Single Tooth Replacement in the Severely Compromised Site in the Esthetic Zone, 1-year Clinical and Radiographic Follow-up

Regina Vayner, DMD; Fathi Elgaddari BDS, DMD

Introduction

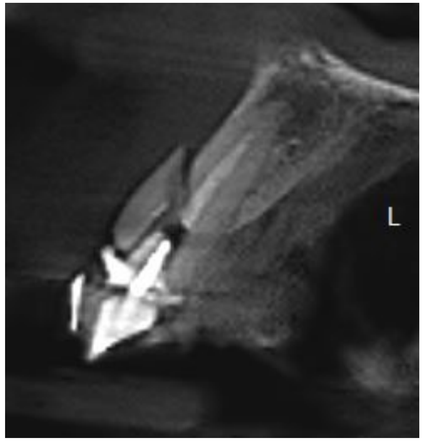
- Implant therapy is a proven and well-established treatment option for restoring the partially and completely edentulous individual. The transition to single tooth replacement brings along with it a set of esthetic demands and soft and hard tissue challenges. Several factors must be carefully evaluated pre-operatively including site-specific, patient expectations, dental history and identifying potential obstacles in the achievement of an optimal aesthetic result. Early implant placement has been proposed as an option for the replacement of the failing tooth.
- The aim of this case report is to share a step-by-step treatment of early implant placement in the severely compromised site.



Initial presentation- Facial view



Initial presentation- Occlusal view



CBCT cross-section shows root and buccal bone fracture/PAR

Materials & Methods

CLINICAL PRESENTATION:

- A partially edentulous, 57- year-old female presented with non-restorable maxillary left lateral incisor.

RADIOGRAPHIC PRESENTATION:

- CBCT analysis revealed a vertical root fracture, lack of buccal plate, attachment loss of the adjacent teeth, and periapical radiolucency.

DIAGNOSIS:

- #10 Vertical root fracture, non-restorable

SURGICAL INTERVENTION:

- Early implant placement protocol was followed as described by Buser et al. After tooth extraction and soft tissue closure in 6 weeks, a mid-crestal incision was performed and extended in a sulcular fashion to the adjacent teeth mesially and distally in order to elevate a full thickness facial flap from #'s 8-11. All granulation tissue was removed from the extraction site and the flap was elevated apically to adequately expose the bony defect. Straumann bone level taper kit was used to initiate osteotomy according to manufacturer instructions. A single bone level tapered implant (3.3 x 12 mm) was placed. An initial layer of autogenous bone was placed against the exposed implant surface at the coronal part then a mix of autogenous and xenograft was placed secondarily to ensure buccal contour augmentation. A double collagen membrane technique was used with the initial layer laid across horizontally and a second membrane in a vertical fashion and tucked into the palatal aspect. Cover screw was placed, and tension-free primary closure was achieved. Patient was prescribed Amoxicillin 500mg TID for 7 days, Ibuprofen 600mg PRN pain, and Chlorhexidine 0.12% BID for 2 weeks. Healing was uneventful during follow-up visits.

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Materials & Methods Cont'd

- Second-stage surgery was performed after 4 months of healing. Implant #10 was uncovered and ISQ reading of 73 was obtained. At 2-weeks post uncovery a provisional crown was delivered to help manage the subcritical and critical contours.



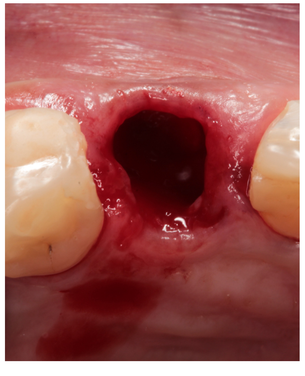
Day of extraction- Occlusal view



Day of extraction- Facial view



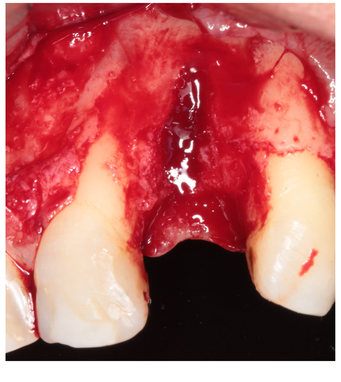
Extraction of #10



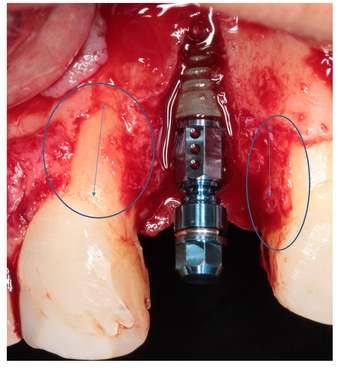
Occlusal view of extraction socket



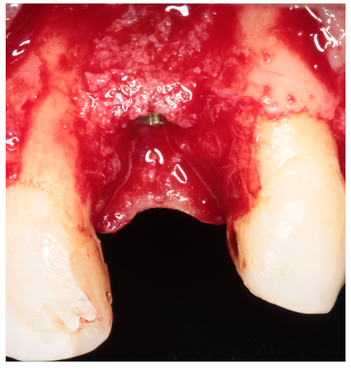
Day of surgery, 6- weeks post-extraction- Occlusal view



Facial view of bony defect



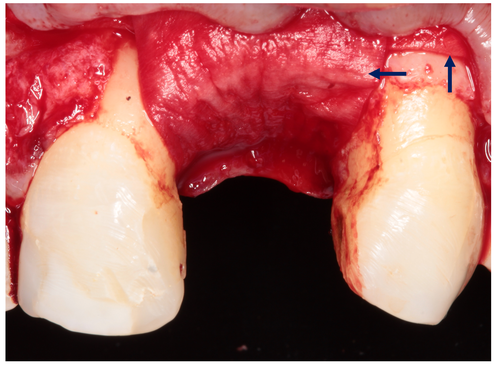
Implant placement
Attachment loss on the adjacent teeth



First layer of autogenous bone



Second layer of autogenous bone &xenograft



Double membrane laid over particulate graft.

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Results

- Patient experienced uneventful healing after the guided bone regeneration and simultaneous implant placement and second-stage implant surgery. After confirming successful implant osseointegration and managing the soft tissue, final impression and delivery of final prosthesis took place in the pre-doctoral clinic.
- The overall pink esthetic score for this case was 12. Scores: mesial papilla= 1, distal papilla= 2, level of soft-tissue margin= 1, soft-tissue contour= 2, alveolar process= 2, soft-tissue color= 2, soft-tissue texture= 2.



Day of uncovery- Facial view



Day of uncovery- Occlusal view



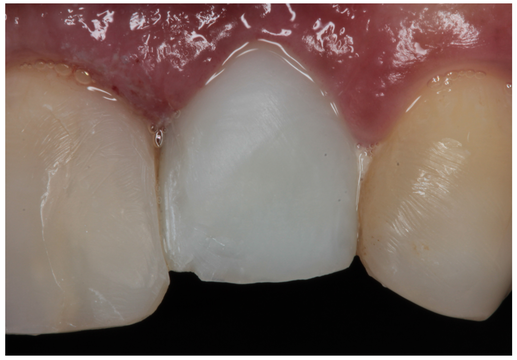
Day of uncovery- Occlusal view of healing abutment



Day of provisional delivery- Occlusal view



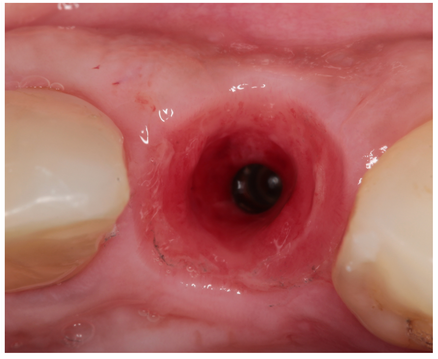
Provisional crown



Delivery of provisional- Facial view



Delivery of provisional- Occlusal view



Correction of buccal contour following provisionalization

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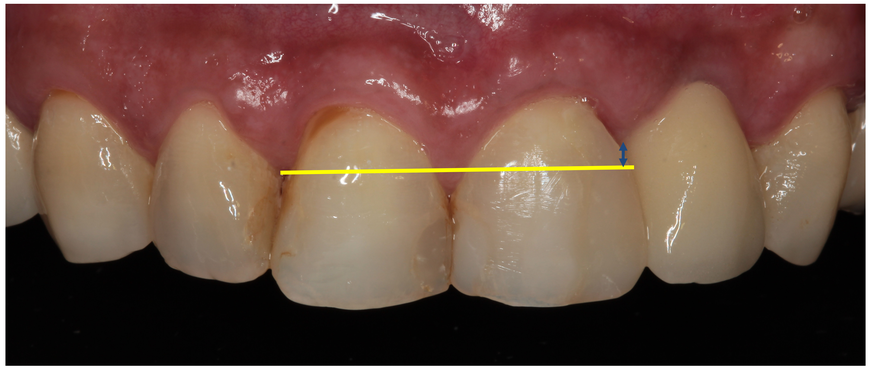
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Results

Clinical



Contralateral central incisor

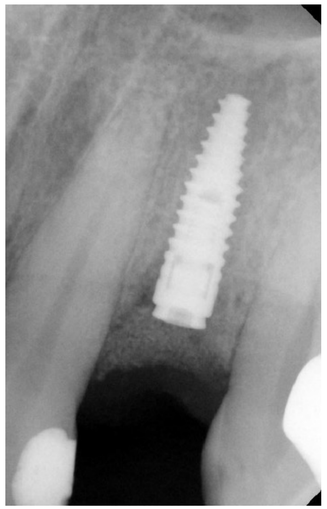


Blue arrow indicating lack of mesial papilla fill compared to the contralateral papilla

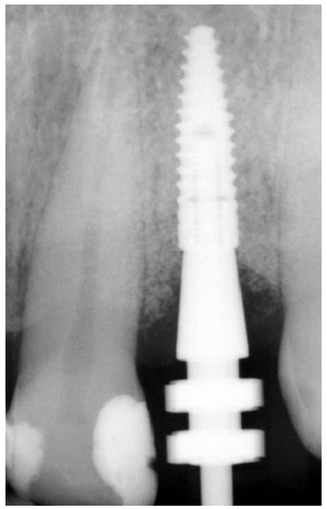


Final implant crown on #10

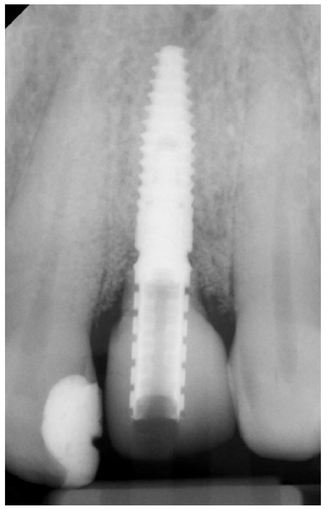
Radiograph



Day of implant placement



Seating of impression coping



Delivery of provisional



Delivery of final crown (1 year of implant placement)