

Influence of regular cover screw or 2 mm healing abutment on bone gain after conventional GBR.

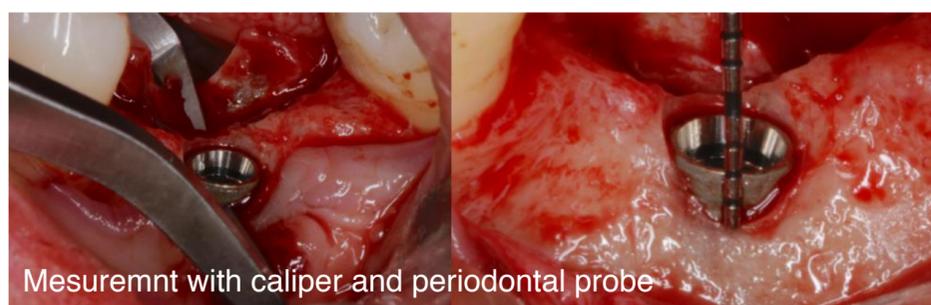
A randomised controlled clinical trial

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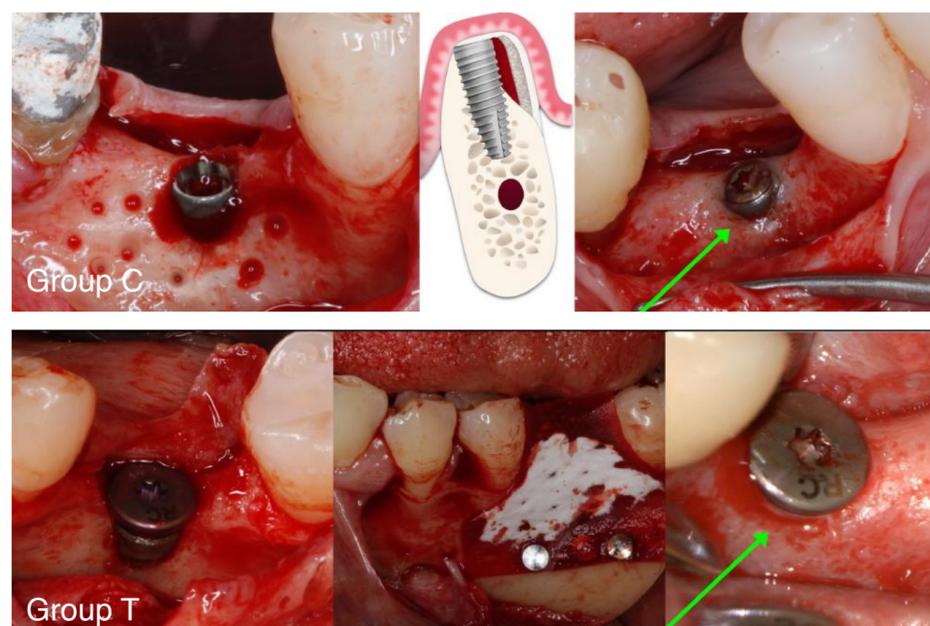
Abstract

At least 1mm bone around dental implant collar is essential. Despite big amount of graft is placed, the bone does not grow enough in the buccal site and small implant dehiscence is seen in cases when implant was covered with cover screw. One of the reasons may be a big pressure to implant neck from surrounding soft tissues. It was suggested that 2 mm healing abutment could be used instead of cover screw to relieve the pressure of the tissues to implant neck.



Results

Implant vertical dehiscence before bone augmentation was $-3,68 \pm$ mm in group T, and $-3,5 \pm$ mm in group C. Horizontally all implants were not covered by the bone, also starting point was 0. After augmentation, bone vertically was $0,9 \pm$ mm in group T and $-0,7 \pm$ mm in group C. Bone thickness horizontally was $3,2 \pm$ mm in T group and $0,46 \pm$ mm in group C. After augmentation implants in group T had mean bone gain of $4,5 \pm$ mm vertically and $3,2 \pm$ mm horizontally while implants in group C had mean bone gain of $2,8 \pm$ mm vertically and $0,46 \pm$ mm horizontally. Statistical analysis showed significant differences between test and control groups ($P=$), according to bone gain.



Background and Aim

Aim of the study is to investigate efficiency of 2 mm healing abutment by increasing bone gain around implant neck buccally after GBR.

Conclusion

It can be concluded that using 2 mm healing abutment instead of regular implant cover screw, can increase vertical and horizontal bone gain around implant by reducing the pressure of the soft tissues to the implant neck.

Methods and Materials

This study evaluated 40 implants with platform switching in 40 patients with class III (Howel&Cawood) lateral bone deficiency. Randomly patients were divided in to 2 groups: Test (T) group (N=20) (implant placement with 2 mm healing abutment) and control (C) group (N=20) (implant placement with cover screw). Allogenic bone mixed with autogenous chips and covered with collagen membrane were used for GBR for all patients. Implant dehiscence was measured before bone augmentation and during second stage after 6 months using periodontal probe vertically and with calliper - horizontally. Implant buccal margin was taken as reference point. Significance level was set to 0.05.

References

1. Sánchez-Siles, M.; Muñoz-Cámara, D.; Salazar-Sánchez, N.; Camacho-Alonso, F.; Calvo-Guirado, J.L. Crestal bone loss around submerged and non-submerged implants during the osseointegration phase with different healing abutment designs: A randomized prospective clinical study. *Clin. Oral Implant. Res.* **2018**, *29*, 808–812.
2. Fernández-Domínguez, M.; Ortega-Asensio, V.; Fuentes-Numancia, E.; Aragonese, J. M.; Barbu, H. M.; Ramírez-Fernández, M. P., ... Gehrke, S. A. (2019). Can the Macrogeometry of Dental Implants Influence Guided Bone Regeneration in Buccal Bone Defects? *Histomorphometric and Biomechanical Analysis in Beagle Dogs. Journal of Clinical Medicine*, *8*(5), 618;
3. Jung, R.E.; Herzog, M.; Wolleb, K.; Ramel, C.F.; Thoma, D.S.; Hämmerle, C.H. A randomized controlled clinical trial comparing small buccal dehiscence defects around dental implants treated with guided bone regeneration or left for spontaneous healing. *Clin. Oral Implant. Res.* **2017**, *28*, 348–354
4. Pellicer-Chover, H.; Peñarrocha-Diago, M.; Aloy-Prosper, A.; Canullo, L.; Peñarrocha-Diago, M.;
5. Peñarrocha-Oltra, D. Does Apico-Coronal Implant Position Influence Peri-Implant Marginal Bone Loss A
6. 36-Month Follow-Up Randomized Clinical Trial. *J. Oral Maxillofac. Surg.* **2019**, *77*, 515–527