

See discussions, stats, and author profiles for this publication at: <https://www.researchgate.net/publication/326265094>

Immediate Post-Extraction Implant Placement, Immediate Function and Long-Term Prognosis. Factors Affecting Alveolar Ridge Changes

Article · August 2018

CITATIONS

0

READS

61

4 authors:



Luca Dal Carlo

Free Professional Dentist Office

75 PUBLICATIONS 139 CITATIONS

[SEE PROFILE](#)



Marco E. Pasqualini

Private Clinic Milan Italy

44 PUBLICATIONS 153 CITATIONS

[SEE PROFILE](#)



Franco Rossi

25 PUBLICATIONS 97 CITATIONS

[SEE PROFILE](#)



Mike Shulman

15 PUBLICATIONS 36 CITATIONS

[SEE PROFILE](#)

Some of the authors of this publication are also working on these related projects:



investigation [View project](#)



Investigation on the implant type more proper to preserve the inter-proximal bone peaks [View project](#)

Immediate Post-Extraction Implant Placement, Immediate Function and Long-Term Prognosis. Factors Affecting Alveolar Ridge Changes

Luca Dal Carlo¹, Marco E Pasqualini², Franco Rossi³ and Mike Shulman^{4*}

¹Private Practice, Venice, Italy

²Private Practice, Milan, Italy

³Private Practice, Varese, Italy

⁴Private Practice, Cliffside, NJ, USA

***Corresponding Author:** Mike Shulman, Private Practice, Cliffside, NJ, USA.

Received: March 30, 2018

Abstract

Clinical and radiographic observation demonstrating immediate, post-extraction implant placement, following complete bone regeneration. Bone deposition and turn over along the implant in the vertical direction. Soft tissue (gums) behavior with respect of the bone changes [1]. The implant design; monolithic implants (one-piece), implants with connected abutments (two- piece implant). Effect of micro mobility if present, in two-piece implants. Maintaining biological width with respect of augmented architecture of the bone, soft tissue (gums) and implant. Soft, hard tissue and implant interface. Study conducted on a regular every day office clinical situations when the extracted teeth were replaced with implants instantaneously and implants immediately loaded.

Aim of the Work: This clinical observation highlights following subjects. Recommendations in post-extraction conditions. Pros and cons of immediate implant placement and the long-term success rate of the bone regeneration [2]. Prognosis and soft tissue response with respect of the bone regeneration.

Materials and Techniques: In this article Authors summarizing and analyzing data from total 7000 dental implant cases collected x-rays. Where 4500 one-piece implants and 2500 two-piece with minimum 5 years and maximum 25 years observation and valuation period. Approximately 50% were placed immediately in the post extraction sockets, and approximately 50% in the healed bone. Approximately 50% implants were immediately loaded. Atraumatic extractions, flapless approach, Implant site preparation following surgical protocol achieving bicortical stabilization implemented in all situations where possible. No additional bone grafting other than using autogenous bone from the osteotomy were performed. One-piece implants restored as one stage protocol. Two piece implants restored as one stage protocol, when one abutment utilized at all times [3,4]. Protective occlusal scheme utilized for the interim prosthesis as well as a permanent restoration [5]. One-piece implants advantage.

Keywords: Post-Extraction Implant; Bone Regeneration

Introduction

Bone is comprised of complex mineralized connective tissue characterized by constant remodeling. Bone tissue also has considerable potential for healing, which involves the cooperative action of bone forming and resorptive cells to restore the architecture and function of damaged tissue [6]. Among the specialized bone tissues, the alveolar bone is characterized by distinctive features such as the continuous and rapid remodeling in response to stimuli by force. After extraction, two opposite process take place and depends on stimulus and current condition bone begins the healing process. Maintaining the blood clot, repositioning the tissue if needed, achieving and maintaining good primary stability of the implant, are key factors for the success [7].

Citation: Mike Shulman., *et al.* "Immediate Post-Extraction Implant Placement, Immediate Function and Long-Term Prognosis. Factors Affecting Alveolar Ridge Changes". *EC Dental Science* 17.8 (2018).

Clinical Evaluation Protocol

Implants are subdivided in two categories based on implants design. Monolithic or one piece implants and Two piece implants, where implant/abutment interface present. The difference between one-piece and two-piece integrated implants observed. As a common knowledge, the vast majority of the forces concentrated in the implant neck, or coronal area, the first signs as well as latest of the bone changes will be related to the same area [8]. Bone turn over, maturation and densification at the coronal implant area is verified on the x-rays [9]. Analyzing 7000 dental implant cases collected x-rays, demonstrated that the bone level stabilized and maintained close to the original pre-extraction level or with minimal non-significant changes in situations where monolithic (one-piece) implant were used [10]. Similar result where with two-piece implants with stable internal connection [11]. However, two-piece implants with external connection revealed bone resorptions below the implant/abutment connection (interface).

Clinical Case Presentation

Patient presented with complains; pain upon chewing and tooth mobility. X-ray revealed large periapical pathology with tooth root resorption (Figure 1). Clinically gingival inflammation around tooth, mobility cl. 2. Tooth is painful upon percussion. Treatment plan includes atraumatic extraction, immediate implant placement and immediate load by means of an interim prosthesis (fixed temporary crown).



Figure 1

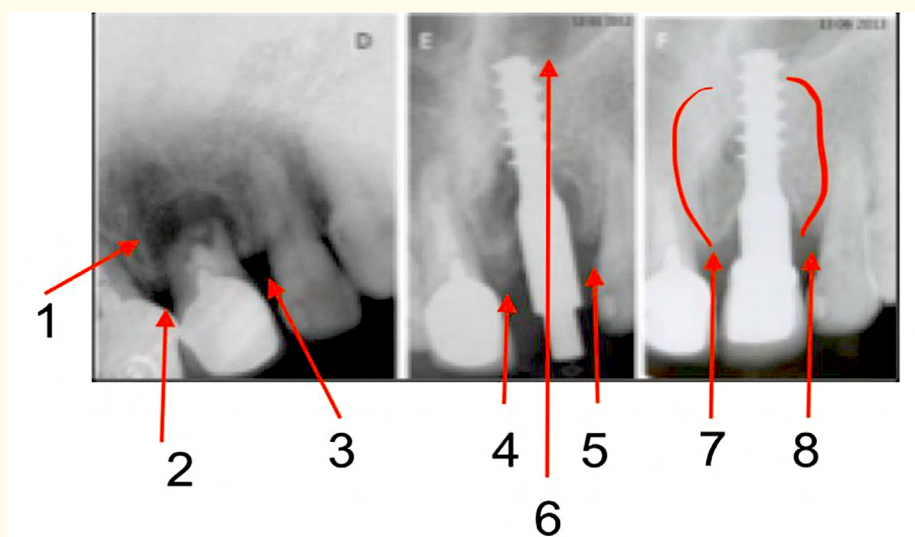


Figure A1

Operative report: Infiltration anesthesia Septocaine® with epinephrine 1:100,000. Intrasulcular incision, atraumatic tooth extraction with periostomes and surgical elevators. Following thorough socket debridement, irrigation with antiseptics. Implant site preparation following surgical protocol utilizing assorted implant drills for the implant size (Figure 2). One-piece implant placed in to the osteotomy. Apical portion of the implant engaged in to the sinus floor (Figure 3). Achieved good primary stability. Harvested bone utilized for the site grafting. Surgical site closed with simple interrupted sutures silk 3.0. Temporary crown cemented with temporary cement. Permanent crown fabricated and cemented with permanent cement in 4 months. X-rays assessment in period of 18 month (x-ray #3) (Figure 4).

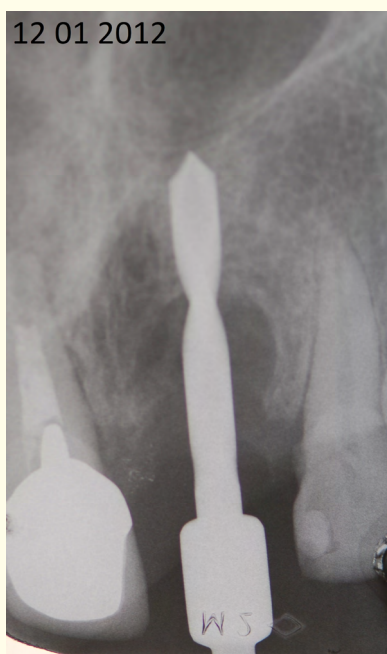


Figure 2

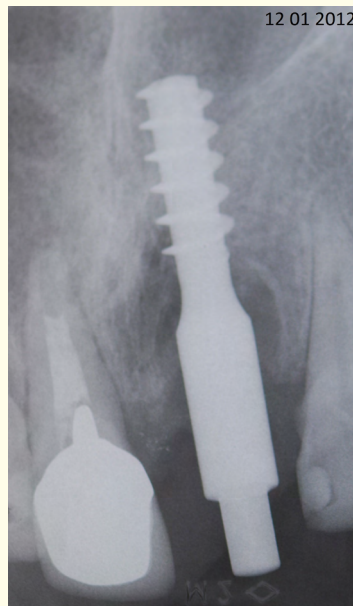


Figure 3

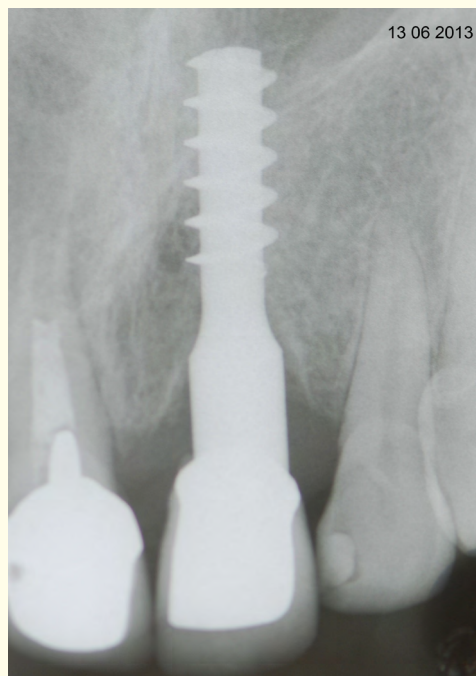


Figure 4

Crestal bone level at the preoperative and at the time of the surgery x-rays (2, 3, 4 and 5). Distance measured from CEJ of adjacent teeth to the crest of the bone. Crestal bone level 18 month later (7, 8). Very insignificant difference, slightly increased distance in a ≤ 1 mm. Considering different angulation of the x-ray tube would be acceptable to say non-significant increase. Stabilized crestal bone level will assured stable soft tissue level. Soft tissue level is enhanced with gingival restorative interface. By controlling the distance between crest of the bone interproximal contact point. Optimal distance 5 - 6 mm achieved.

Discussion and Conclusions

Clinical observation of this case and large amount similar cases signifying predictable positive outcome following up with suggested protocol and materials. Suggested protocols for the atraumatic extraction, thorough socket debridement, proper implant site preparation, achieving good primary stability, correct immediate load as proper occlusion scheme and utilizing one-piece implant design will substantiate:

1. Proper implant integration
2. Complete bone regeneration
3. Adequate bone remodeling
4. Restorable and maintainable architecture of the bone, soft tissue and implant interface [12-18].

Bibliography

1. Stefanini M., *et al.* "Coronally Advanced Flap with Site-Specific Application of Connective Tissue Graft for the Treatment of Multiple Adjacent Gingival Recessions: A 3- Year Follow-Up Case Series". *International Journal of Periodontics and Restorative Dentistry* 38.1 (2018): 25-33.
2. De Smet E., *et al.* "The influence of plaque and/or excessive loading on marginal soft and hard tissue reactions around Brånemark implants: a review of literature and experience". *International Journal of Periodontics and Restorative Dentistry* 21.4 (2001): 381-393.
3. Degidi M., *et al.* "Bone formation around a dental implant with a Plat- form switching and another with a tissuecare Connection. A histologic and Histomorphometric evaluation in man". *Titanium* 1.1 (2009): 10-17.
4. Degidi M., *et al.* "One abutment at one time: non-removal of an immediate abutment and its effect on bone healing around subcrestal tapered implants". *Clinical Oral Implants Research* 22.11 (2011): 1303-1307.
5. Dal Carlo L. "Investigation on the implant type more proper to preserve the interproximal bone peaks". *European Journal of Prosthodontics* 2.3 (2007): 89-97.
6. Moon IS., *et al.* "The barrier between the keratinized mucosa and the dental implant. An experimental study in the dog". *Journal of Clinical Periodontology* 26.10 (1999): 658-663.
7. Meynardi F., *et al.* "Correlation between dysfunctional occlusion and periodontal bacterial profile". *Journal of Biological Regulators and Homeostatic Agents* 30.2 (2016): 115-121.
8. Hermann JS., *et al.* "Influence of a machined collar on crestal bone changes around titanium implants: a histometric study in the canine mandible". *Journal of Periodontology* 82.9 (2011): 1329-1338.
9. Hermann JS., *et al.* "Crestal bone changes around titanium implants. A histometric evaluation of unloaded non-submerged and submerged implants in the canine mandible". *Journal of Periodontology* 71.9 (2000): 1412-1424.

10. Zipprich H., *et al.* "Micro movements at the implant abutment Interface: measurements, causes and Consequences". *Implantologie* 15 (2007): 31-45.
11. Diotallevi P., *et al.* "Biomechanical and radiological correlations of the resorption of the alveolar bone. A comparative study on 47 subjects". *Doctor OS* (2007): 117-123.
12. Isidor F. "Loss of osseointegration caused by occlusal load of oral implants: a clinical and radiographic study in monkeys". *Clinical Oral Implants Research* 7.2 (1996): 143-152.
13. Dal Carlo L. "Study Over 7000 Endosseous Implants Inserted During 25 Years in 3300 Interventions. Clinical Results in Different Anatomical And Functional Situations. Statistical Data and Over 20 Years Iconographic Documentation". *Journal of Dental and Oral Health* 2.6 (2016): 1-10.
14. Dal Carlo L., *et al.* "Platform switching and internal connection implantology: A moot wedding". *Doctor OS* 24 (2018): 14-17.
15. Schierano G., *et al.* "Organization of the connective tissue barrier around long-term loaded implant abutments in man". *Clinical Oral Implants Research* 13.5 (2002): 460-464.
16. Misch CE. "The key to implant treatment plans". *AAIP Implant Prosthodontic Monographs* 1.2 (2017).
17. Bidez MW and Misch CE. "Issues in bone mechanics related to oral implants". *Implant Dentistry* 1.4 (1992): 289-294.
18. Langer L., *et al.* "Unintentional root fragment retention in proximity to dental implants: a series of six human case reports". *International Journal of Periodontics and Restorative Dentistry* 35.3 (2015): 305-313.

Volume 17 Issue 8 August 2018

©All rights reserved by Mike Shulman., *et al.*