Implant survival was determined and bone level changes were assessed by an external examinator (SV) comparing 2-year peri-apical radiographies with the post-operative ones using digital software (Visi-Quick, Amsterdam, The Netherlands) with an accuracy of 0.1 mm. Marginal bone level height was determined both at the mesial and distal site of the implant by measuring the distance between a reference point (lower border of the smooth implant collar) and the marginal bone-to-implant level (Figure 1). Individual implant success was determined as 1.7 mm bone loss after two years according to the international success criteria.5

RESULTS

In total 357 implants in 89 patients (57 females, 32 males; mean age 57 years old (range 29-76)) were available for assessment. They responded spontaneously to the recall invitation. 210 implants (59.8%) were loaded immediately; 99 implants (28.2%) were placed according to a 1-stage and 42 (12%) implants according to a 2-stage procedure. 9 implants in 7 patients were lost, resulting in an overall survival rate of 97.4%. Mean bone loss was 0.40 mm (SD=0.77 mm; range: 0 mm - 4.85 mm) compared to baseline (post-operatively). 6/9 lost implants occurred in the posterior mandible. Survival rate and mean bone loss was 99% and 0.28 mm (SD=0.54) for immediate loading (n=210) compared with 1-stage loading (n=99) and 0.81 mm (SD=1.18) for 2-stage (Figure 2). Bone loss was significantly higher (p<0.01) for maxillary (0.43 mm, SD=0.83) compared to mandibular implants (0.34 mm, SD= 0.74) (Figure 3). 93.3% of all implants had bone loss of <1.7 mm and were considered successful (Figure 4).

DISCUSSION

The Osseospeed™ implant system lacks long-term survival and success studies. The present study, limited up to 2 years after implant insertion shows good clinical results. Nevertheless, more long-term studies are needed to give insight in the long-term prognosis. It has to be considered that bone level changes were assessed with the implant insertion as baseline value. Hence mean bone loss of 0.40 mm after 2 years is very successful. Bone loss was significantly higher in the maxilla compared to the mandible. These results are in confirmation with strand et al.6 but in contradiction with others.7

CONCLUSIONS

Osseospeed™ implants yielded a survival rate of 97.4% after 2 years with a mean bone loss of 0.40 mm.

References

CASE PRESENTATION

Figure 5: Case presentation: Immediate loading fixed partial denture in the maxilla. Reference point indicated by red arrow. Bone level indicated by yellow arrow.

Graphics and Design : Geert.Dermout@UGent.be