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TITLE: Osseointegration of dental implants inserted in non sterile operating conditions: a 12-year prospective evaluation of more than 9000 implants.

AUTHORS (LAST NAME, FIRST NAME): Vazquez, Lydia; Nedir, Rabah; Bischof, Marc; Belser, Urs; Bernard, Jean-Pierre

ABSTRACT BODY: It has been claimed that dental implant surgery requires strict sterile operating conditions in order to achieve successful implant osseointegration. However, in general private dental practice, surgical procedures are difficult to perform under sterile conditions.

The aim of this prospective study is to examine the osseointegration rate of 9601 non-submerged Straumann implants (Straumann AG, Basel, Switzerland) inserted in 3889 patients, under aseptic conditions, by different surgeons in two dental clinics. While strict sterile surgery is required in an operating room setting, such a strict sterile protocol is difficult to guarantee in private dental practice. Under aseptic conditions, the surgeon does not wear a sterile surgical gown, but meets the other criteria for sterile operating conditions including sterile gloves and suction tubing as well as sterile drapes for the patient. Six to 12 mm-long implants were placed following a standardized one-stage surgical procedure with antibiotic (either amoxicillin or clindamycin) prophylaxis beginning 1 hour before surgery and continued three times per day during 5 days. 5492 implants were placed in 2282 female and 4109 implants in 1607 male patients with a mean age of 56.4 ± 13.5 years. After a 6 to 12 week healing period, the implants were radiographed. Osseointegration was assessed by controlling the absence of clinically detectable implant mobility, the absence of pain or any subjective sensation, the absence of recurrent peri-implant infection, the absence of continuous radiolucency around the implant and its resistance to the abutment tightening with a 35Ncm torque.

During the initial healing period prior to abutment connection, 100 (1.04%) early failures were observed. At the time of abutment connection, 9501 implants were clinically osseointegrated without peri-implant radiolucency or mobility. The overall success rate at abutment connection was 98.96%.

It can be concluded from this study that implant surgery procedures performed under aseptic operating conditions had comparable osseointegration success rates as those reported for implants inserted under strict sterile conditions.

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