

## Case Study 26

# Alpha-Bio Tec ICE Implant in the Maxillary Anterior Region Extraction Socket

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## Abstract

Surgical treatment of the esthetic zone is a very challenging procedure, however, the use of dental implants can provide an immediate esthetic solution. This case study documents the use of the newly designed I.C.E. dental implant in a tooth 21 extraction socket with immediate loading and rehabilitation.

## Introduction

Today, implant placement in fresh extraction sockets is a highly accepted treatment method, with extremely predictable results. In addition to shorter overall treatment time due to fewer surgical sessions, the main reason for immediate implant placement following tooth extraction is to preserve the volume and anatomy of original soft and hard tissue.

<sup>(1)</sup> Replacement of an anterior maxillary tooth, however, is particularly challenging, due to the highly esthetic demands in this area <sup>(2)</sup>. In a 5-year multicenter study, Dr. Henry and colleagues reported an implant success rate of approximately 96% for single tooth replacement in the anterior maxilla. However, the team also reported an esthetic failure rate of approximately 9% for implants in this area.

<sup>(3)</sup> The use of dental implants can provide, in some select cases, an immediate esthetic solution, by using the implant with its immediate abutment for rehabilitation.

The I.C.E. (Alpha-Bio Tec, Petach-Tikva, Israel) implant system is a newly introduced dental implant system, designed for easy use, in a variety of indications.

## Case Study

A 56 year old woman was referred for surgical treatment in October 2013, complaining of a tilting of tooth 21. Based on a diagnosis of hopeless tooth, it required extraction and replacement with an implant. Due to highly esthetic demands, the patient refused to accept any solution other than immediate rehabilitation of the implant.

### Patient Evaluation:

Medical condition: healthy

Intraoral examination: oral soft tissue pathologies were detected

Oral hygiene: good

Tooth 21 crown was not attached to the root and was therefore fully movable. However the esthetics of the crown were acceptable. (Fig.1)

### X-ray Evaluation:

The patient was referred for a dental CT scan (Fig. 2) which demonstrated a short root of tooth 21 with a fair root filling and the development of a periapical bone resorption.

Bone height, however in the area intended for implantation, was at least 14 mm and the width was at least 6 mm.

## Surgical Procedure

Surgical treatment was under local anesthesia. Tooth 21 was extracted traumatically in order to preserve the surrounding socket walls, as well as soft tissue architecture. (Fig. 3) The debridement of granulation tissue was performed with a sharp curette, followed by saline irrigation. Then a full mucoperiosteal flap was then reflected and the recipient site was prepared for implant insertion, using the well-established implant protocol with serial drill sizes. (Fig. 4, 5) The implant was inserted and located palatally, including 1.5 mm apical to the cement-enamel junction of the adjacent teeth, to improve the final esthetics. (Fig. 6)

In this case, we used an I.C.E. implant. Its dimensions were 3.75-16 mm, the maximal length and diameter possible in this case. The use of a long implant provided good primary stability of the implant, since we drilled beyond the tooth socket through the healthy bone. Choosing the best implant is based on the CT scan results, however, the clinician should always be aware of the possibility of some inaccuracies in the CT measurements, and therefore be prepared to make their own judgment.

After placing implant and achieving primary stability, the titanium abutment was placed (Fig. 7). A periapical x-ray then was taken in order to see the implant location and to there are no errors. (Fig 8) If we discover any problems this stage, we must correct them before bone and membrane augmentation occurs. We can then move on to the next stage of bone and membrane augmentation (fig.9). Small particles of bone substitute (human source) were used to fill the gaps between the implant and the extraction socket. Since the abutment was already located, we made a hole in the middle of the membrane, and then placed it around the abutment. (Fig. 10) Finally, the flaps were then replaced (Fig. 12) and the surgical site was sutured using 3-0 silk sutures (Fig. 13). Lastly, the flaps were then replaced (Fig. 11) and the surgical site was sutured using 3-0 silk sutures (Fig. 12). Finally the temporary restoration was performed with special care using a prefabricated acryl crown to prevent any contact between the opposing teeth (Fig. 13).

Postoperatively, the patient was prescribed Augmentin (875mg bid), and 0.2% CHX oral rinse (twice daily) for one week.

## Results

One week following surgery there was no swelling and , no hematoma. Esthetic results meet the patient's demands. (Fig. 14) The patient said she had minimally pain and discomfort during the days immediately after following surgery. This fact, in addition to the immediate crown she had inside her her mouth, allowed her continue her daily routine, and she was very go on with her life routine, which made her very satisfied with the results.

## Conclusion

Achievement of a successful esthetic result and good patient satisfaction is a very challenging procedure, particularly when dealing with the esthetic area. Placement of a dental implant in the esthetic zone is a technique-sensitive procedure with little room for error.

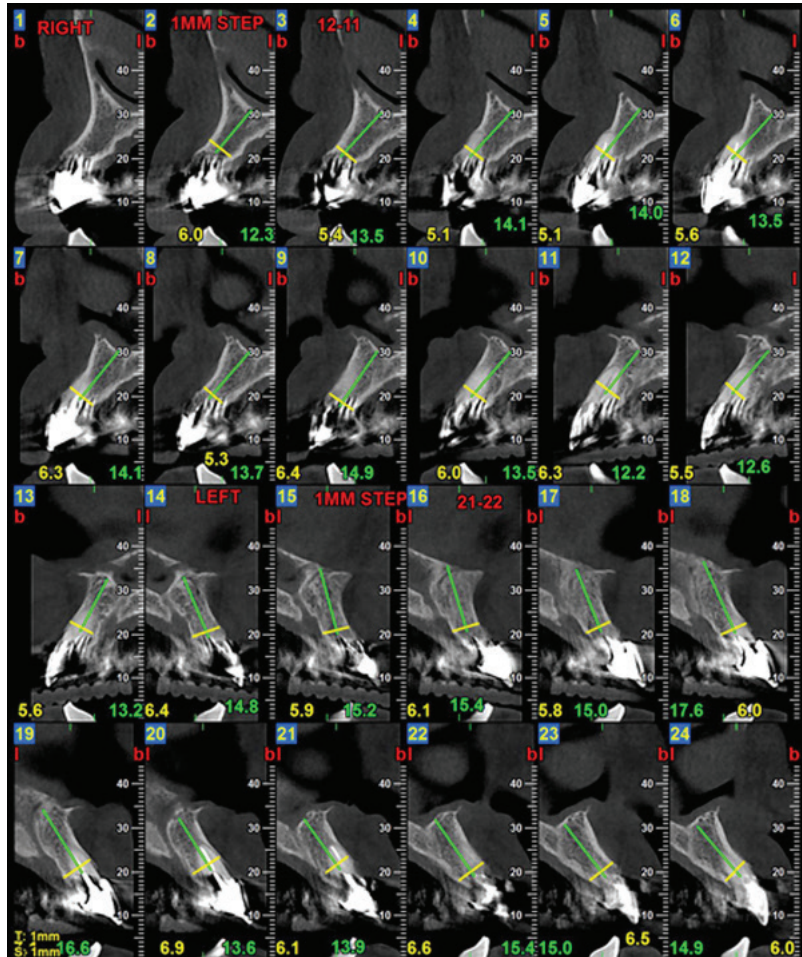
Optimal esthetic implant restoration depends on proper three-dimensional implant positioning.<sup>(4)</sup> There are four positional parameters that contribute to the success of the restoration which must be carefully considered during implant placement. These are the buccolingual, mesiodistal, and apicoronal positions relative to the implant platform, as well as the angulation of the implant.<sup>(5)</sup>

Using the Alpha-Bio <sub>Tec</sub>'s I.C.E. implant with its tapered and osteotome-like body, its double thread design, and its narrow apical part with apical blades, allowed for smooth and gentle bone penetration, as well as achieving high primary stability, to provide the patient with an immediate esthetic crown.

Using the I.C.E. implant in this particular case, enabled us to meet the patient's demands and provide an immediate esthetic solution with an implant-supported restoration for an extracted anterior tooth.



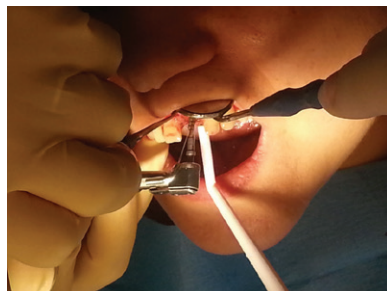
1 Tooth 21 crown and gingiva have an acceptable appearance



2 CT scan demonstrating tooth 21



3 Post-extraction view



4 Drilling and Implant Preparation



5 Use of parallel pin to ensure that the implant will be located in the correct place and angulations



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6 Implant Insertion



7 Deploying the Alpha-Bio<sup>Tec</sup> abutment



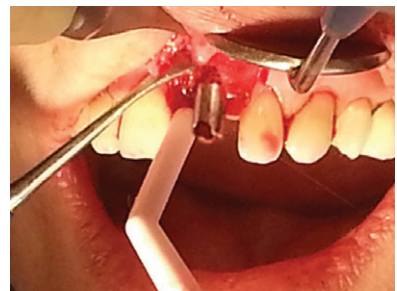
8 Apical x-ray showing the implant and abutment



9 Bone and Membrane Augmentation



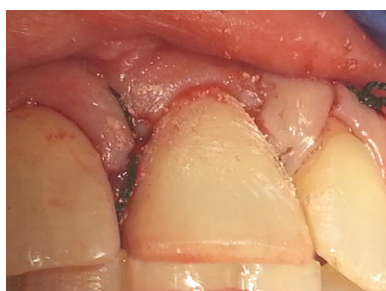
10 Membrane is located around the abutment



11 Flaps are passively moved back to original position



12 Flap is sutured around the abutment



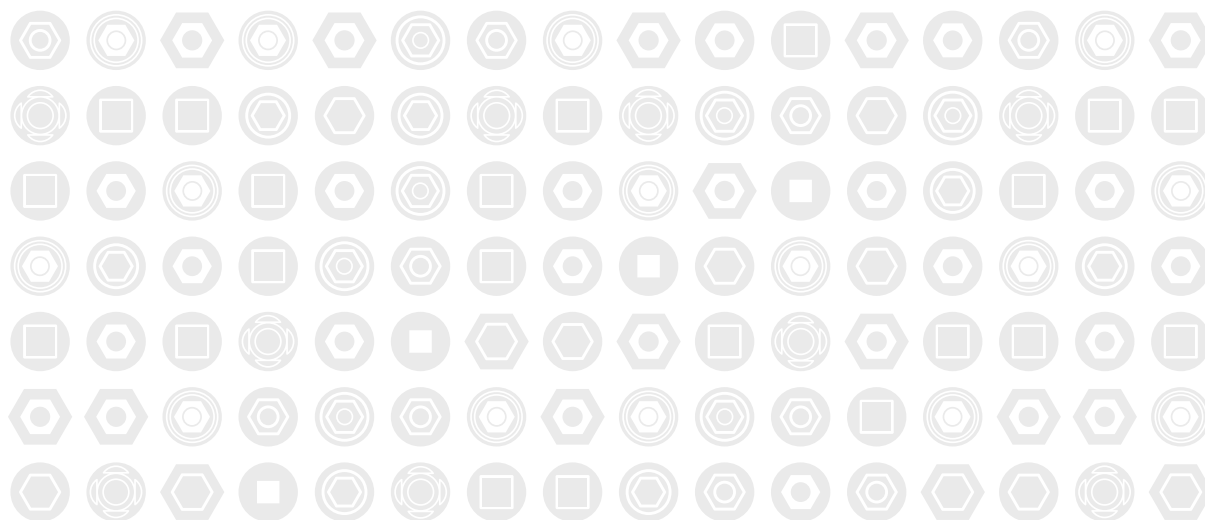
13 Immediate crown avoiding any contact with opposing teeth (immediate restoration performed by Dr. Kogan, T.V.)



14 Patient's smile one week following surgery

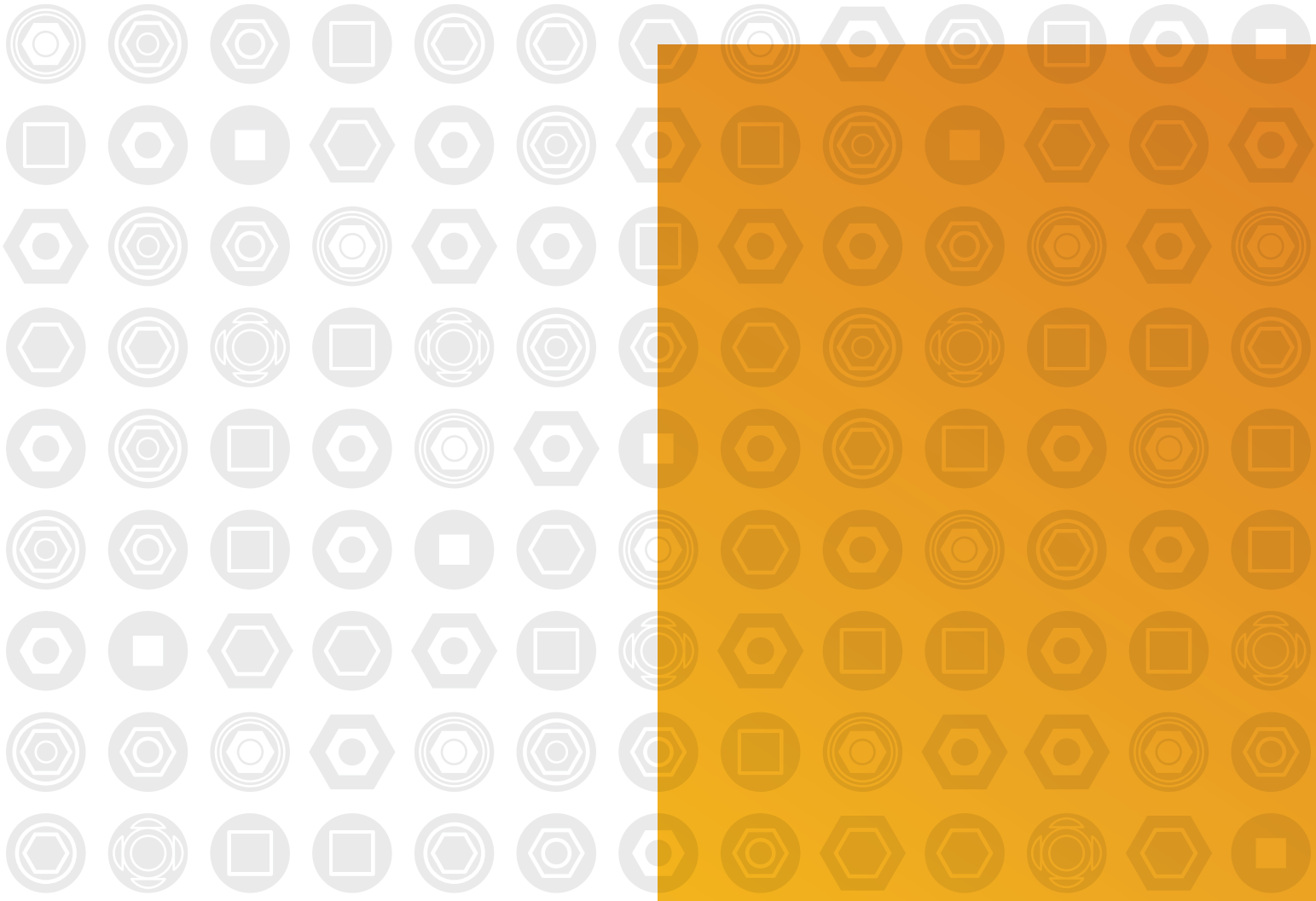
## References

1. Chen ST, Wilson TG, Hammerle CH. Immediate or early placement of implants following tooth extraction: review of biological basis, clinical procedures and outcomes. *Int J Oral Maxillofac Implants* 2004; 19 (suppl):12-25
2. Henry PJ, Laney WR, Jemt T, et al. Osseointegrated implants for single-tooth replacement: a prospective 5-year multicenter study. *Int J Oral Maxillofac Implants* 1996; 11(4):450-5.
3. Higginbottom FL, Wilson TG Jr. Three-dimensional templates for placement of root-form dental implants: a technical note. *Int J Oral Maxillofac Implants* 1996;11(6):787-93.
4. Al-sabbagh M. Implants in the esthetic zone. *Dent Clin N Am* 2006; 50:391-407
5. De Rouck T, Collys K, Cosyn J. Single-tooth replacement in the anterior maxilla by means of immediate implantation and provisionalization: a review. *Int J Oral Maxillofac Implants* 2008;23(5):897-904



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