

“SOONER THE BETTER” –

IMMEDIATE PLACEMENT OF WIDE BODY IMPLANTS IN EXTRACTION SOCKETS OF MANDIBULAR FIRST MOLARS: ASSESSMENT OF CRESTAL BONE LEVEL – A PILOT STUDY IN INDIAN POPULATION

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Introduction

Understanding the changes occurring to the alveolar process after extraction is of utmost importance when planning the rehabilitation of the edentulous jaw. It not only results in loss of hard tissue, but also results in changes of the overlying soft tissue. Alveolar ridge resorption after tooth extraction can considerably reduce the residual bone volume and compromise the favourable positioning of the implants required for optimal restoration. Immediate implant placement into extraction site shortens the treatment time and the bone volume might be partially maintained thus providing good aesthetic results.

Aim

To evaluate the crestal bone level changes following immediate placement of wide body implant in mandibular first molar extracted sockets.

Materials and Methods

13 healthy adults with grossly destructed mandibular first molars were included in this prospective study. Post, atraumatic extraction of the mandibular first molar, 15 wide body implants of 7 mm width were placed in the extraction socket following the manufacturer's protocols. Bone level around the implant site was measured immediate post op, 3-months post op, 6 months post op and 12 months post op using standardised intra oral radiovisiography as described in the figures. The line AI was used as a stable reference point since the position of the implant doesn't change over time. The value of AD and AM were measured during the specified period and the difference between the measured values gave the bone loss at the respective sites.

Result

One patient was lost to follow up. A mean bone loss of 0.25mm at the mesial aspect of the implant and 0.207 mm at the distal aspect of the implant was noted at the end of 12 months.

Discussion

Based on the systematic review by Wah Lay Tan et al the average bone loss at the end of 12 months following extraction was 0.84 mm at the mesial aspect and 0.80 mm at the distal aspect. In our study we found that there was significant bone loss in the mesial and distal aspect of the implant placed immediately at the extraction socket at the end of 12 months. However, the average bone loss in our study was lesser than the amount of resorption an extraction site undergoes without placement of an implant. Thus, according to the present study, the placement of a wide implant at the extraction site does offer significant reduction in post extraction crestal bone loss.

Conclusion

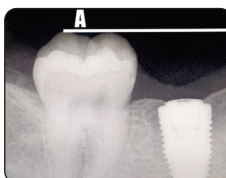
According to this pilot study, immediate placement of a wide body implant does reduce the crestal bone loss significantly when compared to delayed placement of implants. The study can further be improved by increasing the sample size and by measuring the changes in the horizontal bone levels as well. Another point to consider from this study is the use of a radiovisiography for measurement of bone loss, which substantially reduces the cost and radiation exposure to the patient.

Figure A



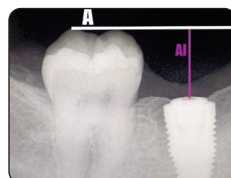
Implant placed post extraction

Figure B



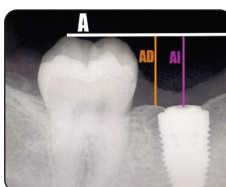
Line A along the cusps of second premolar and second molar

Figure C



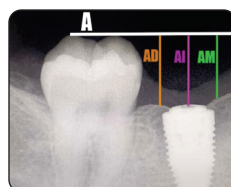
Perpendicular line from A to implant – AI

Figure D



Perpendicular line from A to distal crest – AD

Figure E



Perpendicular line from A to mesial crest – AM

Table 1: Comparison of bone loss on mesial aspect with time intervals

Descriptive Statistics					
	N	Minimum	Maximum	Mean	SD
M3	14	0.0	0.2	0.086	.0535
M6	14	0.1	0.3	0.179	.0579
M12	14	0.2	0.3	0.250	.0519

Table 2: Comparison of bone loss on distal aspect with time intervals

Descriptive Statistics					
	N	Minimum	Maximum	Mean	SD
D3	14	0.0	0.2	0.093	.0475
D6	14	0.1	0.3	0.150	.0650
D12	14	0.1	0.4	0.207	.0730

Conflict of interest: None

Ethical approval and patient consent: Obtained

References:

1. Tan WL, Wong TLT, Wong MCM, Lang NP. (2012) A systematic review of post-extraction alveolar hard and soft tissue dimensional changes in humans. Clin. Oral. Impl. Res. 23(Suppl. 5), 2012, 1–21