



# Post-Implant Removal with Bone Regeneration And Immediate Loading Using the NeO Alpha-Bio Tec. Implant



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# Post-Implant Removal With Bone Regeneration and Immediate Loading Using the NeO Alpha-Bio Tec Implant

## Abstract

The case is that of an immediate loading in a patient with coronal fracture. A 33-year-old patient with tooth number 24 fractured. A CT scan revealed a chronic periapical lesion of the vestibular root. The patient was treated with a post-extraction NeO AlphaBio implant, xenograft bone regeneration, resorbable collagen membrane and non-functional immediate loading using PEEK abutment.

## Background

Tooth fractures with aesthetic alterations are situations that require efficient and predictable treatments. The post-extraction implant is one such predictable treatment. The osseointegration capacity of the NeO AlphaBio implant has been previously demonstrated [1, 2, 3].

There is no significant difference between the post-extraction implant and the delayed implant with regard to success rates or peri-implant tissues [4, 5]. Ideal situations have been described for the placement of these implants [6].

Implant placement is not contraindicated in teeth with chronic periapical infections, provided that they are previously curetted and treated with antibiotics [7].

Immediate loading is defined as functional or non-functional loading within 48 hours [8]. The success rate of immediate loading implants is between 96.9% and 98.99% [9, 10]. Because there is no difference between delayed loading implants and immediate loading implants, some practitioners recommend doing immediate loading [11].

It is important to avoid micro-movements during the healing phase [12, 13] which is why we do non-functional immediate loading.

The basic requirement for immediate loading is the primary stability of the implant, which depends on the design of the implant, bone quality and milling [14].

The post-extraction immediate loading implant is a procedure that is well documented in the literature.

## Case Overview

A 33-year old female patient came for a consultation due to a tooth fracture, requesting a dental implant that has, if possible, a base without palatal coverage. The patient smokes 10 cigarettes per day. No medical history was reported.

Extra-oral inspection: Mouth opening of 45 mm. High smile line and normal ATM. Normal mastication muscles.

Intra oral inspection: Tongue, palate and floor of the mouth are normal. Normal salivation. Normal palate anatomy. Thin gingival biotype. No periodontal disease.

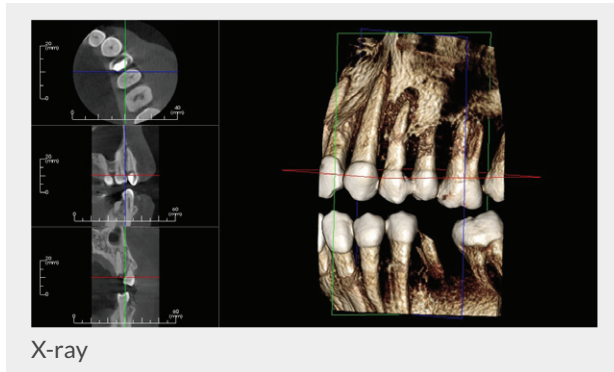
Maxilla: Residual rot of tooth number 16, coronal fracture of tooth number 24, cavities in numbers 25 and 26, and wear facets on numbers 11 and 21. Fracture of the distal radius of tooth number 22.

Mandible: Fillings in 37 and 46. Residual rot of 36. Cavities on the vestibular surface of 34.

## Radiographic findings

**Orthopantomogram:** Residual root was observed in numbers 15 and 36. Coronal fracture of tooth number 24 with radiolucency in the periapical area.

**CT Scan:** Periapical lesion of the vestibular root of tooth number 24 with bone loss was observed at this level.



## Materials used

- NeO AlphaBio Implant 3.75 x 13 mm
- PEEK Abutment H 1.0

## Treatment plan

In response to the demands of the patient, who asked for a quick and aesthetic solution for the fracture of tooth number 24, we proceed to do the following:

- Atraumatic extraction of tooth number 24 and curettage of the periapical lesion through a fold in the vestibular floor to prevent vertical shocks.
- Implant placement, xenograft bone regeneration, placement of a resorbable collagen membrane through the vestibular fold and alveolar preservation.
- Non-functional immediate loading and occlusion control.

The treatment was done in one visit to the dental office.

## Surgical phase



1

Patient smile: High smile line, thin gingival biotype



2

Intraoral Views: Coronal fracture of tooth number 24



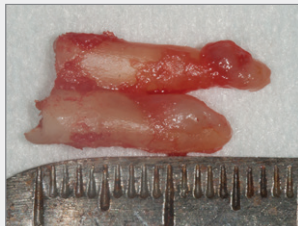
3

Fold opening without vertical unloading

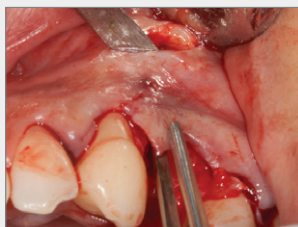


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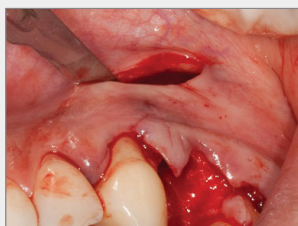
Atraumatic extraction of residual root



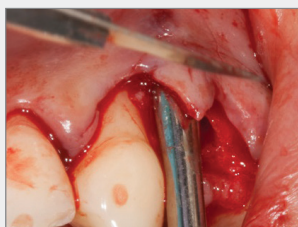
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Residual root with  
periapical lesion in  
vestibular root



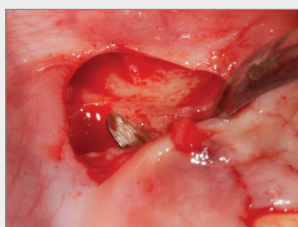
6  
Opening of fold in the  
vestibular floor for  
curettage of the periapical  
lesion and to observe  
for bone defects for  
subsequent regeneration



7  
Fold on the vestibular floor



8  
Extraction with a  
periapical lesion of the  
vestibular root



9  
Curettage of periapical  
injury



10  
Disinfection with  
chlorhexidine 0.12%



11  
Visualization of the  
vestibular defect



12 Implant bed preparation

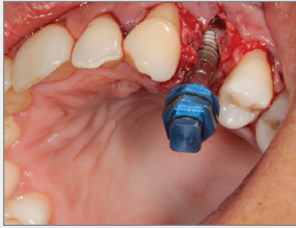


13  
NeO Alpha-Bio Tec implant



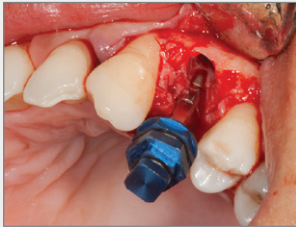
14  
Placement of implant in  
palatal position





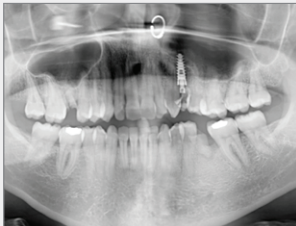
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Placement of implant in palatal position



16

Note integrity of the vestibular wall in the coronal portion and the position of the implant



17

Post operational X-ray



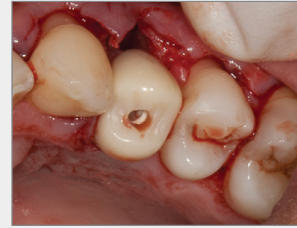
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Placement of PEEK abutment for immediate loading



19

Previously prepared acrylic temporary cover



20

Placement of temporary cover for non-functional immediate loading



21

Xenograft placement on periapical lesion to help in defect regeneration



22

Vestibular gap



23

Filling of the vestibular gap and xenograft placement on the vestibular wall to prevent reabsorption



24

Placement of resorbable collagen membrane



25

Resorbable membrane covering apical defect and vestibular wall of the socket



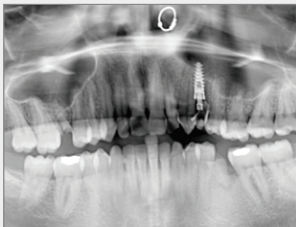
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Silk suture 5.0 (fold on vestibular floor and suspensory points for vestibular closure are sutured, helping to stabilize the membrane)



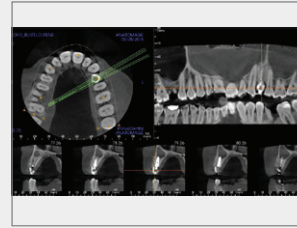
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Occlusion control to ensure that there are no contacts in centric or eccentric movements, laterality and protrusive occlusion (non-functional immediate loading)



28

Follow up X-ray - 6 weeks after surgery



29

CT scan showing the material of the vestibular area, conservation of volume and position of the implant



30

Follow up, six weeks after surgery. Proper healing of the soft tissues is seen



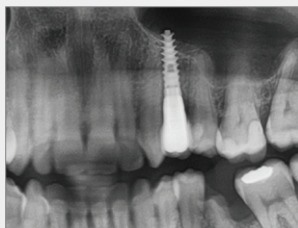
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3 months follow up. Soft tissues healing and X-Ray follow up



32

Smile line



33

3 months follow up with  
final crown

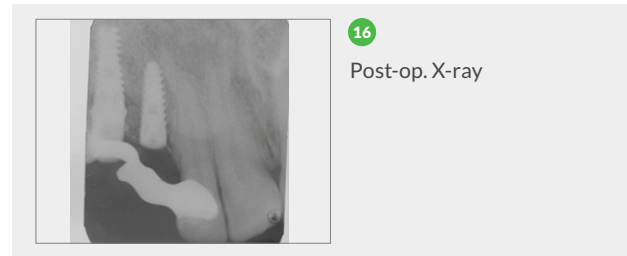
## Summary

In this case, the use of the NeO AlphaBio implant for post-extraction immediate loading in an aesthetic area was a good choice because we achieved primary stability thanks to its design. The prosthetic phase did not present any difficulties due to the accessories that the office has for this purpose. The result was predictable, aesthetic and functional in line with the expectations of the professional and the patient. This type of treatment negated the use of removable dentures and shortened the recovery and procedure time.

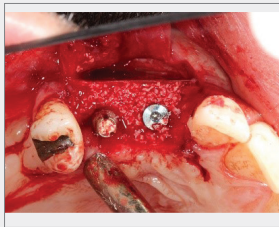
## References

1. Anneroth G, Hedstrom KG, Kjellman O, Kondell PA, Nordenram A. (1985) Endosseus titanium implants in extraction sockets. An experimental study in monkeys. *International Journal of Oral Surgery* 14, 50-54.
2. Karabuda C, Sandalli P, Yalcin S, Steflik DE, Parr GR (1999) Histologic and histomorphometric comparison of immediately placed hydroxyapatite-coated and titanium plasma-sprayed implants: a pilot study in dogs. *International Journal of Oral and Maxillofacial Implants* 14, 510-515.
3. Wilson TG Jr, Carnio J, Schenk R, Cochran D. (2003) Immediate implants covered with connective tissue membranes: human biopsies. *Journal of Periodontology* 74, 402-409.
4. Quirynen M, Van Assche N, Botticelli D, Berglundh T. (2007) ¿How does the timing of implant placement to extraction affect outcome? *International Journal of Oral and Maxillofacial Implants* 22 Suppl, 203-223.
5. Berglundh T, Lindhe J, Ericsson I, Marinello CP, Liljenberg B, Thomsen P. (1991) The soft tissue barrier at implants and teeth. *Clinical Oral Implant Research* 2, 81-90.
6. Evans CD, Chen ST. (2008) Esthetic outcomes of immediate implant placements. *Clinical Oral Implant Research* 19, 73-80.
7. Novaes A. Immediate implants placed into infected sites: a clinical report. *Int J Oral Maxillofac Implants* 1995. 10: 609-13.
8. Immediately/early loading of dental implants: a report from the Sociedad Española de Implantes, World Congress consensus meeting in Barcelona, Spain, 2002.
9. Chiapasco M, Gatti C, Rossi E, Haeffliger W, Markwalder TH. (1997) Implant retained mandibular overdentures with immediate loading. A retrospective multicenter study on 226 consecutive cases. *Clin Oral Implants Res* 8:48-57.
10. Tarnow DP, Emtiaz S, Classi A. (1997) Immediate loading of threaded implants at stage 1 surgery in edentulous arches: ten consecutive case reports with 1 ~ to 5 ~ year data. *Int J Oral Maxillofac Implants* 12:319-329.
11. Salama H, Rose LF, Salama M, Betts NJ. (1995) Immediate loading of bilaterally splinted titanium root-form implants in fixed prosthodontics – a technique reexamined: two case reports. *Int J Periodontics Restorative Dent* 15:344-36.
12. Brunski JB. (1991) Influence of biomechanical factors at the bone-biomaterial interface. *Mechanical Effects on Interfacial Biology*. (Herausgabeort und Verlag einfugen), 391-405.
13. Brunski JB. (1992) Biomechanical factors affecting the bone-dental implant interface. *Clin matter* 10:153-201.
14. Nentwig GH, Romanos GE. (2002) Sofortversorgung von enossalen Implanten Literaturübersicht und eigene Erfahrungen. *Implantologie* 10:53-66.

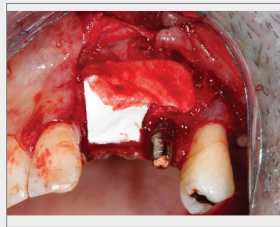
The welding is achieved using a SonicWeld Rx® unit, an ultrasound generator producing ultrasonic waves of precisely defined frequency that are focused with a sonotrode. Once the barrier is fixed, the Alpha-Bio Tec. NeO implant was placed supra-crestally in its preferred location (2-3 mm apically to CEJ of the adjacent teeth). The space between polymeric membrane and pristine bone was filled with a Xenograft. A resorbable collagen membrane was placed over the augmented area (**Figs. 12-13**). Periosteal horizontal releasing incisions were performed at the base of the flap which was sutured without tension using Vicryl 4-0 sutures. A temporary prosthesis (24-X with metal reinforced wire) was placed without gingival or occlusal contact (**Figs. 14-16**). Healing was uneventful.



The case will be prosthetically finalized and updated in the coming months with the delivery of the final prosthetics to the patient.

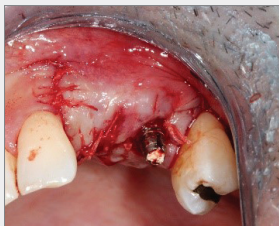


12



13

From left to right - space is filled with Xenograft and covered by a resorbable collagen membrane



14



15

Surgical site is sutured using Vicryl 4-0, horizontal mattresses and simple interrupted sutures; temporary restoration in place over the operated area