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One Piece Implant in the Implant Rehabilitation of Patient

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Introduction

One-Piece implant offers a unique Monoblock design that integrates both implant and superstructure, for a quick, simple one-stage procedure. These implants (Figure 1) are machined in grade 5 titanium with a hydroxyapatite/beta tricalcium phosphate surface (HA/BTCP). One-Piece implant can be used for single restorations in situations where high primary stability is achieved on placement and can be immediately loaded in case of good bone quality, or progressively loaded in cases of less-than-ideal bone quality.

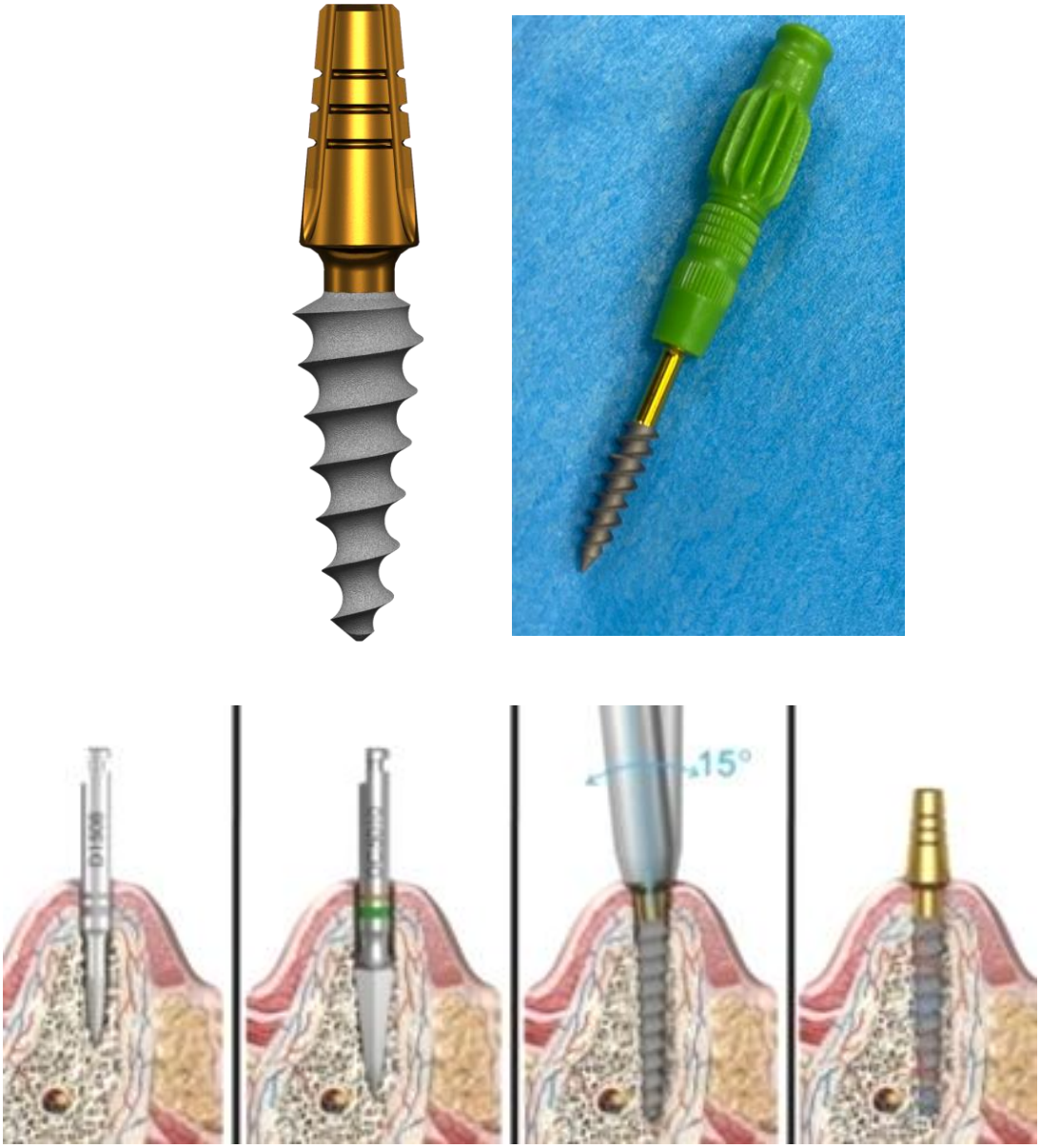

Figure 1: One-Piece implant with a compressive thread

The implants are specifically engineered for use in narrow ridges and tight spaces1. They are intended for the anterior part of the mandible or the maxilla where there is sufficient bone height. One-Piece implants allow bicortical anchorage and provide good stability, even in medium-dense bone. Patients benefit from having implants placed flapless and loaded immediately [2-4]

One-piece implants use minimally invasive surgical techniques to retore edentulous spaces. The implant can be placed flapless thereby reducing postoperative discomfort. They are time effective, eliminating the need for second stage surgery, mucosal healing period, and decrease patient exposure to additional pain and discomfort. The innovative geometries and advanced surface morphology of the implant offer high initial stability and makes it less invasive [5, 6].

The following case reports describe procedures where One-piece implants were used to rehabilitate jaws.

Case 1

A 64 year old patient had mobile teeth in the lower jaw due to advanced chronic periodontitis which bring her discomfort. Patient attended the clinic requesting a prosthetic solution. The agreed treatment plan was: Extraction of the mobile teeth in the lower jaw and placement of one piece tissue level implants.

Teeth extraction and implant placement was done under local anesthesia. For rehabilitation, Compressive One Piece implants (ROOTT). C3018 was placed in position 31 and B3520SS in position 42. After surgery an impression was taken.

On the second appointment, try in of the key was done to check the correctness of impression taken. On the 3rd appointment, aesthetics was checked and the metal frame was placed for try-in. The resin bridge was placed on the 4th appointment - 3 weeks after the first consultation.

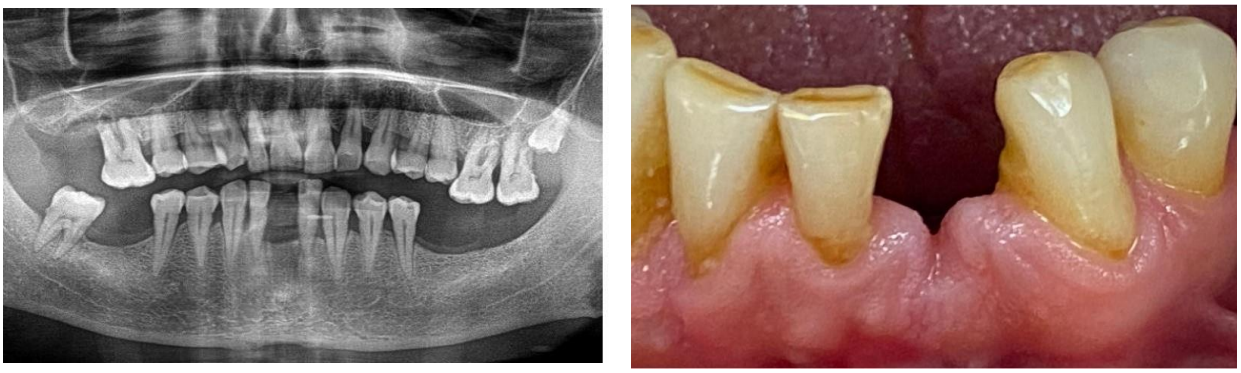

Figure 2 Shows the panoramic radiograph and clinical photo of patient at presentation.

Figure 3: Surgical procedure and implant placement in the mandible

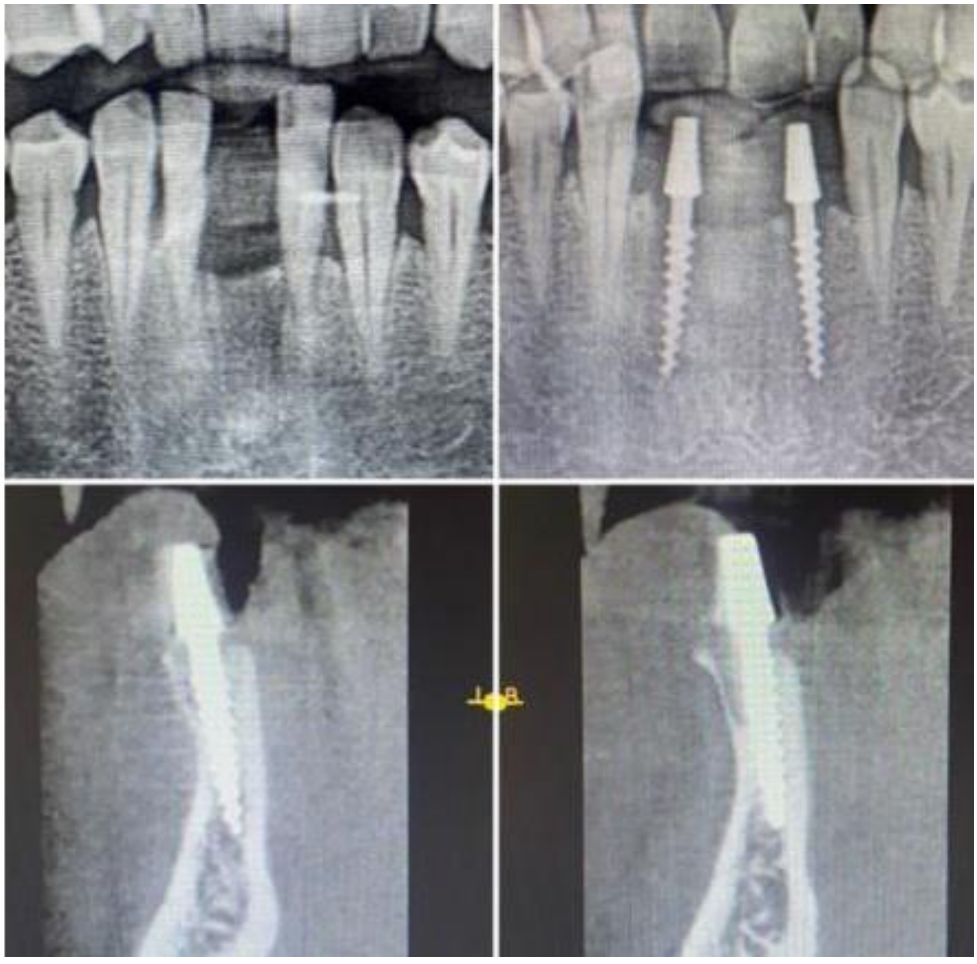

Figure 4: Radiograph of lower jaw before and after surgery

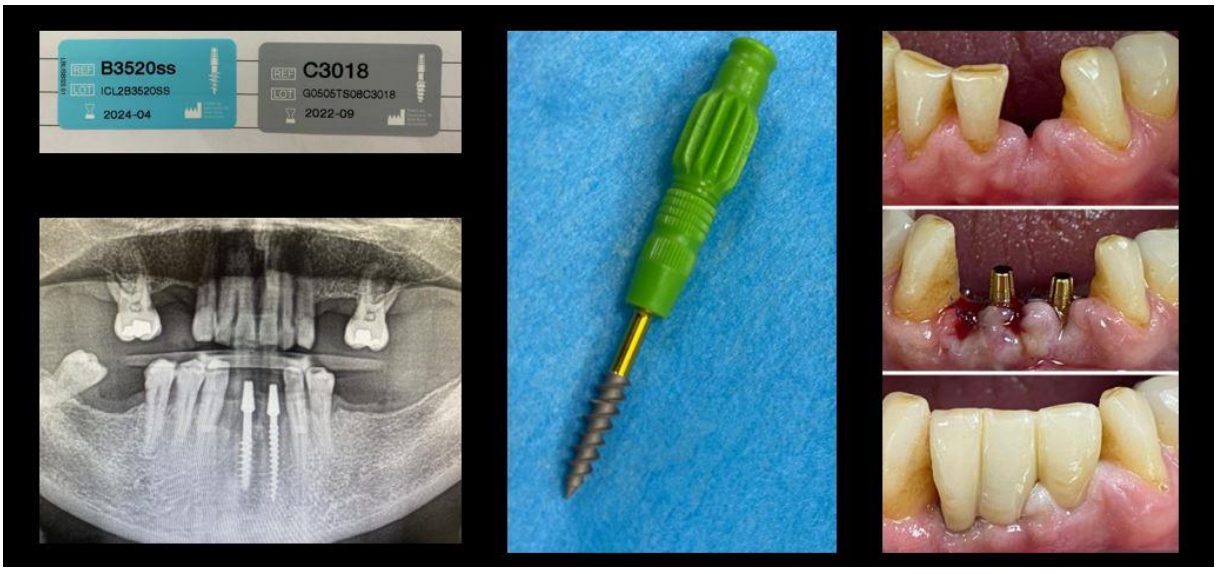

Figure 5: Panoramic radiograph and clinical photo of implant and patient after implant placement

Case 2

The following case report is that of a 75-year-old patient who broke his teeth and wanted fixed teeth as soon as possible.

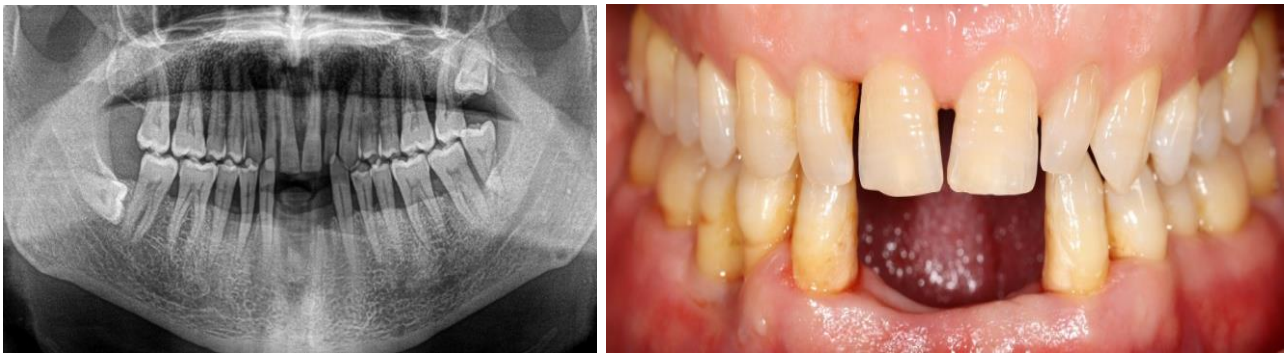

Figure 6: Clinical photo and panoramic radiograph of patient at presentation.

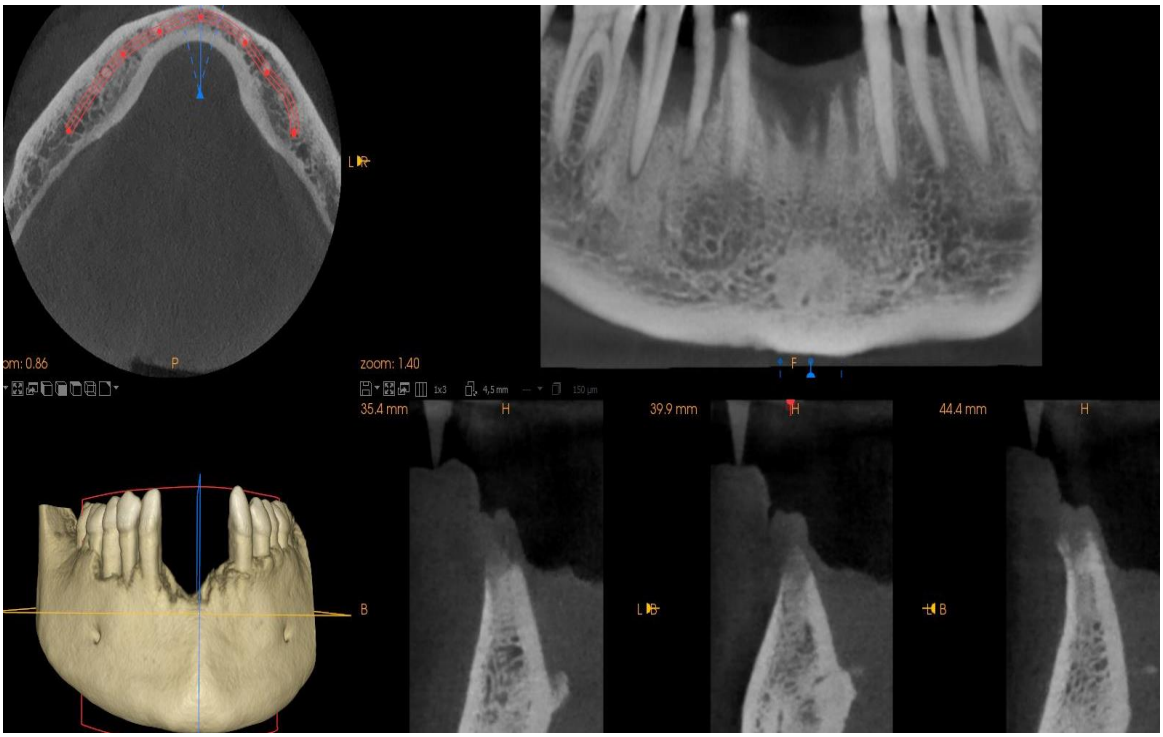

Figure 7: Cone beam CT image of lower jaw in preparation for surgery

On first appointment, extraction of broken teeth and implant placement was done.

For rehabilitation Compressive One Piece implants (ROOTT) . C4014 were placed in position 32, and 42 respectively.

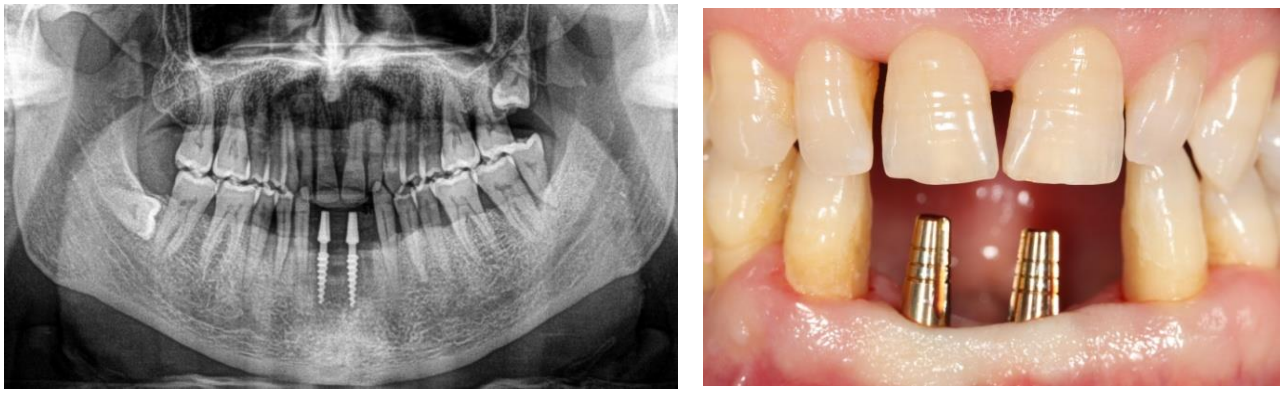

Figure 8: Clinical photo and panoramic radiograph of patient after implant placement

After surgery impression was made, a temporary bridge was fabricated and installed. The try in of the key was done on the second appointment as done in the first case. The metal frame was tried in on the 3rd appointment. The metal resin bridge was cemented at the fourth appointment.

Figure 9: Clinical photograph of patient after completion of treatment

Case 3

Patient is a young lady of 32-year-old. She has a partial prosthesis of upper front teeth and requested fixed teeth in the front to replace the partial prosthesis. She wanted a minimal invasive treatment option.

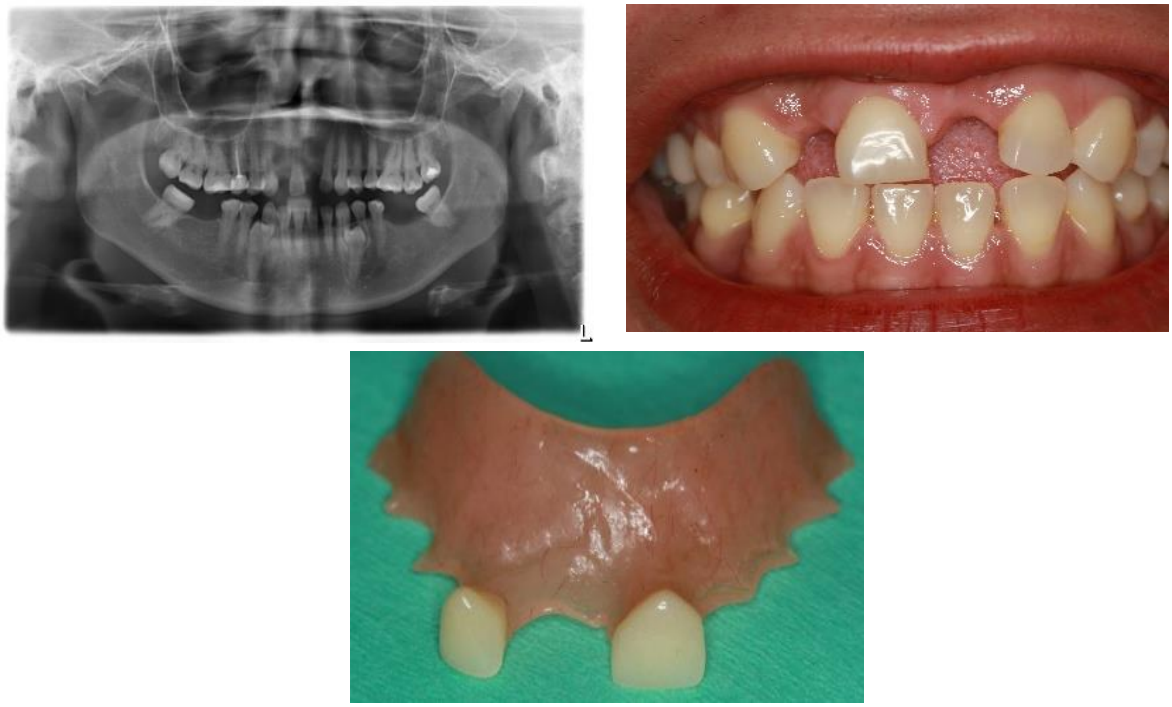

Figure 10: Panoramic radiograph and clinical photo of patient and partial prosthesis at presentation

In position 12 a One piece Compressive Implant C 3012 was placed flapless while a C 3012 implant was placed in position 22. The implant placement was bone driven, which means that the implants are inserted in the direction of the bone contour. After insertion the implant neck is bent so that the abutment is on the bone crest.

Figure 11: One Piece Compressive Implant, surgical procedure and implant placement in the maxilla.

After surgery, an impression was taken and chairside temporary crown was put in place, tooth colour was also chosen. Two weeks later 2 zirconia crowns were cemented on both implants.

Figure 12: Photo of zirconia crowns

Patient follow up was done 2 months and one year after placement

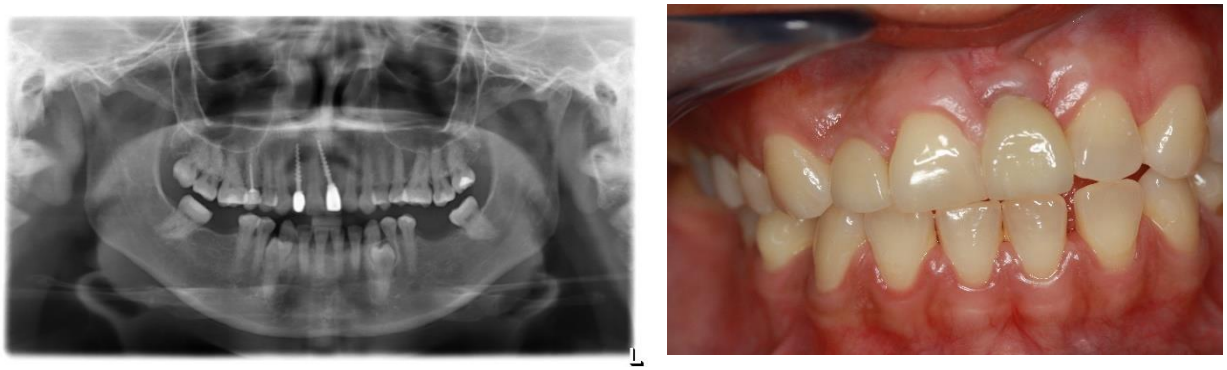

Figure 13: Panoramic radiograph and clinical photo of patient at completion of treatment

Discussion

One Piece- Implants provide simple treatment workflow at a lower cost and it offers the possibility to treat the elderly and young patients with minimal invasive implant placement (Flapless implant surgery) technique with the option of delivering immediately a pre-fabricated temporary prosthesis [4, 7]

They are time effective, eliminating the need of second stage surgery, mucosal healing period, and decrease patient exposure to additional pain and discomfort.

One-Piece Implants can be used for single and multiple unit restorations with immediate loading in the upper and lower jaws, the implants can also be used in combination with a conventional implant with excellent implant survival rate [8, 9]. These case reports show cases where minimal invasive treatment option with on piece Compressive Implants were used for quick rehabilitation.

References

1. Wu AY, Hsu JT, Chee W, et al. Biomechanical evaluation of one-piece and two-piece small-diameter dental implants: In-vitro experimental and three-dimensional finite element analyses. J Formos Med Assoc 2016; 115:794-800

2. Furhauser R, Mailath-Pokorny G, Haas R, et al. Esthetics of Flapless Single-Tooth Implants in the Anterior Maxilla Using Guided Surgery: Association of Three-Dimensional Accuracy and Pink Esthetic Score. Clin Implant Dent Relat Res 2015; 17 Suppl 2:e427-33. doi: 10.1111/cid.12264. Epub@2014 Oct 27.:e427-e433

3. Cannizzaro G, Leone M, Consolo U, Ferri V, Esposito M. Immediate functional loading of implants placed with flapless surgery versus conventional implants in partially edentulous patients: a 3-year randomized controlled clinical trial. Int J Oral Maxillofac Implants 2008; 23:867-875

4. Pozzi A, Polizzi G, Moy PK. Guided surgery with tooth-supported templates for single missing teeth: A critical review. Eur J Oral Implantol 2016; 9 Suppl 1:S135-53.:S135-S153

5. Rajput N, K P S, G R, S C C, Mohammed J. Minimally invasive transmucosal insertion and immediate provisonalization of one-piece implant in partially edentulous posterior mandible. J Clin Diagn Res 2013; 7:2070-2073

6. Jung RE, Grohmann P, Sailer I, et al. Evaluation of a one-piece ceramic implant used for single-tooth replacement and three-unit fixed partial dentures: a prospective cohort clinical trial. Clin Oral Implants Res 2016; 27:751-761

7. Barrachina-Diez JM, Tashkandi E, Stampf S, Att W. Long-term outcome of one-piece implants. Part II: Prosthetic outcomes. A systematic literature review with meta-analysis. Int J Oral Maxillofac Implants 2013; 28:1470-1482

8. Markwardt J, Weber T, Modler N, et al. One vs. two piece customized implants to reconstruct mandibular continuity defects: a preliminary study in pig cadavers. J Craniomaxillofac Surg 2014; 42:790-795

9. Lauritano D, Grassi R, di SD, Lucchese A, Petruzzi M. Successful mandible rehabilitation of lower incisors with one-piece implants. J Med Case Rep 2014; 8:406. doi: 10.1186/1752-1947-8-406.:406-408