

## Endo-sinus bone gain in case of lateral sinus floor elevation with immediate implant placement without grafting material

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**Background:** Many studies describe the necessity of using grafting materials in case of lateral sinus floor elevations. Besides the advantages of it, an important role plays the autogenous bone which is often mixed with xenograft or synthetic materials in order to achieve a better quality tissue. However, these methods are often related to complications like sinusitis or failures. Several articles only described sinus floor elevation by lateral access and implants placement without grafting material.

**Aim/Hypothesis:** To appreciate the endo-sinus bone gain in case of lateral sinus floor elevation with immediate implants placement without any grafting material.

**Material and Methods:** The study was axed on 5 patients (3 males and 2 females, mean age  $38.23 \pm 3.12$  years) who received 12 implants (Alpha Bio Tec, 3 patients with 2 implants and 2 with 3 implants) in posterior sides of upper jaw. The diameter of implants ranged between 3.75 and 4.2 mm while the length – 10 and 11.5 mm. The implants insertion was performed simultaneously with lateral sinus floor elevation using the trap door technique. Before implants insertion the sinus cavity formed after elevation were filled only with blood collected from peripheral vein. After suturing, platelet rich plasma was injected from buccal aspects. Sutures were removed after 10 days. Six months later, the second surgical step was performed, and the prosthetic treatment was performed after another 4 weeks. Periimplant bone loss as well as endo- sinus bone gain during healing and 1 year postprosthetic has been evaluated. Statistical analysis was made by calculating mean values, standard errors and Pearson correlation test.

**Results:** All implants successfully integrated. Residual bone height from mesial and distal aspects was  $5.96 \pm 0.4$  mm and  $5.05 \pm 0.21$  mm, while the length of implants protruded into sinus were  $5.81 \pm 0.35$  mm and  $6.15 \pm 0.19$  mm respectively. At the end of healing period, the endo-sinus bone gain consisted  $7.38 \pm 0.402$  mm (mesial) and  $8.17 \pm 0.11$  mm (distal), but radiographically it had a lower opacity than the native one. One year post-prosthetic, the bone became mature with good corticalization of the new sinus floor, with dimensions of  $5.93 \pm 0.56$  mm and  $6.65 \pm 0.087$  mm from mesial and distal aspects. During this period, a shrink of  $1.45 \pm 0.16$  mm and  $1.51 \pm 0.19$  mm occurred. The cortical periimplant bone loss around implants from mesial and distal aspects was:  $0.23 \pm 0.086$  mm and  $0.21 \pm 0.043$  mm during healing;  $0.4 \pm 0.12$  mm and  $0.68 \pm 0.07$  mm during 1 year postprosthetic. A strong correlation between implant protruded length and endo-sinus bone gain was observed: 0.92 (mesial) and 0.682 (distal).

**Conclusions and Clinical Implications:** In appropriate conditions, the lateral sinus floor elevation without grafting material and with simultaneously implant placement lead to formation of an adequate amount of endo-sinus bone. By this way, it is possible to avoid the use of grafting materials. However, more studies and longer follow-up periods are necessary in order to appreciate the limits and indications of this method.