

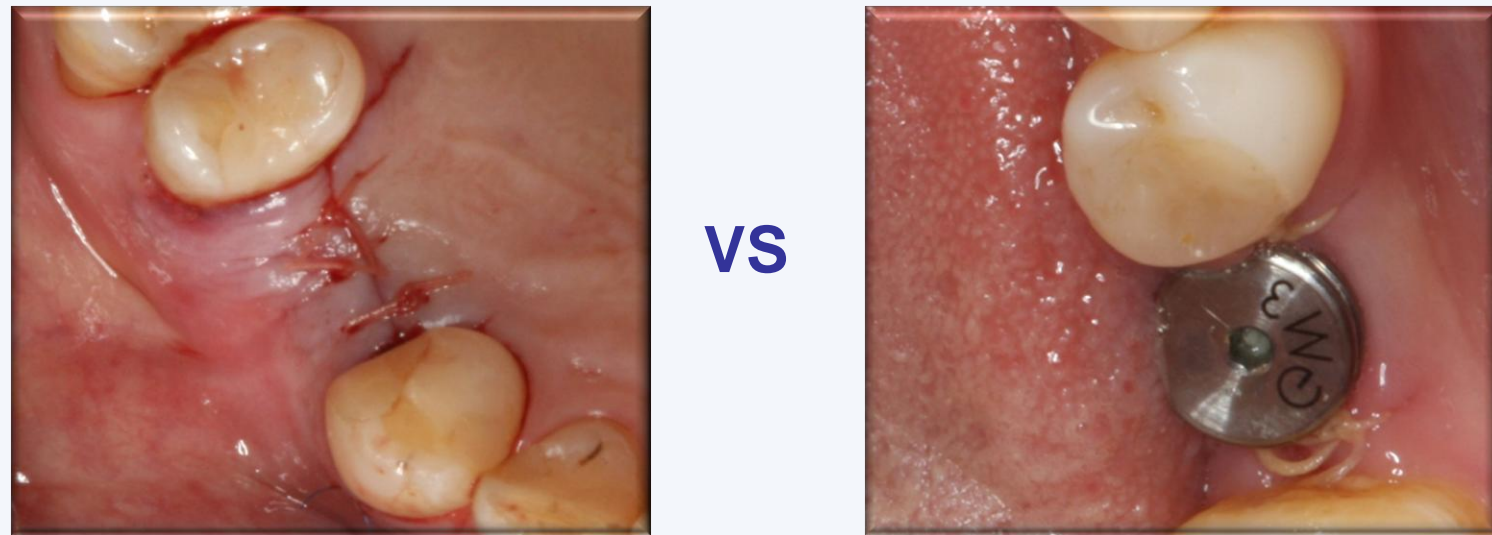
Clinical success rates of submerged and non-submerged implant placement in Vilnius Implantology Center.

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Topic: Long-term studies

Abstract



The aim: To compare the success rate of single and two-stage implant placement performed in private practice.

Material and methods: This retrospective research involved 738 patients who received 2147 implants during the period from 2006 to 2008 in Vilnius Implantology Center. In total 1330 (62%) of the implants were placed for 472 women and 817 (38%) for 266 men. The mean age was 45 years (varying from 17 to 76 years). From all amount, 1640 (76,4%) implants were placed in single stage and 507 (23,6%) in two-stage procedure. After appropriate healing time all implants were evaluated according to osseointegration success criteria. Thus, before loading 42 implants were replaced (27 one-stage and 15 two-stage implantation). Data were collected from computer data base and case histories and analyzed using SPSS 16.

Results: The total success rate was 98,0%. One stage implantation – 98,4%, two-stage implantation - 97,0%. Statistical analysis showed that there is no statistically significant difference between single and two-stage implantation success rate.

Conclusion: Our research showed that there is no statistically significant difference between single and two-stage implantation success rate. A one-stage procedure might be preferable, as additional surgical intervention is avoided and healing period is reduced. However in some cases, when implants lack primary stability or are placed during bone augmentation procedures, two-stage procedure might be more adequate.

Background and Aim

To compare the success rate of single and two-stage implant placement performed in private practice.

Methods and Materials

Patients

This retrospective research involved 738 patients. In total, 1330 (62%) of the implants were placed for 472 women and 817 (38%) for 266 men. The mean age was 45 years (varying from 17 to 76 years). All the patients who received implants in Vilnius Implantology Center from 2006 to 2008 year August were involved in this research.

Surgery

A total of 2147 implants were inserted during the period from 2006 to 2008 08 in Vilnius Implantology Center. 1101 (51,3%) implants were placed in the mandible and 1046 (48,7%) in the maxilla. Several types of implants were used (Strauman, Biohorizon, 3i). 1640 (76,4%) implants were placed in single stage and 507 (23,6%) in two-stage procedure. The two-stage procedure was chosen when implants were placed during sinus lift, bone graft or GTR procedures or having a lack of primary stability. In all other cases one stage procedure was applied. All the surgeries were performed according the standard protocol. Postoperatively, systemic antibiotics, analgesics, and chlorhexidine 0.2% mouth rinse were prescribed. The patients were informed about postoperative regimen. After appropriate healing time all implants were evaluated according to osseointegration success criteria.

Prosthodontics

The transitional dentures were made on demand. Patients who received implants in aesthetic zone were provided with cosmetic dentures that did not load implants. The prosthetic treatment commenced 3-4 months after implant placement in the mandible and 4-6 months in the maxilla. After receiving final restorations the follow up of our research was finished.

Radiographic Examination

Preoperatively, panoramic radiographs were used for the surgical planning. In more complicated cases computer tomography was performed and analyzed.

Postoperatively, dental radiographs were made on demand and panoramic radiographs have been made and assessed before final prosthetic treatment commenced.

Follow Up

The cases were followed until final restorations were completed (3-4 month in the mandible and 4-6 month in maxilla). Data were recorded in case histories and computer data base during an implant placement and on an every follow up appointment postoperatively. The follow up appointments were scheduled as follows: one week (I), three weeks (II) after implant placement and before final prosthetic treatment (III).

Statistical Considerations

Data were collected from computer data base and case histories. Statistical analysis was aimed to comparison of the success rate of one versus two stage implant placement in maxilla and mandible.

To analyze the difference of implant placement success rate in research groups Pearson chi-square test was chosen. This statistic is used to test the hypothesis of no association of columns and rows in tabular data. A chi-square probability of .05 or less is commonly interpreted by as justification for rejecting the null hypothesis.

Results

This retrospective research involved 742 patients who received 2147 implants during the period from 2006 to 2008 in Vilnius Implantology Center. 1640 (76,4%) implants were placed in single stage and 507 (23,6%) in two-stage procedure. After appropriate healing time all implants were evaluated according to osseointegration success criteria.

During the follow up period out of 2147 implants total of 42 implants were replaced due to early complications.

Failures occurred in 26 patients who received nonsubmerged implants. Out of 1640 implants placed in single stage surgery 27 (1,6%) were lost, resulting in a success rate of 98,4%.

Eight patients in submerged group experienced failures. 15 (3%) implants out of 507 were replaced, resulting in a success rate of 97%.

According to our research there was no significant difference between success rate in maxilla and mandible. 24 (2%) of 1046 implants were replaced in maxilla and 18 (1,6%) of 1101 implants were replaced in mandible.

The total success rate was 98,0%. One stage implantation – 98,4%, two-stage implantation – 97,0%. Statistical analysis showed that Pearson Chi-Square is .062 meaning that there is no statistically significant difference between single and two-stage implantation success rate.

| | Single stage | | | Two stage | | | Total | | |
|----------|--------------|----------|-----|-----------|----------|-----|----------|----------|-----|
| | Implants | Failures | % | Implants | Failures | % | Implants | Failures | % |
| Maxilla | 633 | 10 | 1,6 | 413 | 14 | 3,4 | 1046 | 24 | 2,3 |
| Mandible | 1007 | 17 | 1,7 | 94 | 1 | 1,1 | 1101 | 18 | 1,6 |
| Total | 1640 | 27 | 1,6 | 507 | 15 | 3,0 | 2147 | 42 | 2,0 |

Conclusions

Our research showed that there is no statistically significant difference between single and two-stage implantation success rate. A one-stage procedure might be preferable, as additional surgical intervention is avoided and healing period is reduced. However in some cases, when implants lack primary stability or are placed during bone augmentation procedures, two-stage procedure might be more adequate.

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