

03–2. Maxillary sinus augmentation using lateral window approach; 1–to 10–year retrospective study

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Background

Reduced height of residual alveolar bone can limit the placement of endosseous dental implants. Maxillary sinus augmentation with lateral window approach (LWA) has become a routine treatment procedure for the atrophied edentulous maxillae. The purpose of this study was to evaluate the cumulative success rate(CSR) of the implants placed in the augmented maxillary sinus by LWA, the correlation between crown–to–implant (CI) ratio and marginal bone loss (MBL) around implants, and the distribution of complication.

Methods and materials

One hundred nine cases of the maxillary sinus augmentation with LWA were performed in the posterior area which a residual bone height (RBH) of < 5mm on 96 patients from Sept. 1996 to May 2007 in the Department of Periodontology, Dental hospital of Yonsei University. The mean follow–up period of implants was 45.3 ± 23.4 months with range from 17 to 135 months. A total of 217 implants were placed in the augmented area (86 Straumann implants (39%), 131 Brånemark implants (61%)). The CSR was calculated according to Kaplan–Meier’s method. The CI ratio at the baseline was recorded. The association between the CI ratio and MBL were calculated by correlation analysis ($p < .05$). The distribution of biological and technical complications was investigated.

Results

Six implants were failed during the follow–up period (five Brånemark, one Straumann). A total CSR, Brånemark and Straumann were 97.2%, 96.2%, and 98.8%, respectively. The mean MBL and CI ratio were 1.44 ± 0.62 mm and $1.02(\pm 0.25):1$, respectively. The correlation between CI ratio and MBL was not statistically significant ($p=0.72$). The incidence of complication was 42.2%. The most prevalent biological complication was Schneiderian membrane tearing (14.3%) and technical complication was screw loosening (14.7%).

Conclusion

Within the limitation in this study, there is no association between the CI ratio and MBL. Despite relatively high incidence of complication, the CSR was showed to be high as a routine implant CSRs. Therefore, the maxillary sinus augmentation procedure with LWA could be concluded to be a predictable surgical modality for placement of the implant at atrophied maxillary posterior area for long–term period.