ORIGINAL RESEARCH PAPER

Surgery

KEY WORDS:

PLACEMENT OF DENTAL IMPLANTS IN ATROPHIC MAXILLA USING DIRECT SINUS LIFT TECHNIQUE WITH BONE GRAFT: A CASE REPORT

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Introduction:

The posterior maxilla is always considered as the difficult site for the placement of implant than the mandible due to the presence of various anatomical landmark such as maxillary sinus, these anatomical structures often makes every dental implant surgeons a challenge task in placement of dental implants in the chronic atrophic maxilla and difficult in osseointegration and further functional and aesthetic implant supported prosthesis. Various techniques in sinus lifting procedure enable the additional anchorage and stability in maxillary segments with atrophic ridges and pneumatic sinuses. The success of implant therapy is directly related to the available quality and quantity of bone in the maxilla or mandible.[1] The posterior maxilla presents unique challenges for implant placement compared with other regions of the mouth. Most important among this is the presence of the maxillary sinus.[2] It is common to find sinus floor close to the alveolar ridge which is related to two phenomenon: i) enlargement of sinus at the expense of alveolar bone after tooth extraction.[3] ii) increased pneumatization of the sinus because of increase in positive intra antral pressure.[4] The most widely used approach for sinus lift are: 1) the direct sinus lift given first by Boyne & James in 1980.[5] 2) The indirect approach which is a less invasive alveolar crestal approach. Summers (1994) proposed the osteotomy technique for indirect sinus lift.[6] since then the osteotomy technique has undergone various modification. The case report describes direct sinus lift with immediate implant placement.

Case Report:

Patient Mr. Ganpatrao Tile, 58 years male, reported to the Pravara Rural Dental College, Loni. The patient wanted to get his missing teeth replaced in upper right and left back region of jaw. On the clinical examination, it was noticed severe loss of alveolar bone. The planning for the surgical procedure includes a maxillary sinus lift, preceded by blood collection (L-PRF) and immediate implant placement.

A preoperative evaluation of bone height and bone width is measured clinically and with the help of cone beam computed tomography. The surgical protocol was followed as follows:

1) Antibiotic prophylaxis was initiated a day before surgery.
2) Drill upto 1 mm away from the floor was continued with1.1, 2.8, 3.3 drills were used till the final preparation. Then the expansion osteotomes are used. (Fig. 1)
4) Light tapping with a mallet carefully collapses the sinus floor into the sinus cavity elevating the schneiderian membrane. (Fig. 2)
5) Elevation of the sinus membrane performed using the 3# osteotome that was used previously to force the graft head of its tip to achieve fracture the sinus floor up fracture. (Fig. 3)
6) Implant of dimension of (13 x 4.2 mm) was placed. Primary stability was assessed by finger pressure, the implant showed primary stability. (Fig. 4)
7) Abutment was positioned over the implant and the occlusal height was adjusted, implant was loaded with temporary restoration. (Fig. 5)
8) Post operatively, patient was advised to rinse the mouth with twice a day with 0.12% of Chlorhexidine solution for two weeks after surgery. Antibiotics were prescribed for next 7 days.
9) After a healing period of 4 months, patient was recalled, and rehabilitated with fixed prosthesis. (Fig. 6, 7)

Discussion:

The rehabilitation of the posterior region of the maxilla requires the presence of two factors considered essential: Amount of remaining bone and quality of the tissues. During the procedure, some cautions should be taken to avoid complications involving the maxillary sinuses, in view of the proximity of the alveolar ridge with the sinus floor. Studies point out that there are two types of techniques for implant installation: Delayed and immediate. The first is used when there is a presence of remaining bone greater than 5 mm[6]. In contrast, a remaining bone smaller than 5 mm presents a high risk for infectious processes in the bone tissues grafted on the exposed region.[7] Regarding the use of osteotomes, there are a few advantages when used for type III and IV bones. They include an increase in bone density in the remaining maxillary bone, promoting a superior primary stability for the implants, conserving and compacting bone, instead of removing it through the use of drills.

Conclusion:

Implant placement in in the posterior maxilla that are atrophied with less height in between the sinus floor and the alveolar ridge can be greatly extended by the indirect sinus lift procedure through the crestal osteotome approach as the procedure is very easy and invasive and the time consumption is less and the apical bone themselves acts as the bone graft and that tents the sinus lining and crestal sufficient primary stability for the implant placement with less post-operative complications. It also allows the treating the compromised posterior maxilla with reliable results.

FIG. 1

FIG. 2

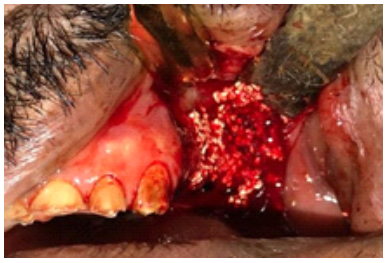

FIG. 3

FIG. 4

FIG. 5

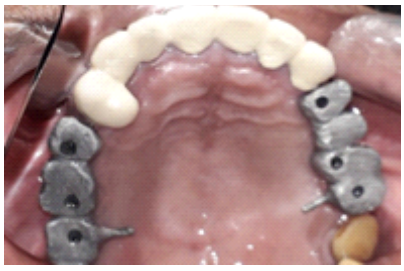

FIG. 6

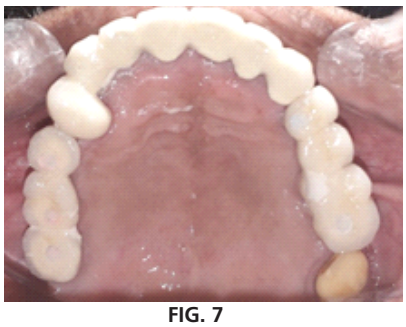

FIG. 7

Legends of figures:

1- Pre- operative view (2nd quadrant)
2- Opening of maxillary sinus
3- Placement of bone graft + platelet rich fibrin (PRF)
4- Placement of dental implants
5- 2nd stage of implants
6- Metal – trial
7- Occlusal view

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