

Indirect Sinus Lift :A Simplified Approach For Dental Implant Placement In Posterior Maxilla

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Abstract

The posterior maxilla presents several challenges in rehabilitation to the implant dentist. Implant dentistry has become an excellent treatment modality since its inception into the modern era of dentistry. When patients present with deficient alveolar ridges, it could jeopardize the application of implant dentistry. The dimensional alterations of the residual ridge as well as the pneumatization of the maxillary sinus occurring after tooth loss may lead to vertical and transversal bone deficiencies significantly limiting the insertion of implants of desired length and diameter. The procedure of choice to restore this anatomic deficiency is maxillary sinus floor lift up. The purpose of this case report is to bring forward such technique which prevents perforation of sinus lining during implant placement by doing the sinus lifting with indirect approach through alveolar crest.

Introduction

Maxillary sinus floor elevation with a transcrestal approach represents (TCA) a surgical procedure to vertically enhance the available bone in the edentulous posterior maxilla through an access created through the edentulous bone crest. Surgical techniques for are mainly based on the fracture or perforation of the sinus floor by means of osteotomes (Coatoam 1997; Bruschi et al. 1998; Deporter et al. 2000) or burrs (Tatum 1986; Cosci & Luccioli 2000; Fugazzotto 2002; Le Gall 2004; Soltan & Smiler 2004; Chen & Cha 2005; Vitkov et al. 2005). The apical displacement of the sinus floor obtained by TCA may be enhanced and better maintained by condensing a graft material under the elevated sinus membrane. Pjeturs-son et al. (2009a) compared the outcomes of TCA when performed by means of osteotomes with and without the additional use of deproteinized bovine bone mineral (DBBM). At 1 year post-surgery, the probability to observe a radio-opaque structure apical to the implants was higher at grafted compared with non-grafted sites. Conclusively there is a significant gain in radiographic bone height in grafted site as compared to non-grafted sites. This case report describes one such indirect approach for maxillary sinus lift up in which implant placement was carried out simultaneously with elevation of the sinus floor.

Case Report

A 27 years old male reported with the chief complaint of the difficulty in chewing from upper left back tooth region because of the loss of tooth in that region. On radiographic examination the available bone height was found to be 5 mm from the maxillary sinus lining (fig 1). After thorough oral and radiographic examination (fig 2) and discussing all the options, endosseous implant with indirect sinus lift through crestal approach was selected.

Treatment was performed in the following manner:

- 1) Prior to the surgery antibiotic Tab. Clavidur 625mg t.d.s., Tab. Enzoflam t.d.s., Tab Protera 40mg b.d. was prescribed for 5 days and recalled on day 3 for the surgery.
- 2) On the day of surgery mid-crestal full thickness incision was performed. Once the flap was reflected (fig 3) the Pilot drill prepares the osteotomy 2mm short of the sinus floor and enlarged to the same diameter of implant as selected for the final placement.
- 3) The osteotome of the final size of the implant dimension was selected and sinus floor fracture was performed with the mallet. (fig 4)
- 4) An endosseous implant was then tapped gently into the prepared site.
- 5) The cover screw was then placed and the site was sutured with 3-0 nylon (Suture India) after 7 days sutures were removed and

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- healing was uneventful. (fig 5)
- 6) After 3 months before implant exposure check radiographic was taken confirming the osseointegration of an implant.
 - 7) Sulcus former of the desired diameter and height was selected and second stage surgery was performed.
 - 8) After 15 days of healing an abutment was selected and with the help of transfer coping impression was made.
 - 9) An implant supported metal ceramic fixed prosthesis was fabricated in laboratory and was cemented with 3M Relay X luting cement. (fig 6)
 - 10) The followup orthopantomogram (OPG) was taken one year later which shows the stable bone around the implant in function, which supports the use of the osteotome technique for long term result in indirect sinus lifts.

Discussion

With the recent advances in the implant dentistry restoring posterior maxilla is no more a big challenge. Placement of implant in posterior maxilla is of concern because of the presence of maxillary sinus as the ridge resorbs sinus lining get close to the alveolar ridge resulting in higher chances of sinus perforation during implant placement. In these situations it is mandatory to lift the sinus lining for increasing the bone height for the implant placement. Different techniques are being used for sinus lift like Direct Sinus Lift, Indirect Sinus Lift, MITSA Technique, Balloon Lift, Summers Technique, Densah Bur Technique but the author find the summers technique reliable in majority of the cases.

Conclusion

In conclusion the results indicated that the application of the Summers Technique (Osteotome Technique) may provide a predictable elevation of the maxillary sinus floor with limited post surgical complication and post-operative discomfort.

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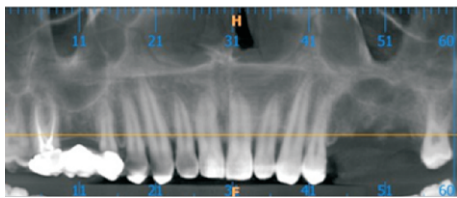


Fig.1



Fig.2

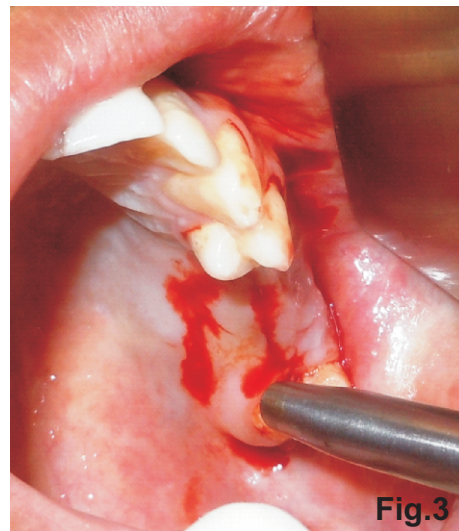


Fig.3

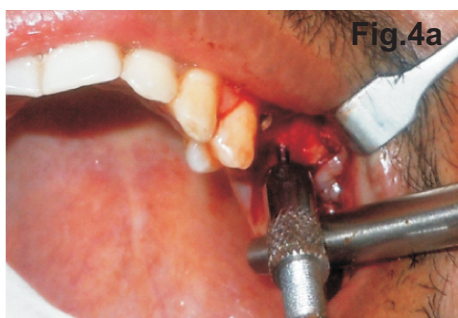


Fig.4a

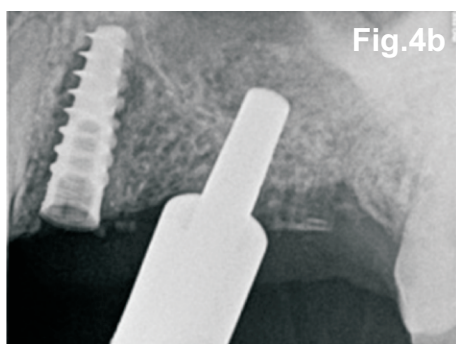


Fig.4b



Fig.5



Fig.6



Fig.7



Fig.8