

From Complication to Reconstruction: Rehabilitation in Atrophic Maxilla. Clinical Case

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Introduction.

Dental implant failure often leads to bone loss and maxillary atrophy, complicating treatment and affecting aesthetics, function, and **quality of life (measured with OHIP 5)**. Guided bone regeneration (GBR) and digitally assisted surgical techniques offer precise bone augmentation, enabling effective rehabilitation in complex cases.

Clinical Case.

Patient with a failed full-arch maxillary fixed prosthesis and severe atrophy underwent removal of six implants, GBR, and placement of five guided implants with immediate prosthesis loading. Outcomes assessed with OHIP-5 showed improved function, aesthetics, and quality of life at 1, 3, and 5 months

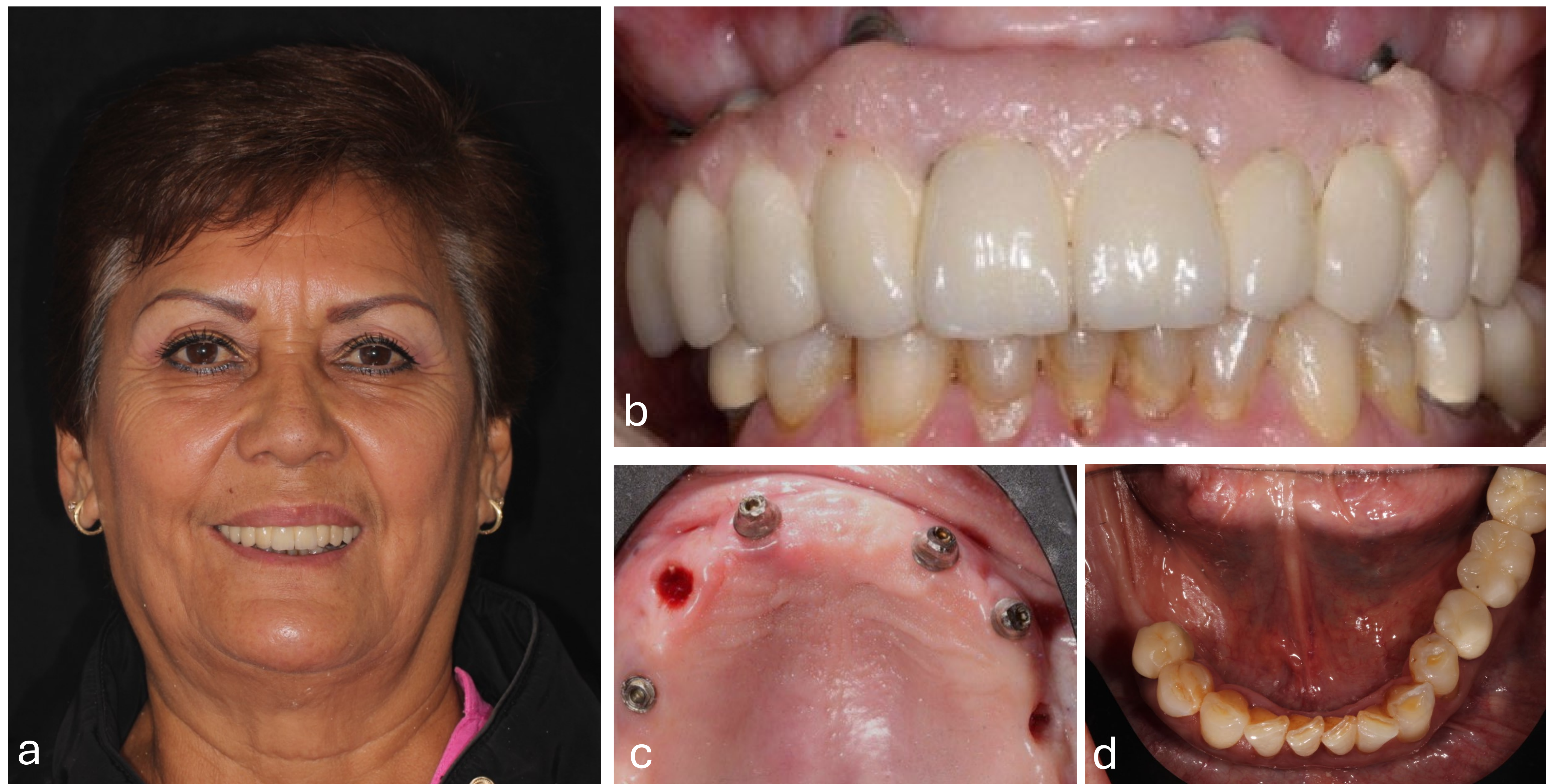


Figure 1. Initial situation of the patient, a. Acceptable extraoral aesthetics with slight asymmetries, b. Upper hybrid prosthesis with implant insertion loss, mobility and suppuration, c. When unscrewing the upper prosthesis, two implants were lost, d. Lower natural jaw.

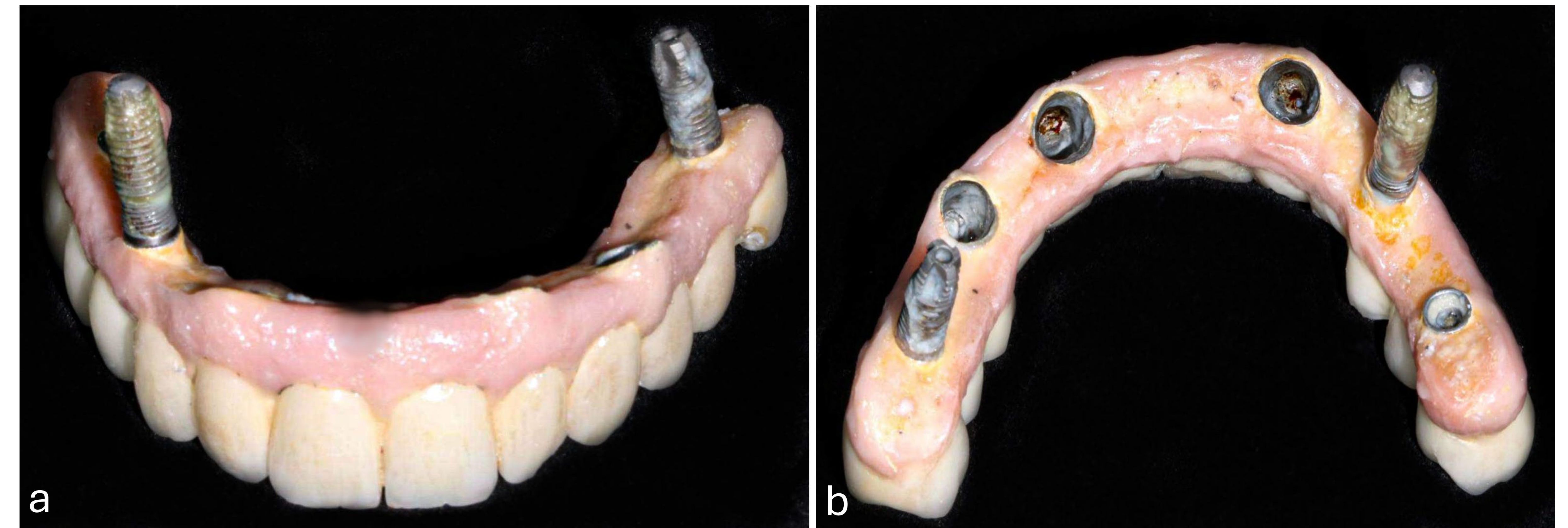
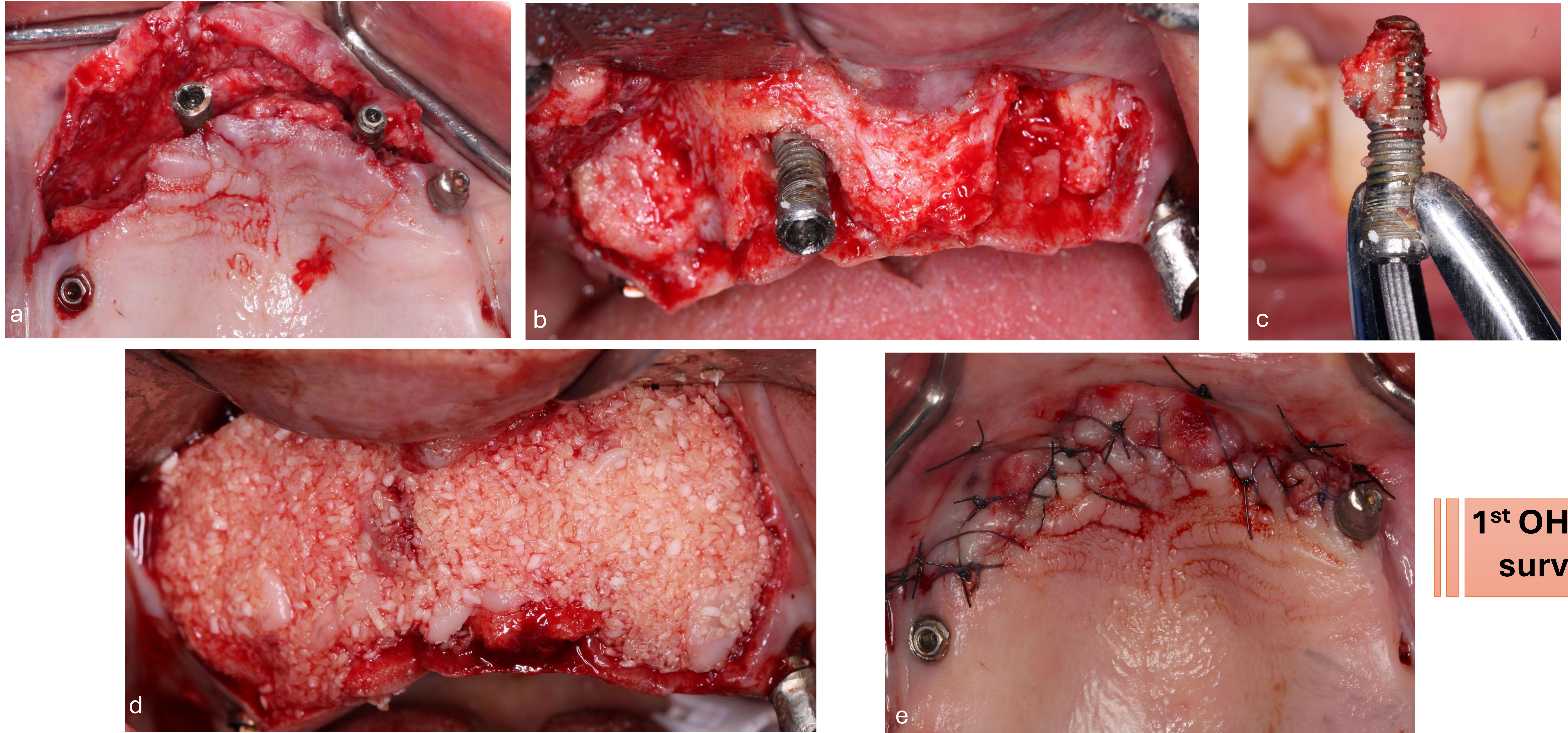


Figure 2. Upper hybrid prosthesis after unscrewing. The explantation of two implants with obvious signs of peri-implantitis, including the presence of calculus and suppuration, is observed. In addition, the internal surface of the prosthesis, in contact with the mucosa, shows excessive accumulation of biofilm, attributed to the lack of adequate maintenance.

GUIDED BONE REGENERATION

FIRST SURGICAL PHASE:



1st OHIP-5
survey

Figure 3. Guided bone regeneration, a. Initial view after access flap, showing severe bone atrophy and explantation of failed implants, b. Exposed bone defect with remnants of inflammatory tissue around implants affected by peri-implantitis, c. Explantation of implant contaminated with biofilm and supragingival calculus, d. 100% mineralized cortical allograft chips, e. Primary closure no tension of the flap.

PROSTHETIC WORKFLOW FOR PLANNING



Figure 4. Prosthetic procedures for the fabrication of a complete upper denture with a new and correct orientation of teeth, a. Wax try-in of the prosthesis to obtain vertical dimension and aesthetic measurements b. Upper denture to be used as a tomographic guide. Gutta-percha markers will be added to facilitate the correct positioning of the implants based on the ideal tooth arrangement.

IMPLANT DIGITAL PLANNING

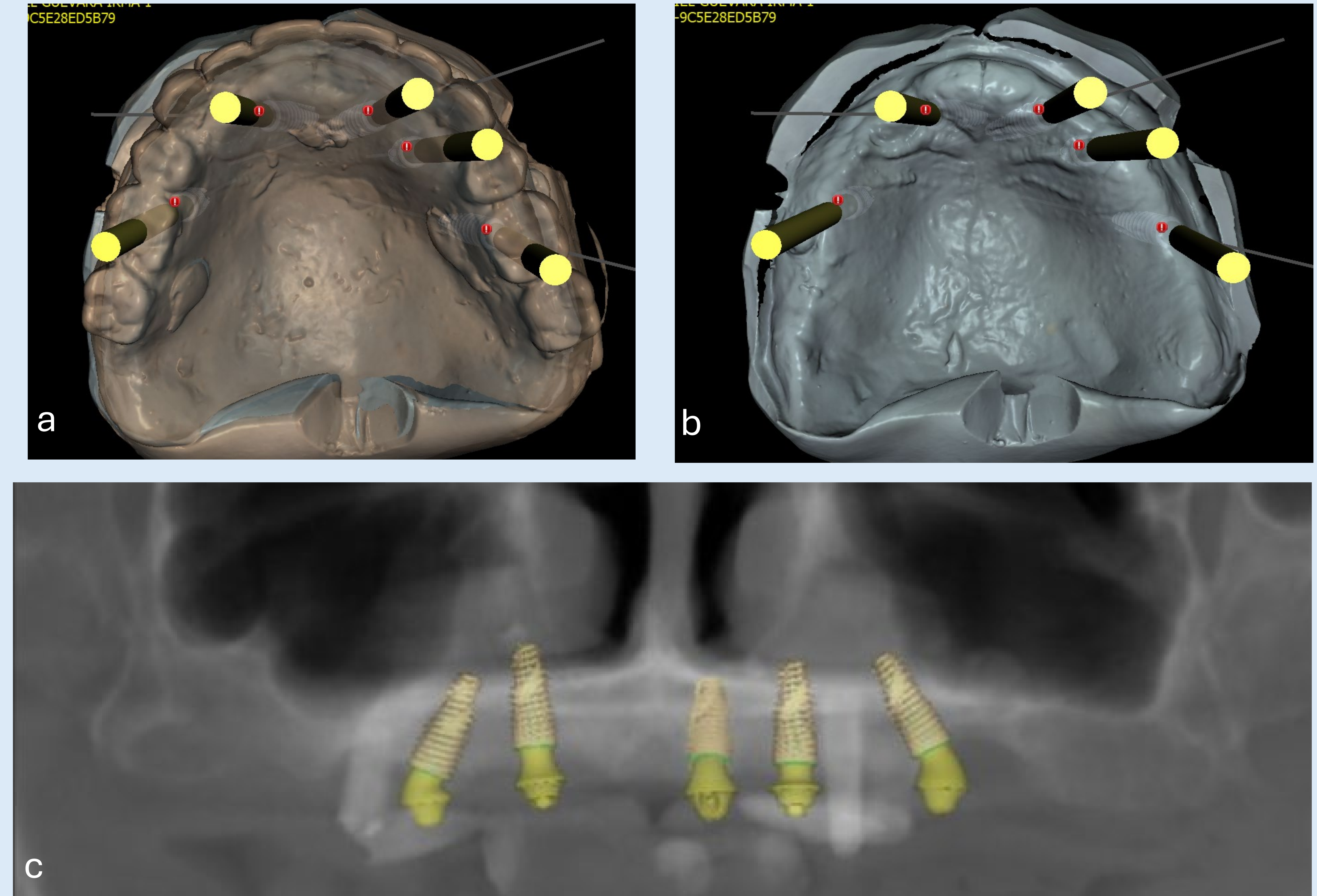


Figure 5. Tomographic planning for implant surgery, a. Emergence of the implants through the STL model of the conventional prosthesis previously manufactured, b. Emergence of the implants in the STL model of the patient's edentulous maxilla, c. Planning of the future position of 5 implants in the edentulous maxilla.

IMPLANT PLACEMENT AND IMMEDIATE LOADING



Figure 6. Surgical and positioning guides printed in resin, a. Base guide for pin anchorage, b. Guide for implant placement, c. Guide for prosthesis positioning for immediate loading.

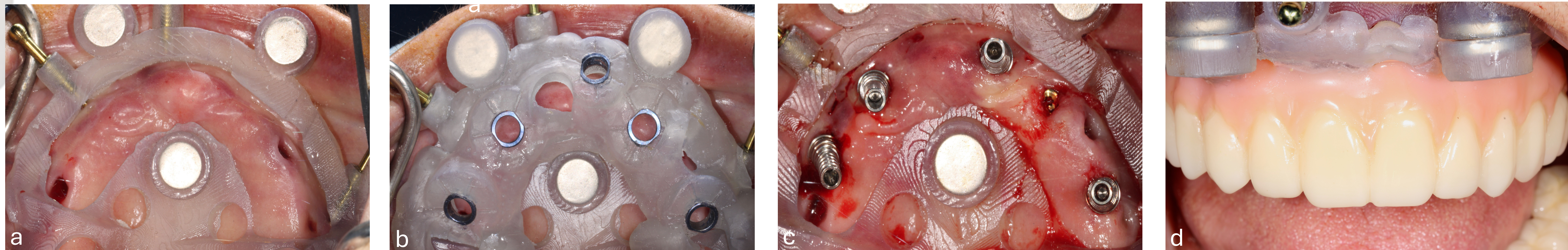


Figure 7. Surgical and prosthetic procedures with a stackable guide system, a. Base guide anchored in the mouth, b. Implant placement guide positioned on base guide in the mouth, c. Implants placed with micropillar and provisional abutments prior to loading the prosthesis, implant 24 with healing abutment since the desired torque was not reached, c. Immediate hybrid PMMA prosthesis screwed in the mouth.

SECOND SURGICAL
PHASE:

Results:

The patient reported significant improvements in comfort, functionality, and the ability to perform daily activities. Aesthetic outcomes were consistent with prior results, with no notable differences between the previous and new prostheses. Patient satisfaction, measured by the OHIP-5 questionnaire, improved from 9/20 pre-treatment to 2/20 post-intervention, with the most notable improvements seen in oral function and psychosocial impact.

Questions	T0	T1	T2	T3
Have you had difficulty chewing any foods because of problems with your teeth, mouth, dentures or jaw?	2	1	0	0
Have you had painful aching in your mouth?	0	0	0	0
Have you felt uncomfortable about the appearance of your teeth, mouth dentures or jaws?	2	1	1	1
Have you felt that there has been less flavor in your food because of problems with your teeth, mouth, dentures or jaws?	2	0	0	0
Have you had difficulty doing your usual jobs because of problems with your teeth, mouth, dentures or jaws?	3	0	0	0
TOTAL	9	2	1	1

Table 1. Comparison of the results of the OHIP 5 survey. A lower score reflects a better quality of life related to oral health. T0: previous intervention; T1: immediate posterior intervention; T2: 3 months later; T3: 5 months later.

Conclusion:

Dental implant failure can severely affect oral health and quality of life. However, through careful planning and execution, positive outcomes in functionality and aesthetics can be achieved, leading to improved patient satisfaction and quality of life. While the initial results are promising, long-term follow-up is necessary to assess the durability of the intervention.



Figure 8. Clinical outcomes after intervention, a. Immediate hybrid prosthesis screwed into the mouth, b. Extraoral aesthetics similar to initial situation.

References.

