

Immediate Implant Placement and Immediate Provisionalization using Digital vs. Conventional Fabrication Techniques with Bis-Acryl: Literature Review and Case Report

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Introduction

There is limited research examining immediate implant provisionalization with digital fabrication techniques using Bis-Acryl.

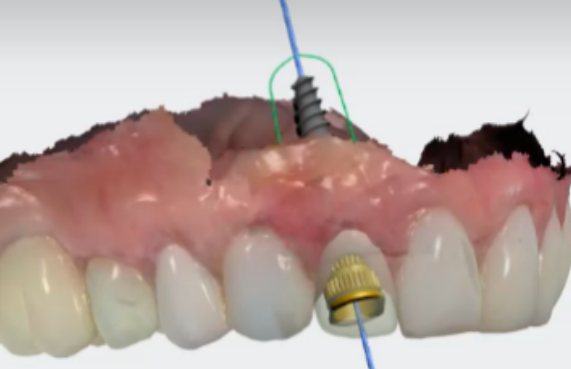
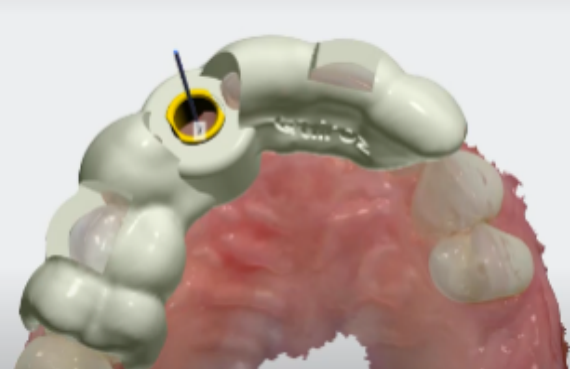
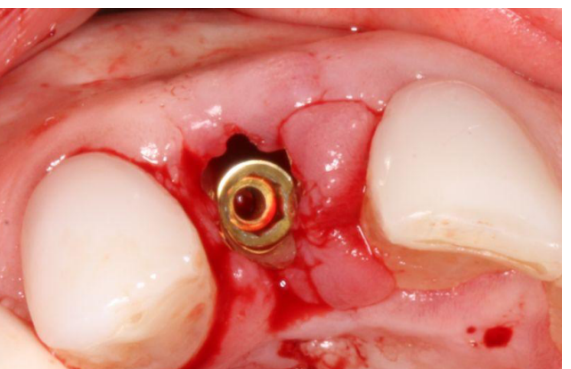
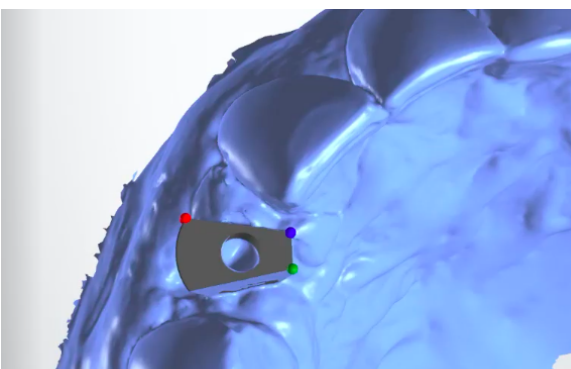
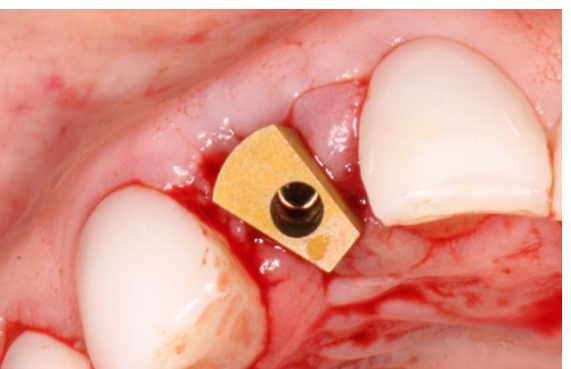
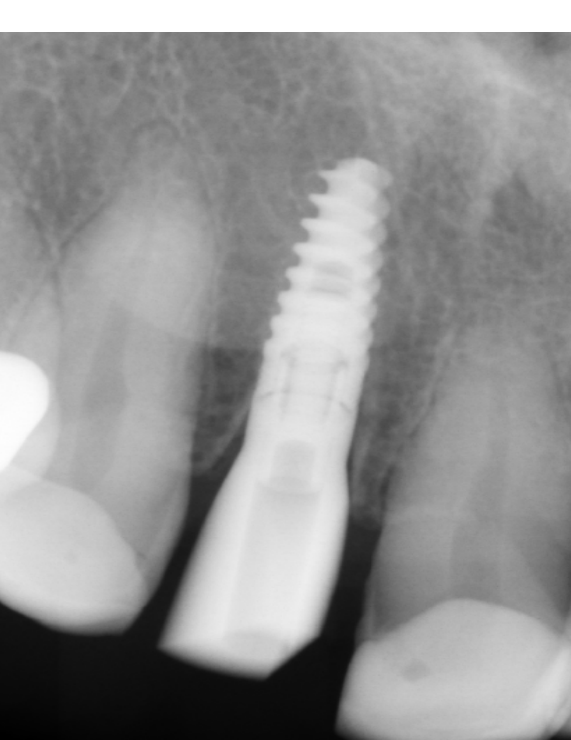
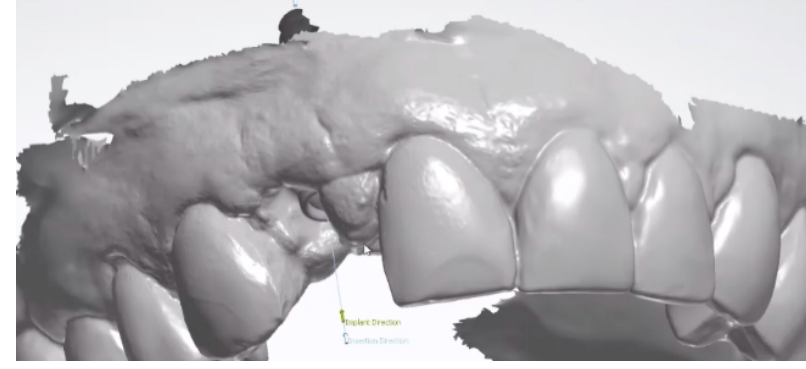
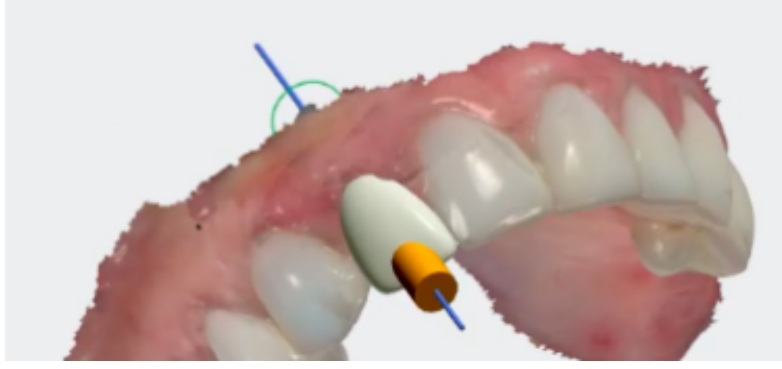
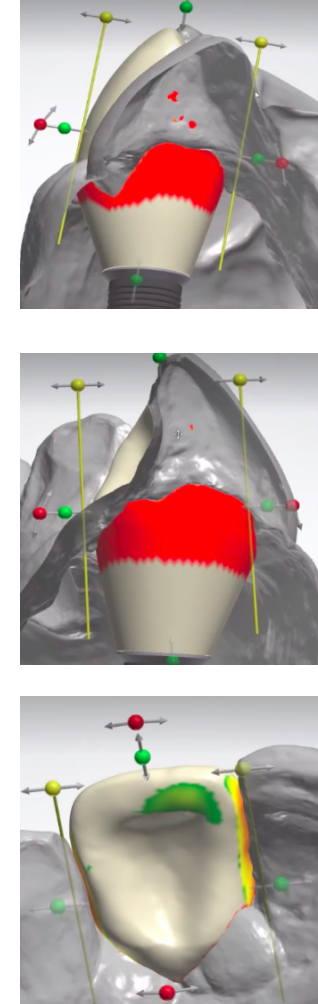
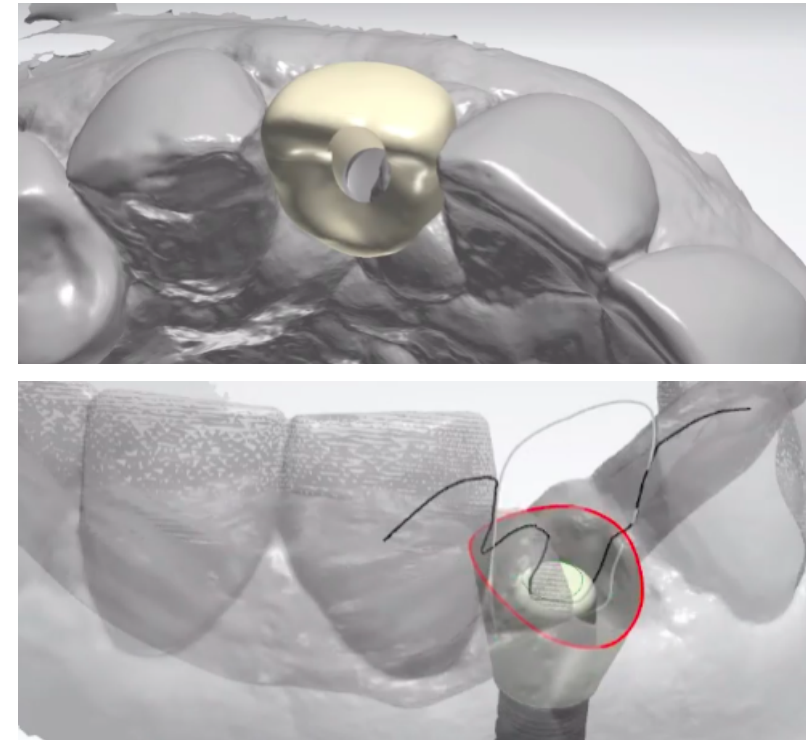
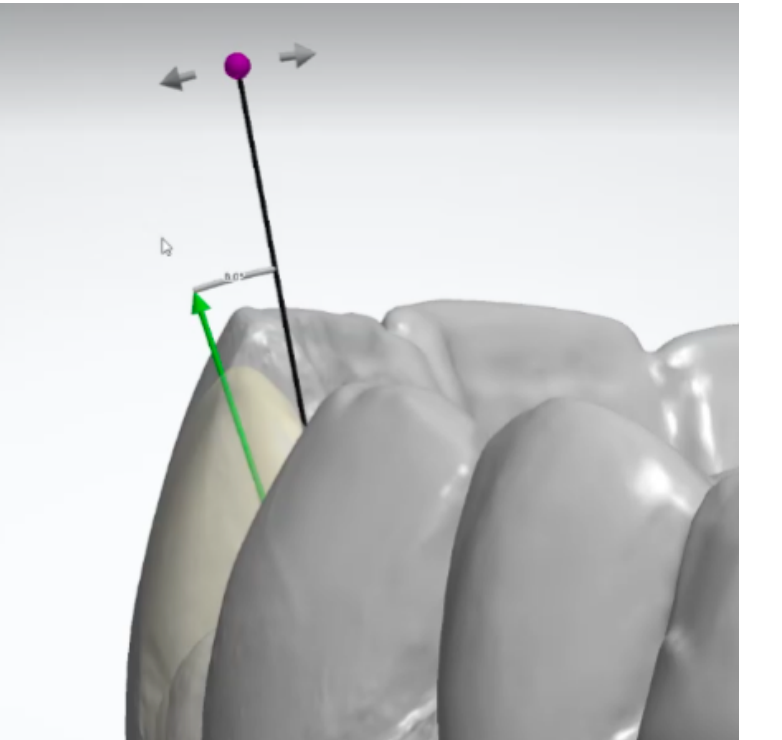
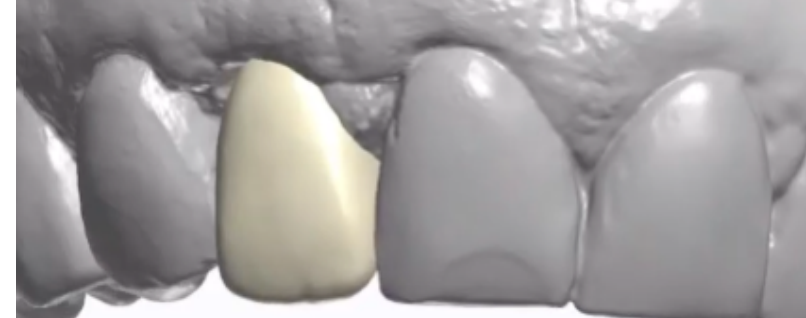
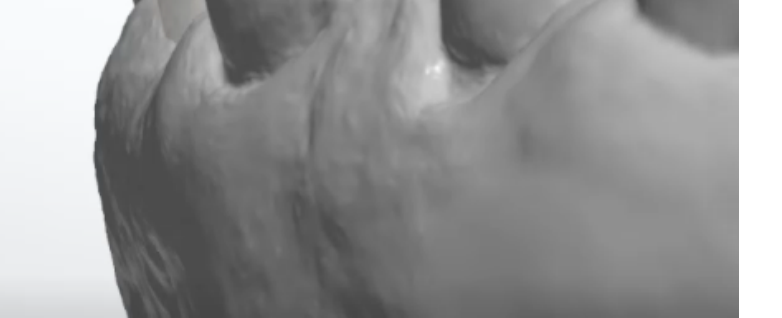
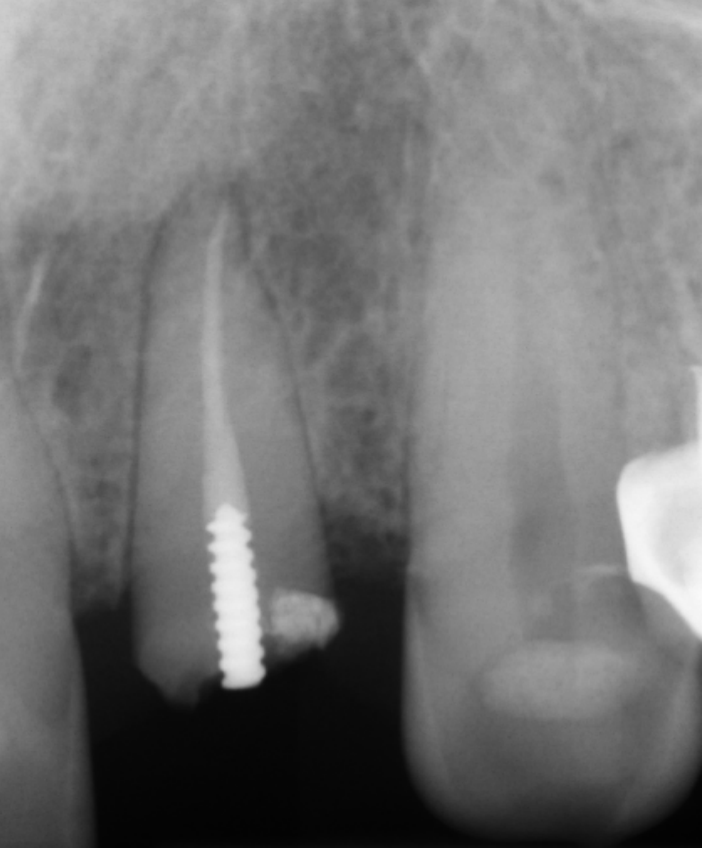
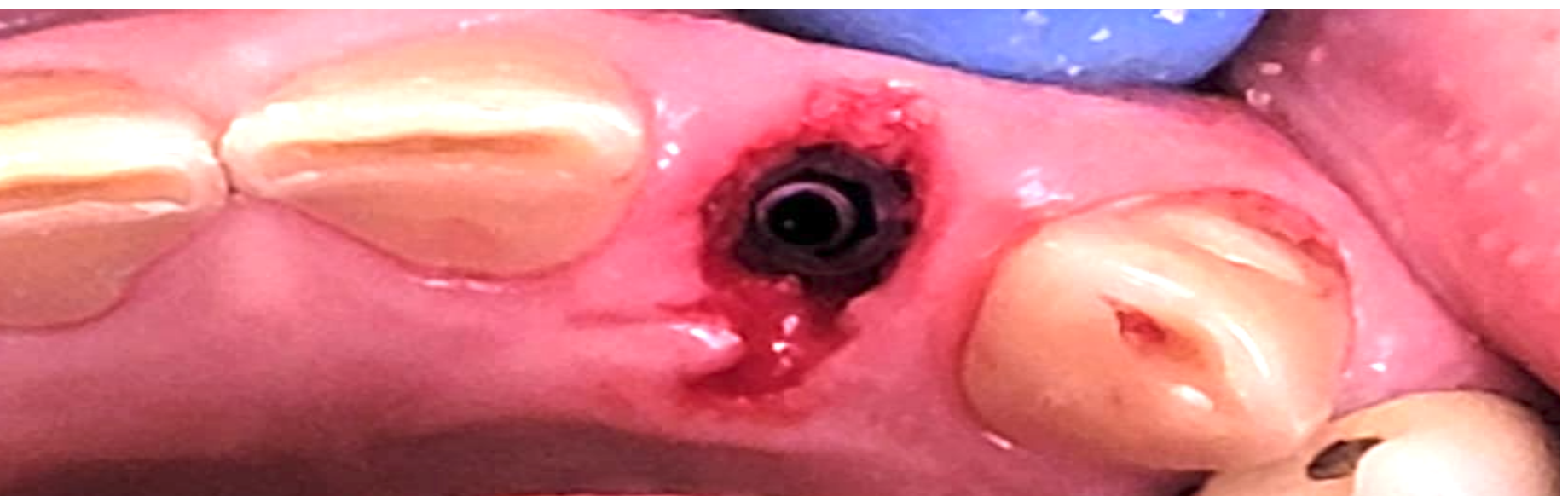
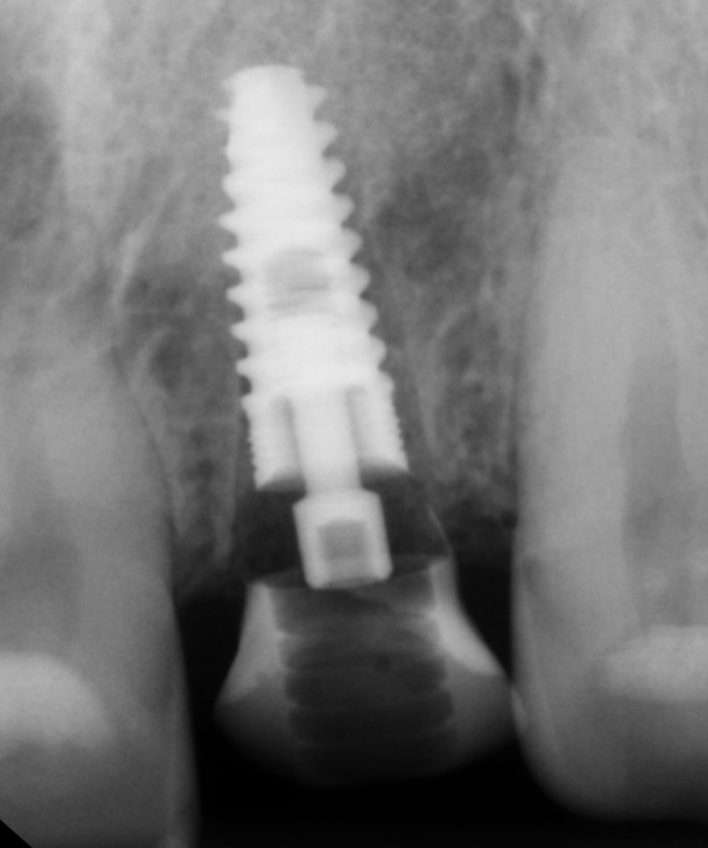
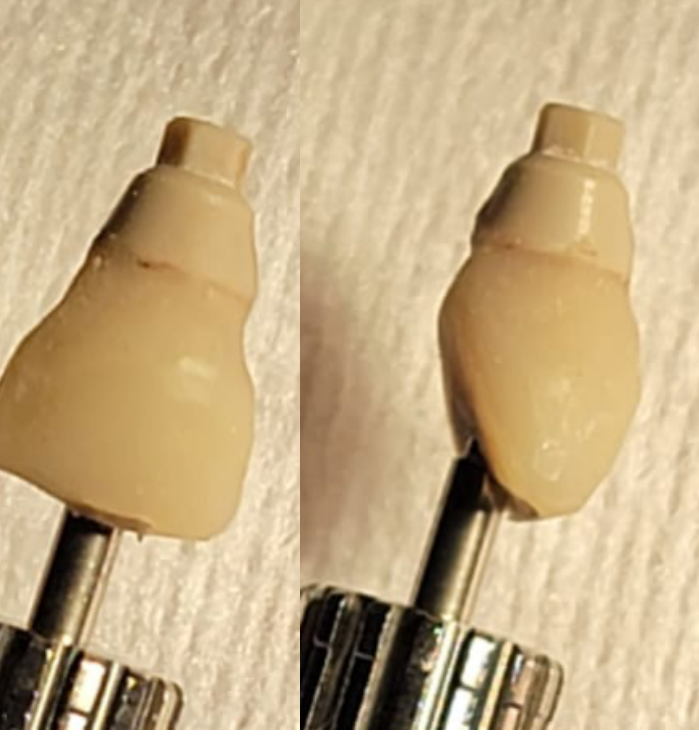
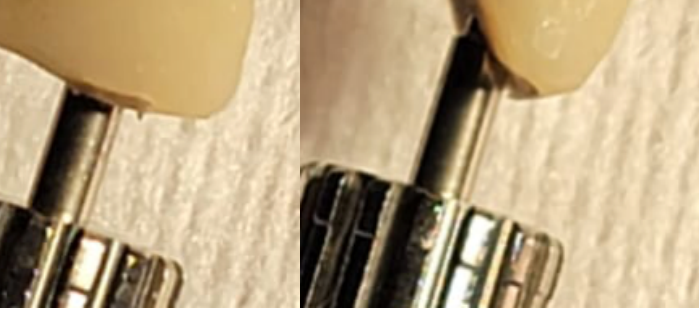
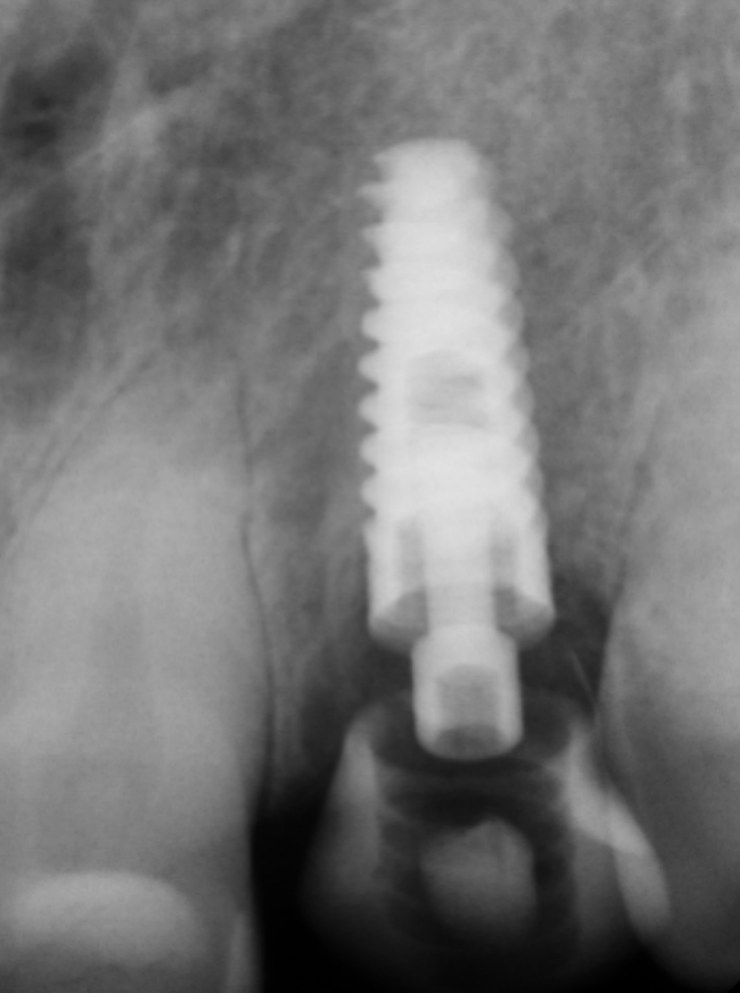
Objectives

- 1) Present a literature review on published literature and a case report evaluating fully guided immediate implant placement with immediate provisionalization using same day digital fabrication vs. conventional fabrication with Bis-Acryl.
- 2) Further to provide a protocol and recommendations to minimize complications with digital planning.

Materials & Methods

- A literature review according to PRISMA guidelines to identify published literature from OVID/MEDLINE and EMBASE databases until 08/2023.
- Two patients were selected for this research at Touro College of Dental Medicine. One would receive a digitally fabricated (pt. #1) provisional and the other with a conventional (pt. #2) chair side, both using Bis-Acryl.
- Pt. #1: A 63-year-old female patient with hypertension and NKDA presented with a fractured crown on tooth #7 for extraction and immediate implant placement.
- Pt. #2: A 59-year-old male patient with no significant medical history and NKDA presented with a fractured crown #10 for extraction and immediate implant placement.

Results

	Patient Presentation	Implant Surgery and Prosthetic	Prosthetic Designing (Digital vs. Conventional)	Final Placement
Pt. #1	  Patient presented to clinic with a fractured tooth #7 (previously RCT) and was deemed non-restorable. Discuss multiple treatment options to restore the fractured tooth. The patient was interested and a good candidate for placing an immediate implant with immediate provisionalization. CBCT, radiographs, digital scans, and photos were obtained.	       CBCT and TRIOS scan were merged to determine the proper position and angulation of the implant. The surgical guide was designed digitally and printed. MIS-seven standard 3.3 x 10mm torqued to 25Ncm. The placement of the implant was completed using a fully-guided protocol. Scan flag was fully seated and scanned using TRIOS 3Shape scanner for digital design of tooth #7.	          The path of insertion was determined using the placement and angulation of the implant. A digital wax-up tooth #7 was completed with the access hole. The access hole was initially placed facially, and then was adjusted by angling it 8° palatally so as not to compromise the integrity or the esthetics of the crown.    	    Provisional implant screw-retained crown was milled. Adjustments were made and trimmed on lingual aspect and interproximal junction between the acrylic and the ti-base abutment to allow for proper tissue contour and esthetics. Provisional was screwed in, and post-op instructions were given once again. 2 weeks and 2 months post-op visit determined normal signs of healing and implant osseointegration. The patient disclosed no pain or discomfort.
Pt. #2	  Pt. #2 presented to the clinic with a fractured tooth #10 (previously RCT) and was deemed non-restorable.	  Surgical guided protocol utilized in implant placement of MIS-seven standard 3.75 x 11.5mm torqued to 35Ncm. Prosthetic designing was completed chairside.	    Fabricated provisional implant crown with a PEAK temporary abutment and an Essix stent.	 2 weeks post-op  3 months post-op  

Conclusions

Both cases demonstrated promising outcomes in terms of soft tissue and bone remodeling. However, different levels of expertise are required for fabricating digital vs. conventional immediates.

Recommendations

- Use **straight profile ti-base** or PEAK abutment for digital or analog prosthetic planning.
- Emphasize **case selection** and the importance of **post-op instructions** to the patient.