

IMMEDIATE IMPLANT PLACEMENT WITH MINIMALLY INVASIVE HYDRAULIC SINUS LIFT TECHNIQUE-A CASE REPORT

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Abstract

Keywords: *Missing teeth, immediate implant, minimally invasive, sinus lifting.*

Objective: The objective of the present is placement of immediate implant with hydraulic sinus lift technique.

Materials and Methods: A 40 year old male patient reported with decayed teeth in upper right back tooth region. The tooth was beyond restoration so an extraction and immediate implant placement was planned by raising of full thickness muco-periosteal flap.

Results: The results of the present implant placement was evaluated clinically and radiographically 3 months post implant placement. The implant didn't show any signs failure, thus a prosthesis was planned for same.

Conclusion: Hydraulic maxillary sinus lift may be an alternative to conventional surgical sinus lift techniques.

Clinical relevance: The method discussed in the following case report is less technique sensitive alternative for planning implant in deficient maxillary posterior ridges.

Introduction

Endosseous implants have made it possible for the clinician to perform restorations in patients with fully or partially edentulous jaws where the standard protocols required the placement of implants into healed edentulous ridges¹. Lazzara in 1989 placed implants immediately after tooth extraction. Immediate implants were augmented with barrier membrane to preserve ridge width and height and to decrease the treatment time. Becker et al. reported a 93.3% 5-year implant survival rate with clinically insignificant crestal alveolar bone loss for immediate implants that were augmented with barrier membranes. Over the past 16 years numerous studies have confirmed the

reliability of implants placed at the time of tooth extraction². The placement of implant immediately extracted sites might be limited because of inadequacy of bone especially in maxillary posterior arch close to maxillary sinus.

A hydraulic method for lifting the Schneiderian membrane was first presented by Chen in 2005. The present case report attempts at presenting a case of immediate implant placement post sinus lift using hydraulic method.

CASE REPORT

A 40-year-old male patient reported to the Department of Periodontology and Oral Implantology with the chief complaint of decayed tooth in upper right back region of jaw since a year. The patient was systematically health and was not under any medications. Pre-surgical preparation included medical, dental, and radiographic evaluations cone beam computerized tomography (CBCT) scan and basic dental therapy to alleviate preexisting medical-dental problems. A written consent was taken from the patient for the same. Also, a consent was taken for publication of this case report and any additional related information pertaining to the present study also additional consent was taken. Preoperative Intra oral periapical radiograph (IOPAR) by was taken followed cone beam computed tomography (CBCT) scans were performed to obtain an accurate measurement of the bone before surgery. Patient had maxillary posterior bone – 6.3 mm on the mesial and 11.5mm on the distal from the alveolar crest as seen in (Fig 1).

The surgical procedure was performed under local anesthesia (2% lidocaine HCL and epinephrine 1:100,000). A full thickness mucoperiosteal flap was raised using horizontal crestal incision with #15 no blade w.r.t 14 #15# 16 region both buccally and palatally for proper accessibility, extraction of root stump was done (Fig. 2 & 3).

Osteotomy site was prepared with drill #3.75mm and #10mm diameter and height respectively(Fig.4) Sinus membrane was analyzed using a sinus gauge (Fig.5) and membrane was lifted 2mm by hydraulic method using crestal sinus lift approach(Fig.6). Implant 4.5*10 mm (OSSTEM®) was driven into the osteotomy site with a torque force of 35-40N/cm² (which achieved primary stability) and a cover screw placed. After repositioning the soft tissues, primary closure was attained using 3-0 ethicon suture (Fig. 6). The patient was given the routine post-operative instructions. The patient was prescribed 500 mg of amoxicillin TID for 5 days and 0.2% chlorhexidine gluconate mouth rinse for 2 weeks. The site was allowed to heal for 3 months, later abutment was placed on the implants and restorative procedure was initiated (Fig.7).

RESULTS

Patient completed the scheduled follow-up visits up to 3months post implant placement. No signs of implant failure were recorded during the follow-ups. No pathologic conditions in the implants site were seen on radiographic follow-up after 3months. After 3months, implant was clinically and radiographically stable. In general, good function of implants and restorations were achieved. Implant was stable at the time of abutment connection which was performed after a healing period of 3 months. Patient reported full satisfaction for function, phonetics, and esthetics. The elevation of the sinus membrane was one of the most delicate parts of the technique.

DISCUSSION

Diagnosis and treatment planning are key factors in achieving a successful outcome after placing and restoring implants immediately after tooth extraction.

Treatment planning is most important step for determining the prognosis of the dentition, and specially prognosis of the tooth in question. Reasons for tooth extraction may be many such as insufficient crown to root ratio, insufficient remaining root length, low periodontal attachment level, furcation involvement, non-restorable caries lesions, root

fractures with large endodontic posts, root resorption and questionable teeth in need of endodontic retreatment³ to include a few.

Immediate implant placement in posterior maxillary area with simultaneous sinus membrane elevation drastically reduce the total treatment time, second surgical procedure expense and also improve healing time⁵. The present case report further establishes immediate implant placement and indirect sinus lift procedure as a predictable procedure for restoration of edentulous sites in maxillary posterior areas.

Compliance with ethical standards

Conflict of Interest: We the above-mentioned authors hereby declare that we have no conflict of interest. Funding: The present study has not received funding from any external sources.

Ethical approval: The present study includes recruitment of human subjects for which ethical clearance has been obtained from the ethical committee of Dr. Syamala Reddy Dental College and Research Centre Bangalore and was furthered registered with RGUHS Bangalore Karnataka (RGUHS2013-2014) All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Informed consent: Informed consent was obtained from all individual participants included in the study.

AUTHOR'S CONTRIBUTION

SR NO:	NAME OF AUTHOR	INITIALS	CONTRIBUTION IN STUDY
1)	SHANTIPRIYA REDDY	SR	CONDUCTED THE PROCEDURE AND PREPARED MANUSCRIPT
2)	PRASAD MGS	PS	DATA COLLECTION
3)	NIRJHAR BHOWMIK	NB	MANUSCRIPT PREPARATION AND CONDUCT OF STUDY
4)	VIMAL S KALAGI	VS	CONDUCTED THE PROCEDURE AND PREPARED MANUSCRIPT
5)	HUZAIFA RASHID PANDIT	HR	DATA TABULATION, STATISTICS
6)	ABIS AMIR	AA	DATA TABULATION, STATISTICS

CONFLICT OF INTEREST

WE THE ABOVE-MENTIONED AUTHORS SR, MS, NB, VS, HP AND AA INVOLVED IN THE STUDY AND PUBLICATION OF THE CASE REPORT “: IMMEDIATE IMPLANT PLACEMENT WITH MINIMALLY INVASIVE HYDRAULIC SINUS LIFT TECHNIQUE” HERBY DECLARE THAT WE HAVE NO CONFLICT OF INTEREST.

REFERENCES

1. *Becker W & Goldstein M .Immediate implant placement: treatment planning and surgical steps for successful outcome. Perio 2000. 2008;(47): 79–89*
2. *Becker W, Becker BE, Polizzi G, Bergstrom C. Autogenous bone grafting of bone defects adjacent to implants placed into immediate extraction sockets in patient: a prospective study. Int J Oral Maxillofac Implants 1994: 9: 389–396.*
3. *Becker W, Becker BE, Ricci A, Bahat O, Rosenberg E, Rose LF, Handelsman M, Israelson H. A prospective multicenter clinical trial comparing one- and two-stage titanium screw shaped fixtures with one-stage plasma-sprayed solid-screw fixtures. Clin Implant Dent Relat Res 2000: 2: 159–165.*
4. *Landsberg CJ. Socket seal surgery combined with immediate implant placement: a novel approach for single-tooth replacement. Int J Periodontics Restorative Dent 1997: 17: 140–149.*
5. *Stelzle F, Benner KU. Evaluation of different methods of indirect sinus floor elevation for elevation heights of 10mm: An experimental ex vivo study. Clin Implant Dent Relat Res 2011;13 124-33.*

FIGURES

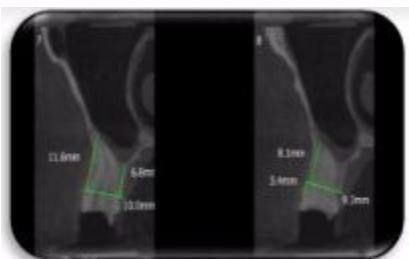


Fig. 1: Preoperative CBCT of 15 region



Fig. 2: Intra operative 15 region



Fig. 3: Extracted root stump wrt 15 region



Fig 4: Osteotomy site #15



Fig 5: Analysis of Sinus Membrane



Fig 6: Hydraulic lifting of sinus membrane



Fig 7: Implant Driving



Fig 8: Cover screw was placed



Fig 9: Interrupted Sutures placed



Fig 10: 3 months later Prosthetic crown given