



Full-Mouth Dental Implant Rehabilitation in a Severe Class III Patient with Loss of Occlusal Vertical Dimension: A Case Report

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Purpose of the study;

Gastroesophageal reflux disease (GERD) is defined as the symptoms or complications with the passage of gastric contents into the esophagus. It characteristically involves the palatal surface of the maxillary anterior teeth. This case report describes the treatment of a severely skeletal class III patient with decreased occlusal vertical dimension caused by attrition, dental erosion from chronic gastroesophageal reflux, and missing posterior teeth.

A 42-year-old Hispanic male presented at the private practice with a chief complaint that “I have lost my back teeth and the ones I have are too small. I can’t chew and I hate the look of my teeth and profile.” The patient had a history of lupus, arthritis, gout, GERD, and hypertension. He was using CPAP machine for mild sleep apnea. Patient blood pressure (BP) was under control by taking medication with the BP of 118/68 on a day of work up appointment.



Fig. 1. Extraoral frontal and profile view of the patient, and lateral view of his CBCT



Fig. 2. Intraoral view of the maxillary and mandibular teeth



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Treatment Procedure;

Extra-oral exam was performed with all findings WNL. Patient's decreased OVD was clear on profile view. Intra-oral exam showed missing teeth, dental caries, severe attrition, and erosion. All possible treatment options with the pros and cons of each option were presented to the patient. After a comprehensive exam, it was decided to remove the remaining teeth, perform full mouth dental implant surgery, and immediate load implants the same day with provisional prostheses. Maxillary and mandibular immediate dentures were fabricated for conversion and duplicated in clear acrylic to be used as a guide in implant placement and selection of the mini conical abutments.

The procedure was done under intravenous (IV) moderate sedation due to the patient's medical history. After making proper sulcular and posterior vertical incisions, full thickness mucoperiosteal flaps were elevated. All teeth were removed and alveoplasty was performed. The surgical guide was placed to idealize the amount of bone reduction and the depth of the implant. Implants were placed in the anterior (straight) and posterior (tilted) regions while avoiding the sinuses on the maxilla and the mental nerves on the mandible. All implants achieved a torque value of 50 Ncm.

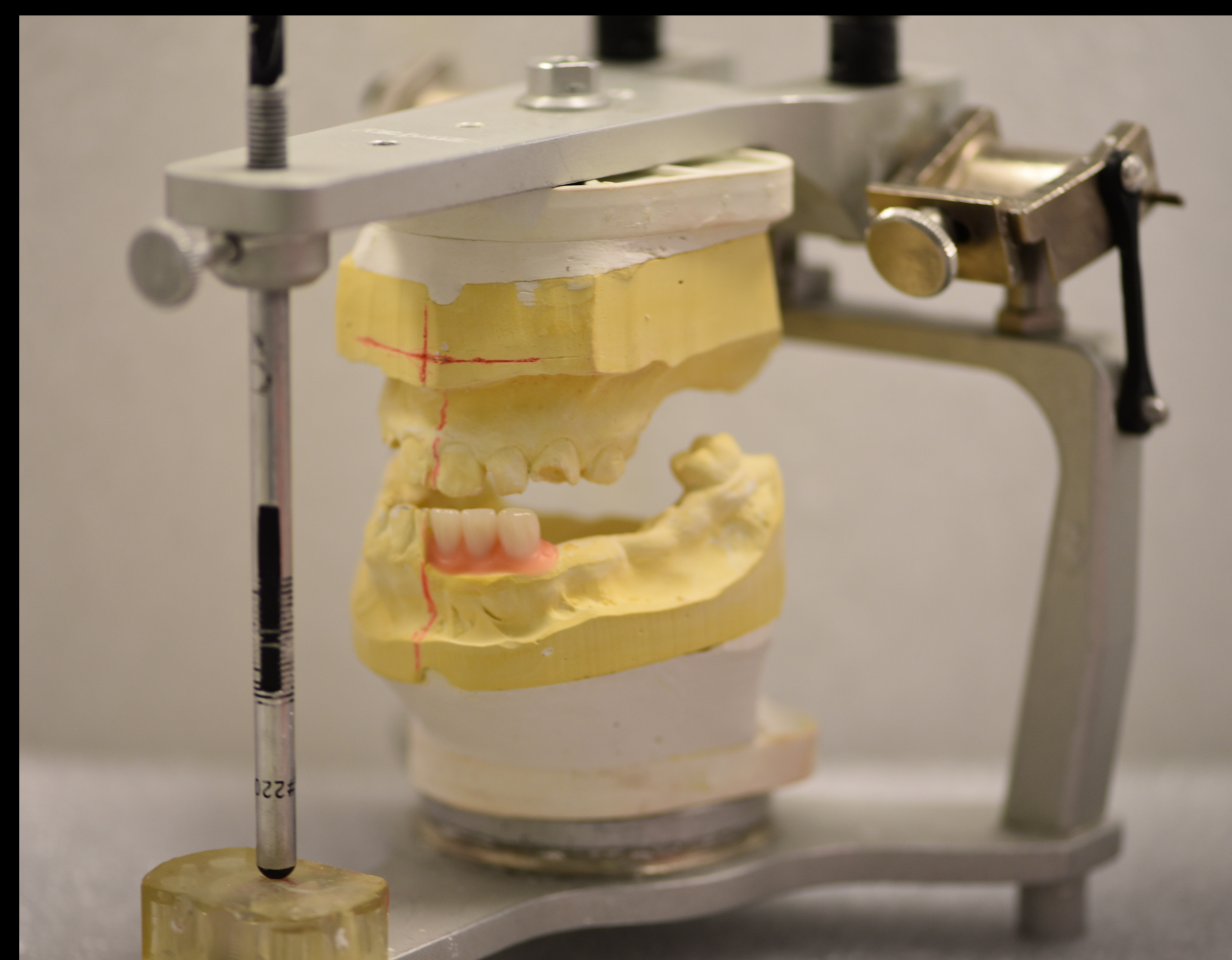


Fig. 3. increasing VDO on the articulator and setting up the teeth in new VDO after evaluating patient clinically



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Treatment Procedure;

Next, the fabrication of the provisional protheses were completed. The immediate maxillary processed denture was tried-in, and the esthetics were verified and recorded by using a medium bite registration material in the intaglio surface of the denture to capture the implant positions. After picking up the maxillary and mandibular temporary cylinders in the mouth, the protheses were removed from the mouth and taken to the lab. After finishing and polishing it in the lab, the protheses were put back into the patient’s mouth and secured to multiunit abutments using the prosthetic screws. Occlusion was adjusted and the screw access holes were sealed with teflon tape and temporary filling material. A night guard was fabricated to fit the maxillary converted provisional prosthesis. Twelve weeks after the surgery, the patient came back for evaluation of healing and osseointegration of dental implants as well as soft tissue healing.

Radiographic x-rays were taken of the implants, provisionals were removed, and the implants were percussed, and hand torqued to test and verify successful osseointegration of the implants.

A verification index was made extra-orally using temporary abutments and light cure material. The verification index was sectioned between the implants, placed intra-orally, and then re-luted together using the same light cure material. The lab prescription was written detailing the instructions for the in-house lab. Only minor changes were instructed to be made for the teeth try-in appointment to improve esthetic and function.

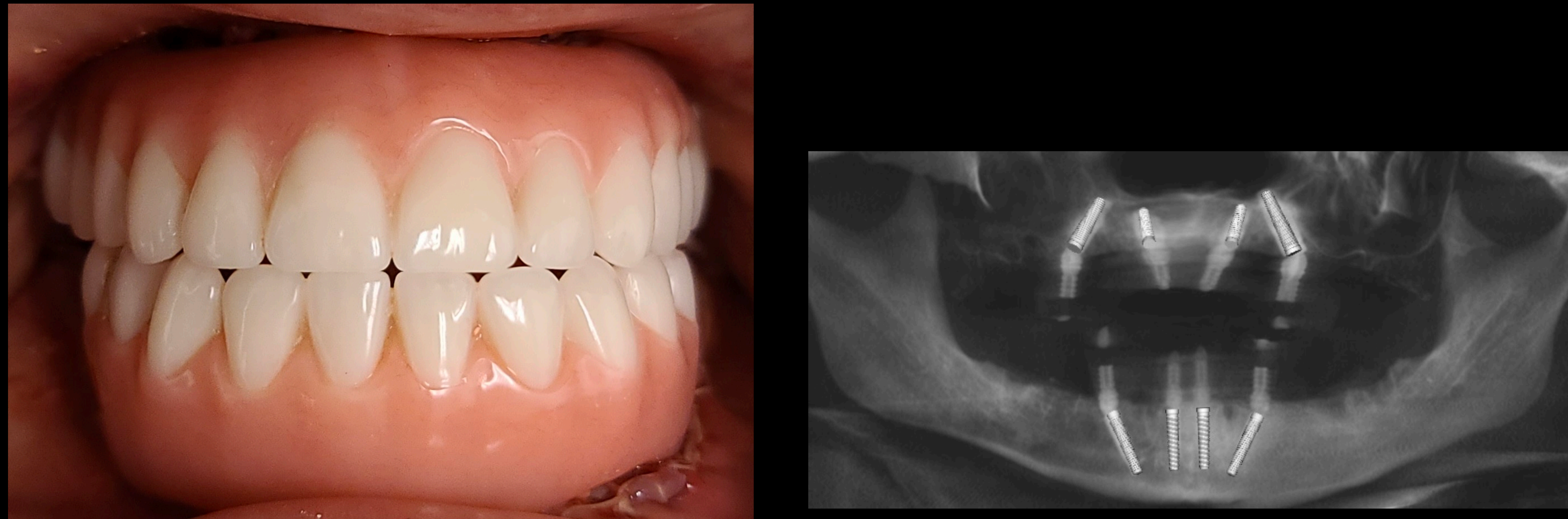


Fig. 4. Delivery of the same day teeth and post-op CBCT



Fig. 5. Frontal and lateral view of patient three weeks after surgery and teeth delivery



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Treatment Results;

After teeth try-in approval, the case was finalized using monolithic zirconia. At delivery, the final zirconia prostheses were inserted, and minor occlusal adjustments were made. A new night guard was fabricated for the maxillary arch. This patient benefitted from full mouth implant treatment, which addressed his multiple dental and occlusal issues.

A new night guard was fabricated using the maxillary final prosthesis, which was instructed to be used on a daily basis during nighttime. Recommended hygiene recall for the patient was determined to be every 6 months. The follow up visit will be as follows: removal of the prostheses, evaluation of the bone level and soft tissue, and cleaning of the mini-conical abutments and protheses.

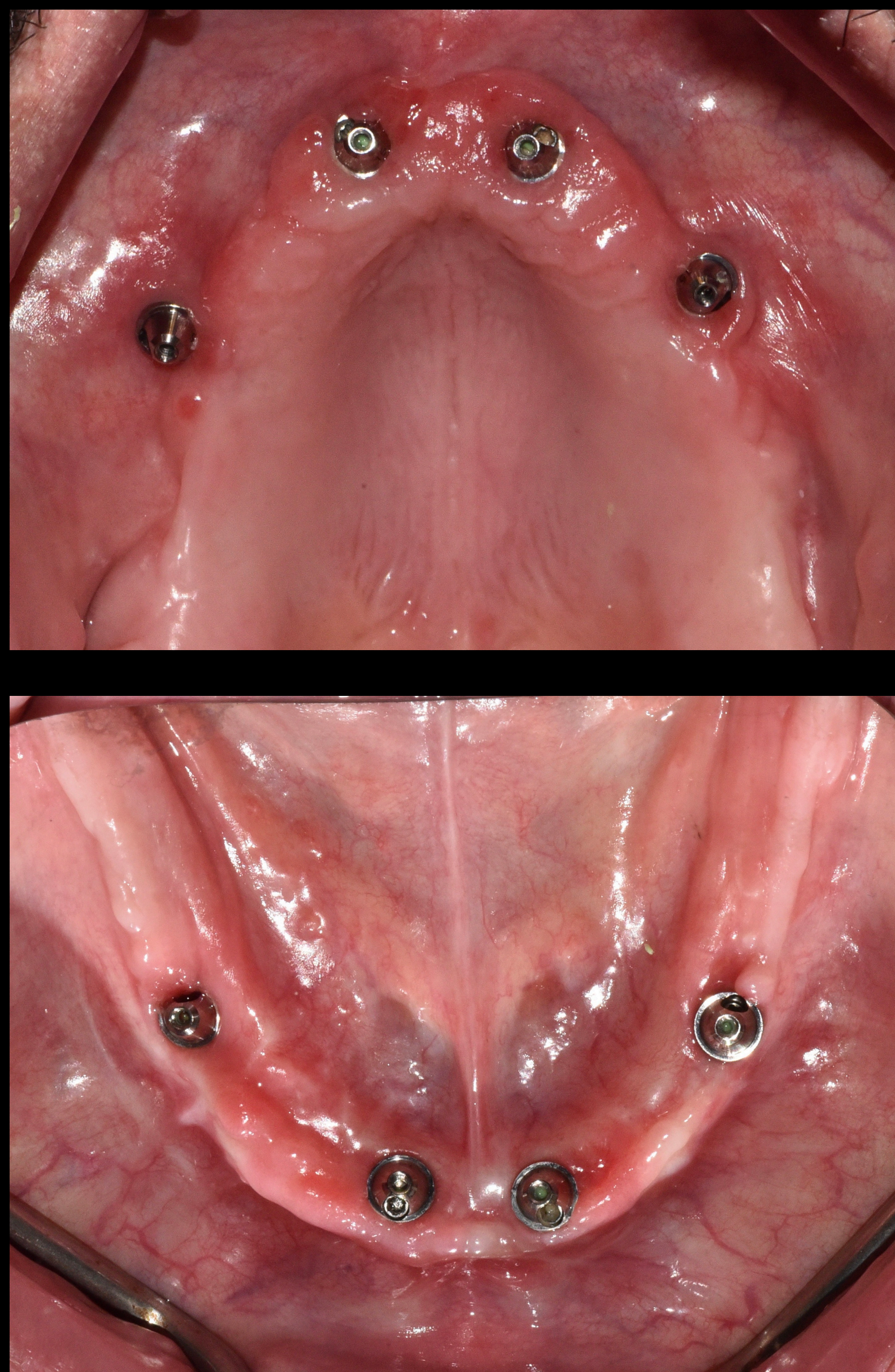


Fig. 6. Occlusal view of implants twelve weeks after surgery



Fig. 7. Final impression of implants using first-set of teeth and light/heavy body PVS impression material



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Conclusion;

Since the patient presented with Class III occlusal relationship, edge to edge relationship was designed to not change the patient's Angle class of occlusion drastically. The patient tolerated the increase in OVD during the provisional phase to prevent any TMD, as outlined in Turner's article.



Fig. 8. Frontal and lateral view of patient with final zirconia teeth



Fig. 9. Intra-oral view of final zirconia teeth

References;

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