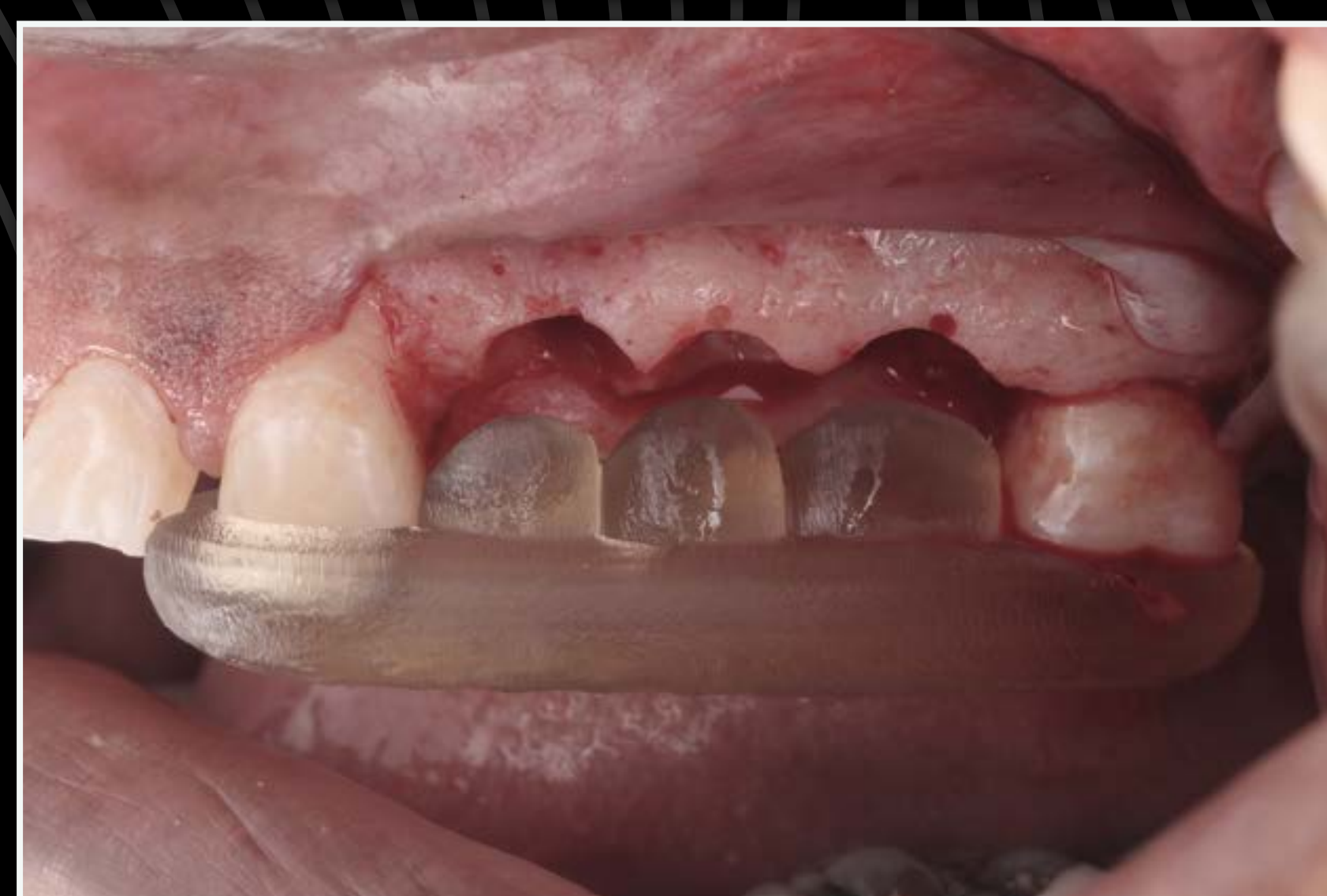


PROSTHETICALLY DRIVEN BONE REDUCTION GUIDE FOR IMPLANT PLACEMENT IN LIMITED INTER-ARCH SPACE: A CASE REPORT



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INTRODUCTION |

Prosthetically driven and **biologically executed** implant placement is essential for achieving optimal esthetics and function while minimizing complications.

This case report presents a novel approach to **bone scalloping** using a guide designed from the planned final prosthesis. The pre-prosthetic surgery **aimed** to increase crown height and improve esthetic outcomes in patients with **limited inter-arch space**, creating ideal conditions for implant placement and final crown restoration.

CASE REPORT |

A 28-year-old female patient presented for oral rehabilitation requiring tooth- and implant-supported restorations. Diagnostic assessment revealed passive eruption, loss of vertical dimension, and **limited inter-arch space** to restore the edentulous site at the maxillary left quadrant. An **implant-supported fixed bridge** for #12-14 was planned for the site with limited prosthetic space.

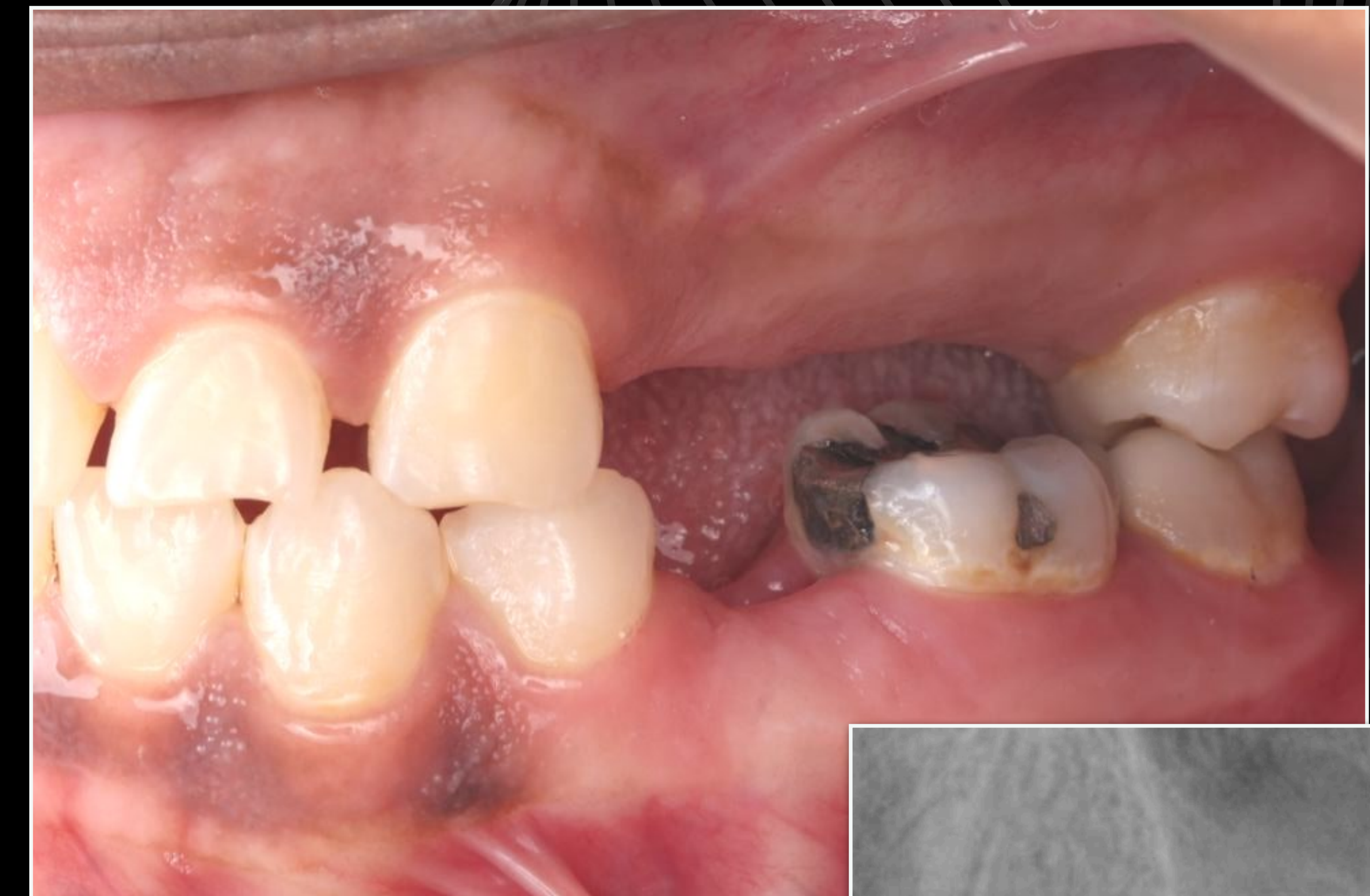


Figure 1. Lateral view showing the reduced inter-arch space.



Figure 2. Periapical x-ray showing the flat bone.

METHOD |

Design software was used to create a **virtual wax-up** for the definitive crowns and a **position guide** to allow a vertical stop. An implant planning software was then used to plan a prosthetically driven implant position. **Bone scalloping** and **implant surgical guides** were then manufactured using a 3D-printing machine.

The bone scalloping guide, determined by the **crown margin position**, enabled the surgeon to perform precise osteoplasty, strategically before implant placement.



Figure 3. Design of the prosthetic guide with the appliance.

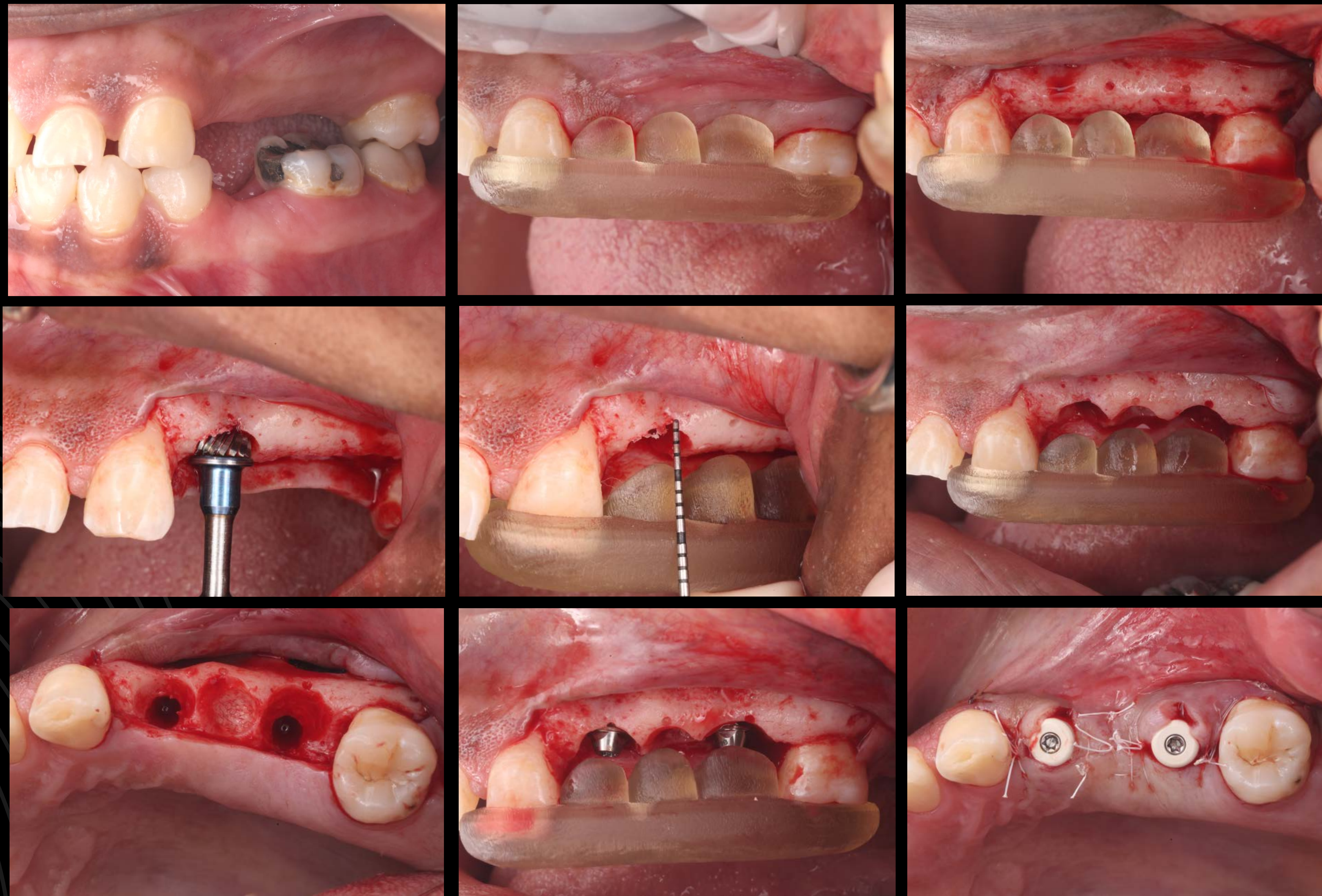
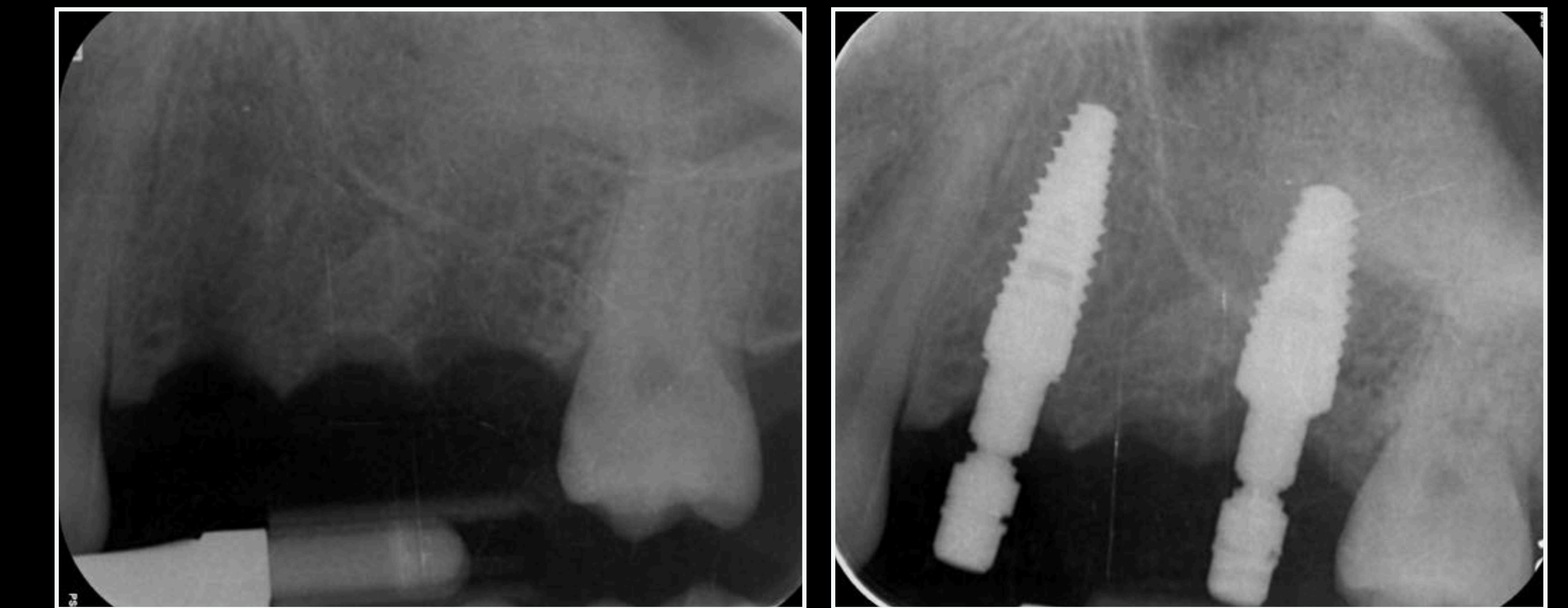


Figure 5. Periapical x-ray showing the bone scalloping and after implant placement.

Figure 4. Sequence of surgical procedure (implant placement and bone scalloping) using the prosthetically guide to perform the bone contour. Prosthetically driven bone scalloping guide in position, precisely defining the osseous contour for optimal implant placement.

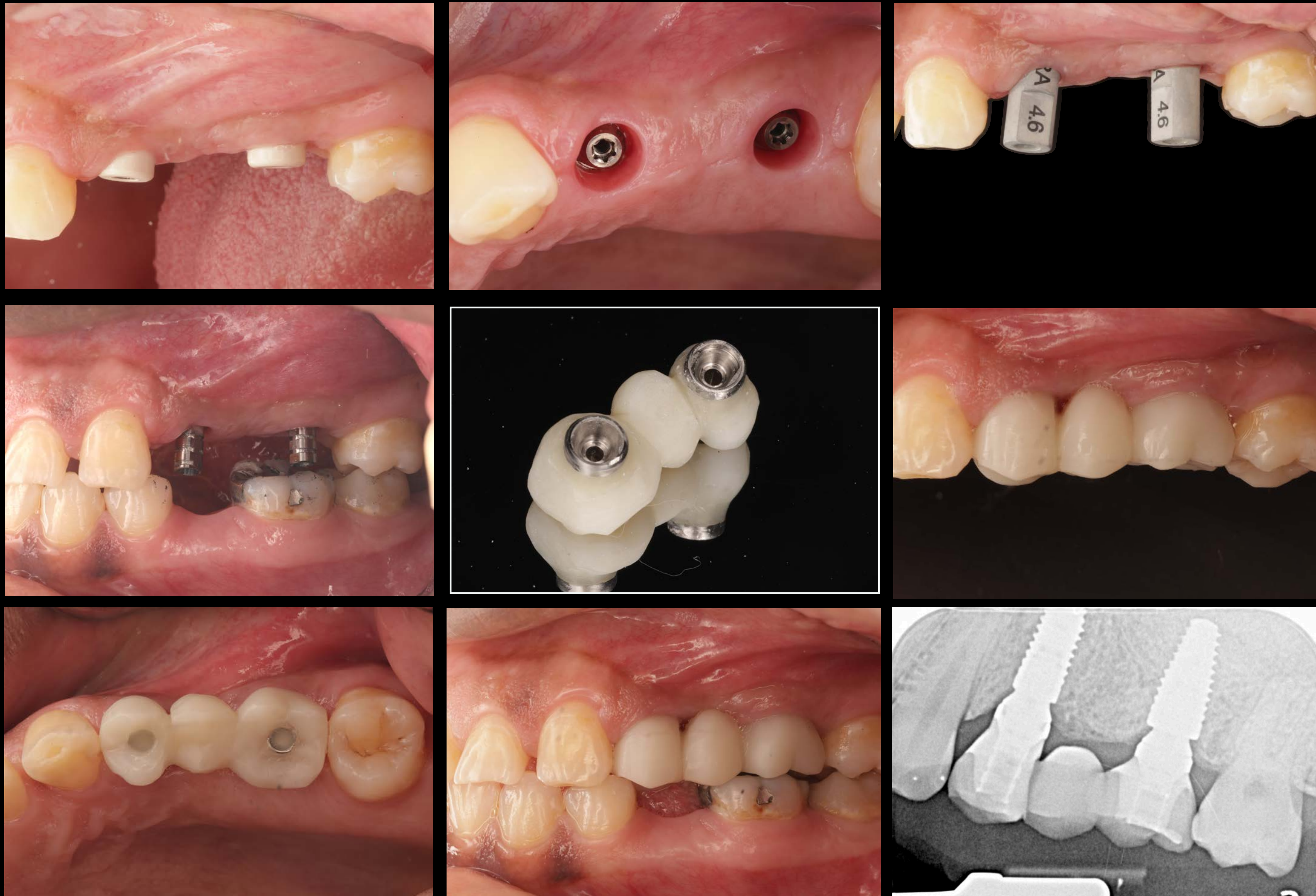


Figure 6. Sequence of restorative temporary implant bridge. After IOS of the SRA abutments, temporary bridge was design on 3Shape Dental System, 3D printed, and capture in the patient's mouth. Final periapical x-ray with temporaries in place.

RESULTS |

In the patient's case, post-surgical outcomes demonstrated significantly improved **crown height** and enhanced esthetic and functional results. This method highlights the value of a digital, **prosthetically driven approach**, offering an innovative and precise solution for implant placement and osseous contouring.

CONCLUSION |

Integrating a digitally designed guide based on the final prosthesis offers a streamlined approach for pre-surgical bone modification, ensuring precise implant placement. This technique helps optimize esthetics and function by enhancing crown height and improving outcomes in challenging cases with limited inter-arch space.