

## Minimal Invasive Technique for Sinus Floor Elevation with Reamer Mediated Sinus Crestal Approached Technique with Simultaneous Dental Implant Rehabilitation

**Prof. Mohamed Mohamed Nassar\***

*Department of Periodontics, Tanta University, Egypt*

**\*Corresponding Author:** Prof. Mohamed Mohamed Nassar, Professor of Periodontal Implant Dentistry, Tanta University, Egypt.

**Received:** December 08, 2015; **Published:** January 07, 2016

### Abstract

Crestal approach for maxillary sinus augmentation procedure using reamer mediated crestal sinus floor elevation with simultaneous implant placement is introduced as a new technology, instruments and surgical technique to help clinician ensure the best result with non invasive technique and satisfy the patient expectations. Although there is still controversy regarding the necessity of simultaneous grafting materials in sinus floor elevation among them autogenous bone grafts, xenografts, Tricalcium phosphate, titanium granules have been introduced as an alternative for bone graft material It give instant stability and non resorbable characteristics. Here is an attempt to represent the advantages of this technique in the era of periodontic and implant dentistry.

**Keywords:** *Maxillary sinus lifting techniques; Bone grafting materials; Reamer mediated crestal floor elevation; Porous titanium granules*

Dental rehabilitation of partially or totally edentulous patients with implants has become common practice in recent decades, with reliable long-term results, however dental implants placement may become a challenging procedures in the presence of unfavourable local condition of alveolar ridge [1]. In posterior maxilla, progressive ridge resorption and sinus pneumatization, together with increased occlusal forces and poor quality of bone usually induce anatomical limitation for implant placement [2].

Solutions suggested for managing the problems of a vertically compromised bone volume in maxillary posterior region include the use of wide implants, vertical ridge augmentation and lifting sinus membrane to increase the available length for implant placement [3].

Sinus grafting was introduced as pre prosthetic procedure to improve the long term survival of implants placed in atrophic posterior maxilla. This procedure is intended to increase bone height in posterior maxilla through formation of new bone in the caudal section of maxillary sinus [4].

The two major approaches utilized for the sinus floor augmentation (the lateral and crestal approaches). Lateral sinus elevation procedure is considered to be invasive, time consuming and expensive in addition to postoperative complications such as pain, swelling, extensive surgical trauma and increase patient discomfort [5]. Virtually the crestal approach utilized the osteotome could have many disadvantages including limitation of the amount of augmentation of the sinus floor, its difficulty to control the osteotometapping force while using this techniques in order to produce effective membrane lifting without membrane perforation [6].

Consequently specially designed innovative reamer enables dentists to easily predict the sinus elevation as well as to augment the sinus with bone grafting or alloplastic materials without the use of osteotome and mallet. It can be safely elevate the sinus floor regardless of its shape (irregularities in the thickness or septum). The reamer is also minimally invasive and minimizes patient discomfort during operative period [7].

---

**Citation:** Prof. Mohamed Mohamed Nassar. "Minimal Invasive Technique for Sinus Floor Elevation with Reamer Mediated Sinus Crestal Approached Technique with Simultaneous Dental Implant Rehabilitation". *EC Dental Science* 3.3 (2016): 541-544.

Moreover this novel a traumatic drills and reamers, astonishing can rotate in proximity too sinus membrane and don't perforate. Precisely this technique has been utilized to make the use of osteotome redundant. A traumatic drill is advanced to the floor of the sinus and reamer is employed to drill any bone left at the floor of the sinus elevate the membrane. Following slight elevation the membrane with reamer the steps for bone augmentation using the carrier to deliver bone grating materials to the osteotome site and consequently raising the membrane upward [8]. Patient satisfaction level was very high 2.4% of the 380 Minimal invasive techniques for sinus floor elevation with reamer mediated sinus crestal approached technique with simultaneous dental implant rehabilitation.

Subjects experienced either no discomfort or were subject to minimal inconvenience ranging from light to moderate myalgia from prolonged mouth opening after reamer trans alveolar sinus elevation not from the technique itself [9].

Regarding bone augmentation after sinus elevation, many studies reported that bovine hydroxyl apatite granules and hydrated hydroxyl granules were relevant candidate for sinus floor elevation prior to implants as they showed 3-D stability and osteogenesis. Other studies advocated this of non-resorb able grafting materials or titanium granules (our studies for titanium granules augmented sinus elevation are going to be published in forthcoming issues) or even nano bone for augmentation [10], since it don't showed resorption outcome that may lead to unpredictable long term results when rehabilitating the resorbed posterior maxilla. Non resorbable, osteo conductive bone substitutes may be advantageous over the out genius graft in this respect [8,11].

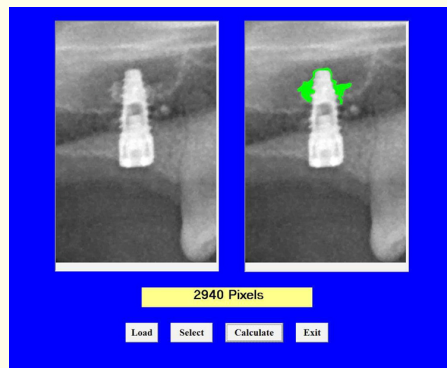
In general, the overall success rate of implants with minimally invasive approaches of reamer mediated sinus floor elevation was over 95% with simultaneous implant placement even without augmentation this greatest advancement for success rate taking into the consideration the causes of implant failure due to many reasons [7].

### Conclusions

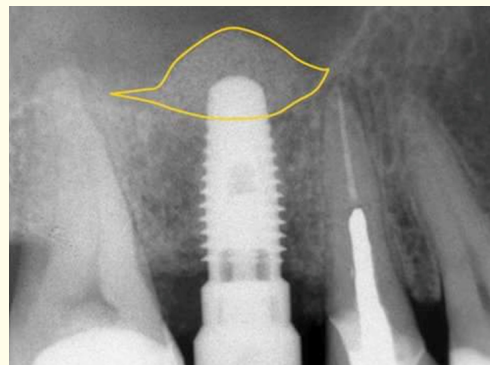
Today we can find in the literature an important numbers of reliable protocols to achieving satisfactory outcome in dealing with sinus floor elevation using different e approach technique with and without bone augmentation but we should consider that the success is most likely to happen if correct diagnosis and treatment plan is carried out taking into considerations to choose the best for patient with less invasive as was described in literature with the follow up that categorize the treatment as predictable one in long term and has clear background guideline s when indicated for implication.



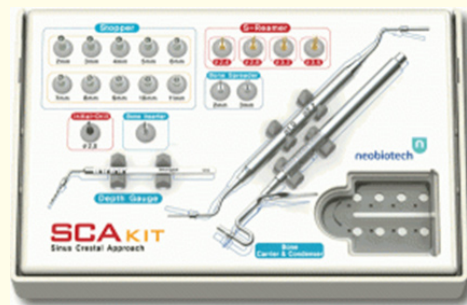
**Figure 1:** Minimal 5 millimetres of remaining bone sub crestal from sinus border.



**Figure 2:** Titanium granules augmented the osteointegrated implant with reamer sinus approach (green lines).



**Figure 3:** Successful follow up of implant with its superstructure showing well formed bone surrounding the implant after 6 month.



Reamer kit

## **Bibliography**

1. Delfabbro M., *et al.* "Implant survival in maxillary sinus augmentation". *European Journal of Oral sciences* 116.6 (2008): 497-506.
2. Woo I. "Maxillary sinus floor elevation: a review of anatomy and two techniques". *Implant Dentistry* 13.1 (2004): 28-32.
3. Cavicchia F., *et al.* "Localized augmentation of maxillary sinus floor through a coronal approach for the placement of implants". *International Journal of Periodontics & Restorative Dentistry* 21.5 (2001): 475-485.
4. Shayesteh YS., *et al.* "Sinus augmentation using human mesenchymal stem cells loaded into B-tricalcium phosphate/hydroxyapatite scaffold". *Oral Surgery, Oral Medicine, Oral Pathology, Oral Radiology* 106.2 (2008): 203-209.
5. Block MS and Kent JN. "Sinus augmentation for dental implants: the use of autogenous bone". *Journal of Oral and Maxillofacial Surgery* 55.11 (1997): 1281-1286.
6. Yamada JM and Park HJ. "Internal sinus manipulation (ISM) procedure: a technical report". *Clinical Implant Dentistry and Related Research* 9 (2007): 128-135.
7. Ahn SH., *et al.* "Mediated sinus floor elevation without osteotome and simultaneous implant placement in maxillary molar area: clinical outcomes of 391 implants in 380 patients". *Clinical Oral Implants Research* 23.7 (2012): 866-872.
8. Mazor Z., *et al.* "A minimally invasive sinus augmentation technique using a novel bone graft delivery system". *International Journal of Oral Implantology & Clinical Research* 4.2 (2013): 78-82.
9. Bystedt H and Rasmusson L. "Porous titanium granules used as osteo conductive materials for sinus floor augmentation: a clinical pilot study". *Clinical Implant Dentistry and Related Research* 11.2 (2009): 101-105.
10. Soliman O., *et al.* "Ridge Augmentation for atrophied posterior mandible part 1-2-3-4". *Implants (Dental tribune editions)* 4 (2013): 241.
11. Lambert F., *et al.* "Bone regeneration using porous titanium particles versus bovine hydroxyapatite: a sinus lift study in rabbits". *Clinical Implant Dentistry and Related Research* 15.3 (2013): 412-426.

**Volume 3 Issue 3 January 2016**

**© All rights are reserved by Prof. Mohamed Mohamed Nassar.**