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Research Article

Evaluation of Efficiency of Modified Shell Technique Clinical and Radial Study

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Abstract

Distraction of the alveolar ridge because of a bone pathology or as a complication of surgical intervention, often leaves in sufficient bone volume for the placement of dental implants. Several surgical techniques have been used to augment the bone volume, including bone grafts taken from intraoral entrance.

To guide and reduce the amount of post bone graft resorption, if possible, a modified shell technique was used on 10 patients. Evaluation of the results using CBCT methods to evaluate the valium and the density of the resulting bone.

Keywords: *Implants; Dental; Bone Craft; Alveolar Ridge; Mandible; Maxilla*

Introduction

Pathologic boney lesions mostly are a destructive cause to the alveolar ridge. Treating such cases through a surgical intervention, will also reduce the valium of the alveolar ridge [1]. Mostly the length and width of the alveolar ridge are cleverly reduced; this causes the lack of vertical and horizontal bones [2]. One of the difficult problems to address during the placement of implant. The maxillary anterior is particularly important aesthetically, and the amount of soft and hard tissues should be sufficient that. The posterior also needs enough amount of bone to make prosthesis of the appropriate size and with desirable implant-crown ratio [3].

Therefore, alveolar ridge augmentation has become a common surgery option when implant is placed in a defective area of the alveolar bone. One of the choices for restoration in case of bone defect is bone grafting [4]. Since bone grafting is always subject to partial post grafting resorption. Our study comes to evaluate the amount of post grafting resorption, using what we have called (Modified shell technique).

Materials and Methods

Ten patients between the age of 18 to 45 years, were chosen from the many who consulted the department of maxilla facial surgery department, Teshreen University Hospital. All were in good general health, with a defected maxillary or mandibular alveolar ridge. That defect was left in the area after surgical intervention because of either a tumor or cystic lesions. This number of patients was subgroup to four groups: U, L, A, B.

All 10 patients were given.

Decortin 50 mg-Brufen 400 mg-Amoxicillin 1000 mg. One hour before surgery for the amoxicillin to be continued for three days post-surgery.

Chlorhexidine 0.02% mouth wash before surgery.

A mucoperiosteum flap was reflected to expose the area of the defect. All inflammatory tissue were removed. A periodontal prob was used to estimate the volume of the bony defect and to estimate the amount of the bone graft needed.

3 mm thickness bone block was obtained from the chin area, the spongy bone was separated from the cortical bone using a bone file. Then the free cortical bone plate was split to two halves to be used as a sandwich holding the spongy bone in between, to be fixed on the desired place using bone screws. The soft tissue flap was freed by undermining the periosteum at the base of the flap, for good coverage to the area. Then for the flap to be sutured in its place using 000 silk (Figure 1-9).

Figure 1: *Shows the clinical bone loss.*

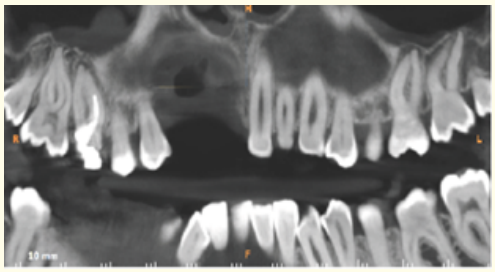

Figure 2: *X-ray shows the bone loss.*

Figure 3: *The bone block is taken from the chin area.*

Figure 4: *Modified shell craft fixed with two screws*

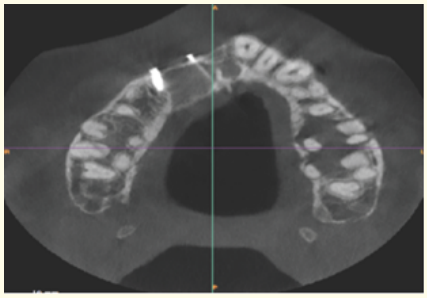

Figure 5: *X-ray, the craft in its place.*

Figure 6: *Shows the post op alveolar width 6 months.*

Figure 7: *The postop length.*

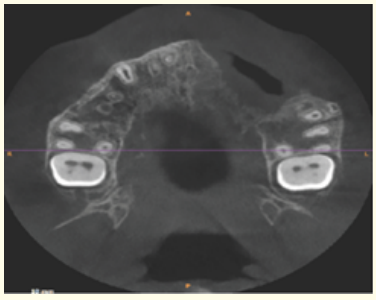

Figure 8: *CT shows the amount of defect.*

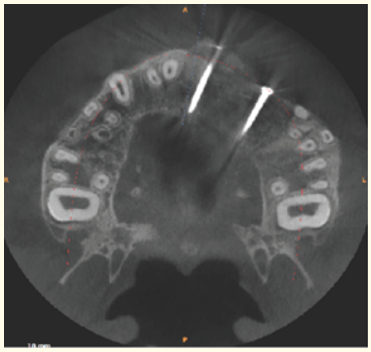

Figure 9: *CT shows the end result of the bone craft.*

Results

The ten cases were evaluated clinically and radiographically using CBCT.

And clinical measurements, after two and six months periods to find:

1. The bone density in general has dropped after 6months from that of the density we got after two months from the time of the experiment with 2.62%.
2. After two months the bone density in the cases of the anterior area was higher from the density of the posterior with 8.12%.
3. In relation to bone volume we have gained: A positive increase in in both directions. In the vertical direction we have gained an increase in the first two months of 69.41%. To find that there was a minimal increase of 0.36 of that we had gained after the two months period. In the anterior posterior dimension we have gained an increase in the first two months of 159.26%. To find a decrease has happened of 0,07%.
4. The differences in the volume of the gained bone between the two months and six months periods were statically not significant.

Discussion

In our study (Modified shell) we found that the bone density of the two months period has dropped with the amount of 2.62% when it was compared with the six months period. This finding will agree with what of Michael Stimmelmayr has found in hid experiment that held in 2014. His figure was 3.02% [5].

In this modified shell study we have found an increase in the bone in its two vertical direction 69.41% at the end of six months period, and horizontal directions 159,26%. This finding will agree with Khoury F, finding 2007 [5].

Conclusion

Modified Shell bone grafting could be very practical an useful as a bone grafting methods, specialty in severe cases of bone loss of the alveolar area, with some limitations of the donor sources.

Bibliography

1. Simion M., *et al*. "Vertical ridge augmentation using a membrane technique associated with osseointegrated implants". *The International Journal of Periodontics and Restorative Dentistry* 14 (1994): 496-511.

2. Tinti C., *et al*. "Vertical ridge augmentation: what is the limit?" *The International Journal of Periodontics and Restorative Dentistry* 16 (1996): 220-229.

3. Simion M., *et al*. "Long-term evaluation of osseointegrated implants inserted at the time or after vertical ridge augmentation. A retrospective study on 123 implants with 1-5 year follow-up". *Clinical Oral Implants Research* 12 (2001): 35-45.

4. Chiapasco M., *et al*. "Alveolar distraction osteogenesis vs. vertical guided bone regeneration for the correction of vertically deficient edentulous ridges: a 1-3-year prospective study on humans". *Clinical Oral Implants Research* 15 (2004): 82-95.

5. Khoury F and Khoury C. "Mandibular bone block grafts: diagnosis, instrumentation harvesting technique and surgical procedures". In: Khoury F, Antoun H, Missika P (editions.), Bone Augmentation in Oral Implantology.

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