

Semilunar Lingualized Apically Positioned Flap (SLAP) for Peri-Implant Soft Tissue Phenotype Modification Therapy During Implant Placement: A Case Report.

Silie Arboleda, DDS, MS; Aziz Saqr, DDS, MS; Seiko Min, DDS, MS.

Department of Periodontics & Dental Hygiene, The University of Texas School of Dentistry at Houston, Houston, TX, USA



Background

The peri-implant phenotype is defined as the morphologic and dimensional features that characterize the clinical presentation of the soft and hard tissues around osseointegrated implants, namely: the keratinized mucosa width (KMW), the mucosal thickness (MT), the supracrestal tissue height (STH) and the peri-implant bone thickness. This case report illustrates the application of phenotype modification therapy for peri-implant mucosa enhancement during implant placement using the Semilunar Lingualized Apically Positioned Flap (SLAP) combined with a subepithelial connective tissue graft (CTG).

Materials and Methods

A 52-year-old South Asian male presented to the Graduate Periodontics Clinic at UTSD at Houston with missing 24 and 25 and desires to restore the edentulous space with a fixed restoration. Clinical exam revealed partially edentulism with significant ridge deficiencies at sites 24 and 25 (Fig 1a). Initial radiographs showed over 50% bone loss (Fig 1b) with class 2 mobility. Treatment plan included the extraction of teeth 23 and 26 and placement of an implant-supported fixed partial denture (FPD). Extractions were performed (Fig 2a-b), and guided bone regeneration (GBR) was completed 4 weeks later (Fig 2c-d) to develop the site for implant placement. During GBR, the lingual alveolar mucosal tissue was coronally advanced, resulting in a high lingual frenum attachment, minimal keratinized tissue and thin mucosal at the implant sites (Fig 2e-f). During implant placement, one semilunar incision was made 2 mm coronal of the mucogingival junction to elevate a full-thickness flap and two partial thickness vertical releasing incisions were made lingually and extended into the alveolar mucosa, mesial and distal to each planned implant (Fig 3a-b). Implants were placed at 24 and 26 positions and healing abutments were seated (Fig 3c). The SLAP flaps were stabilized via interrupted sutures using 6-0 Glycolon. A buccal subperiosteal tunnel was created and extended to the distal aspects of each implant. A CTG was harvested from the palate (Fig 3d), inserted into the tunnel (Fig 3e) and sutured in place via sling and interrupted sutures (Fig 3f). Post-operative medications included anti-inflammatory and analgesics to manage pain.

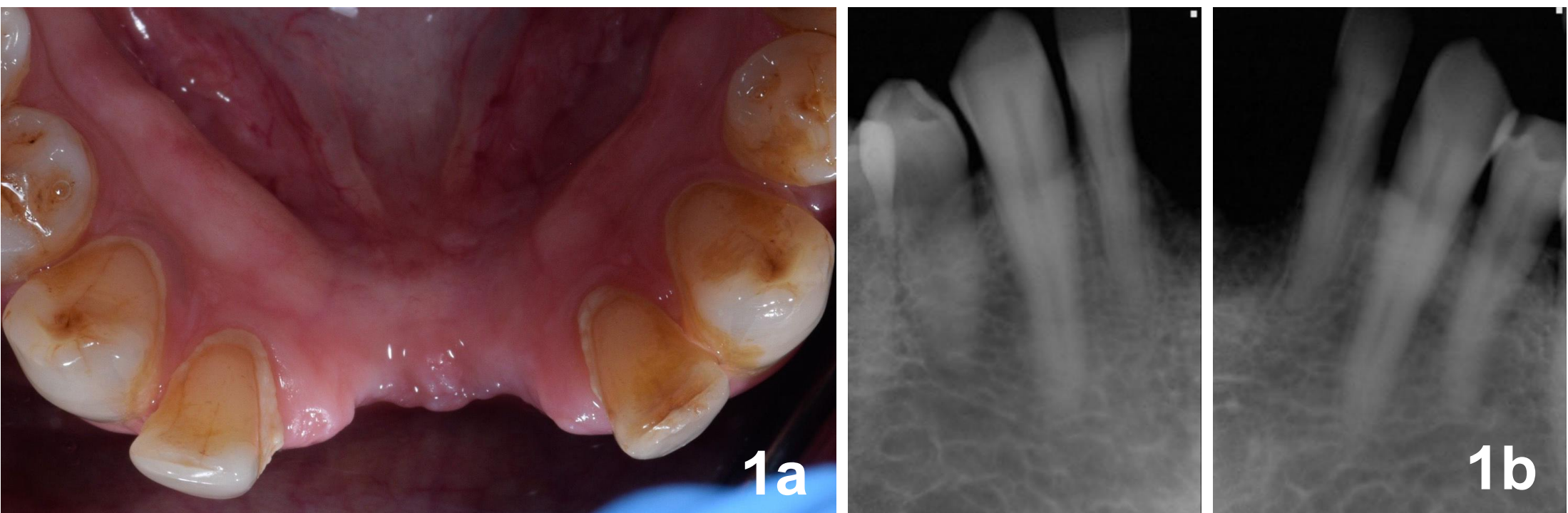


Figure 1a: Clinical presentation. 1b: Radiographic view.

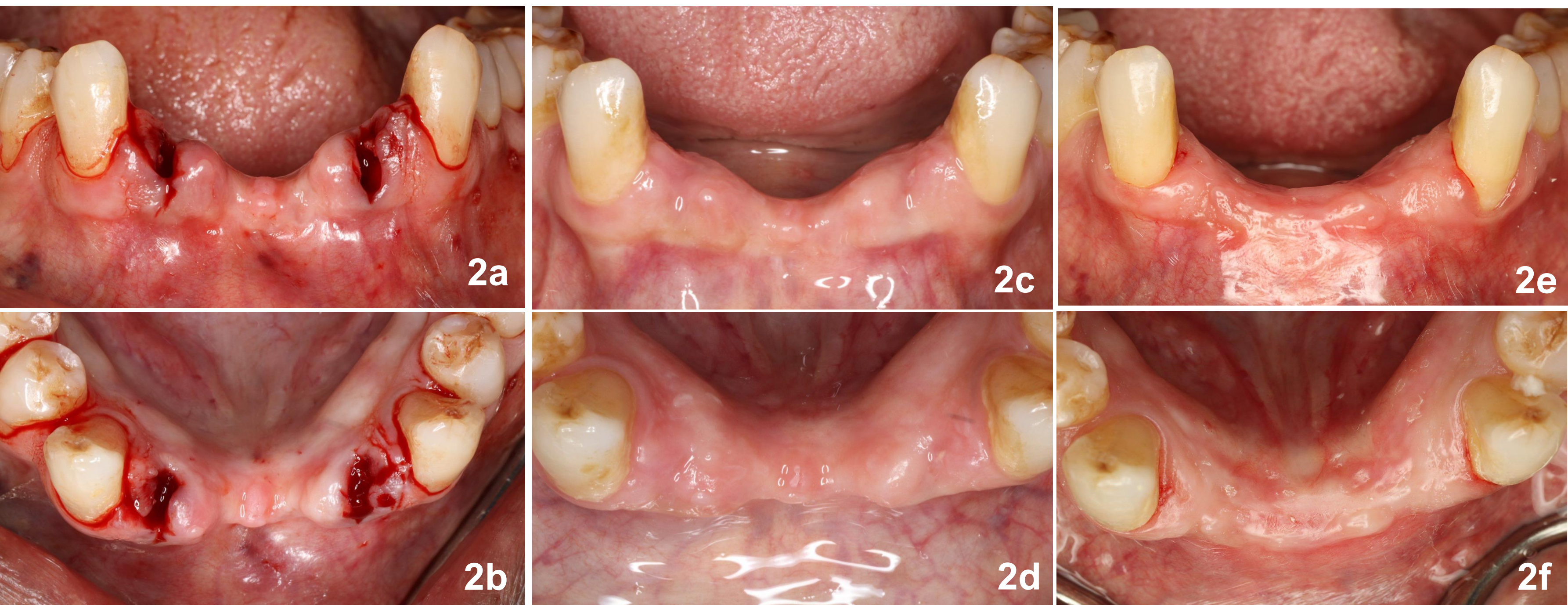


Figure 2a-b: After extractions. Fig 2c-d: Four week after extractions. Fig 2e-f: Six months After GBR A Frontal view. B Occlusal view.

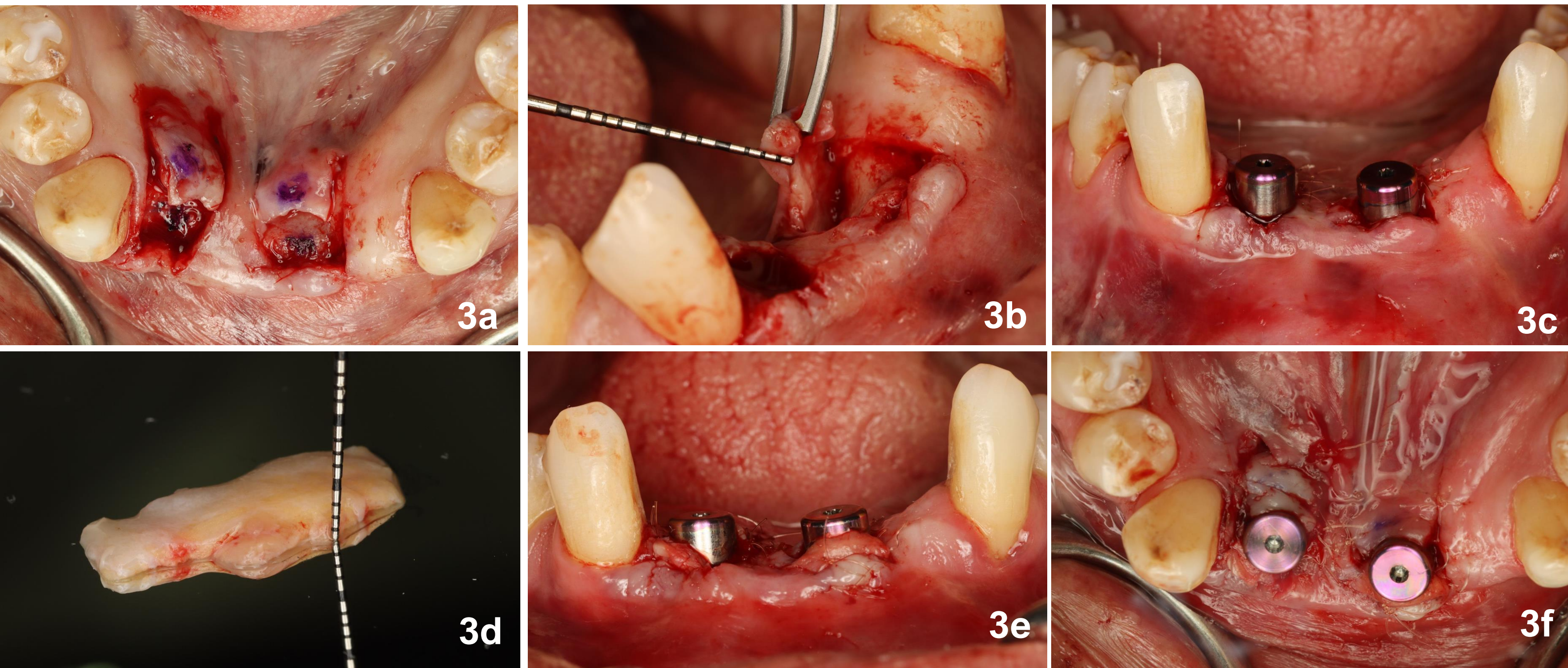


Figure 3: Surgical procedure. 3a-b: SLAPs created. Fig 3c: Healing abutments seated. Fig 3d: CTG. Fig 3e-f: CTG inserted into the tunnel and sutured.

Results

Follow-up at 12 weeks (4a-b) revealed increased KMW and MT on buccal and lingual of both implants. The patient was temporized as shown in Fig 5a-b. An implant-supported FPD was fabricated and delivered at the Graduate Prostodontics. (Fig 6a-b).



Figure 4: Follow-up at 12 weeks. 4a: Frontal view. 4b: Occlusal view



Figure 5: Temporary FPD prosthesis. 5a: clinical view. 5b: Radiographic view

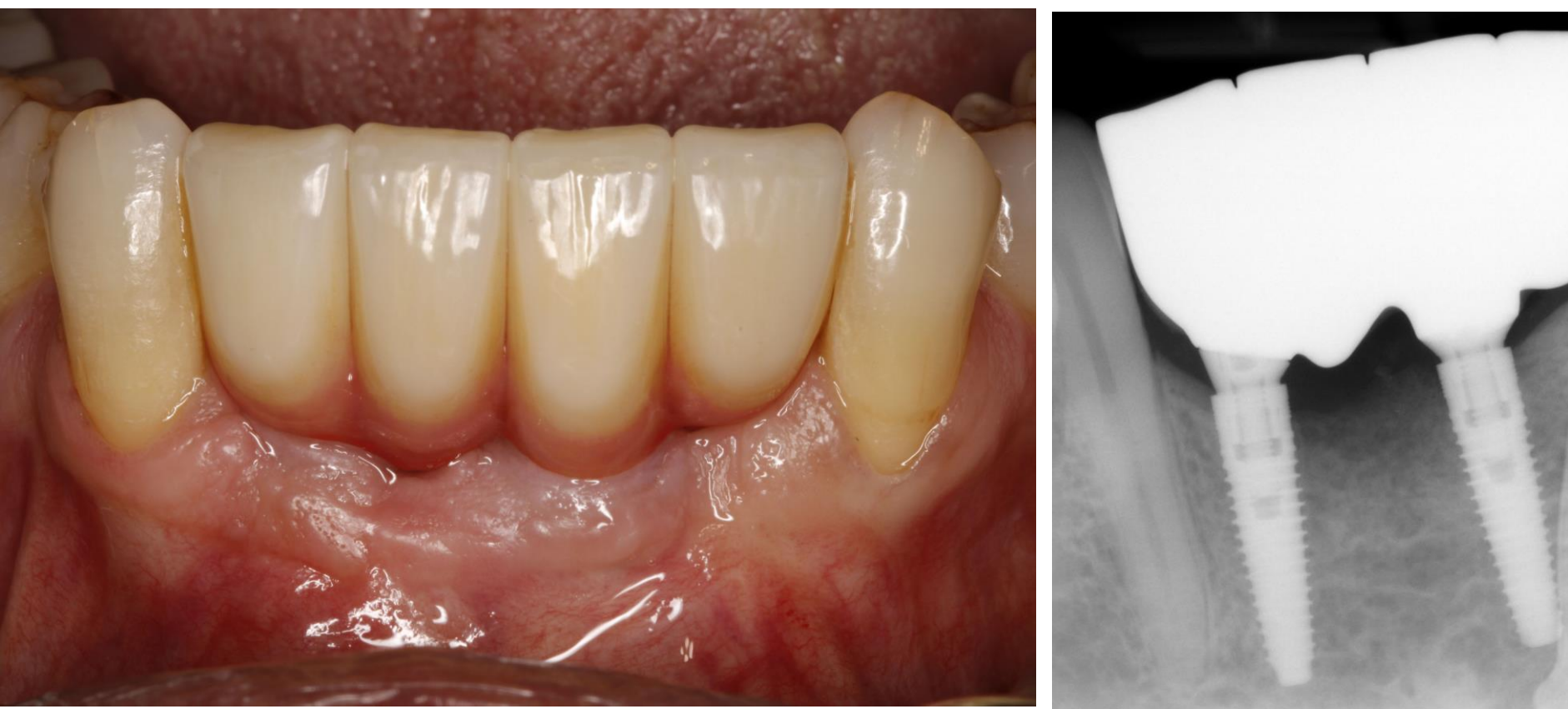


Figure 6: Final FPD prosthesis. 5a: clinical view. 5b: Radiographic view

Conclusions

The SLAP technique serves as an effective method for peri-implant mucosal phenotype modification during implant placement, offering potential benefits such as increased peri-implant KMW and enhanced MT. These improvements may contribute to positive clinical outcomes and better implant prognosis.