

“Fully Digital Workflow of a Full Mouth Reconstruction: A Case Report”

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INTRODUCTION

The advancement of dental technologies introduced the possibility to plan, treat and evaluate complex cases such as full mouth reconstructions. Planning for implant placement, solving problems such as loss of vertical dimension, and ensuring a successful treatment can be challenging for clinicians. This case report discusses the digital workflow as a reliable and cost-effective alternative to the conventional approach in a full-mouth rehabilitation.



Fig 1) Initial Intraoral Evaluation

OBJECTIVE

- To demonstrate a fully digital approach, using an intraoral scanner for smile design, final restoration fabrication, and evaluation of the final treatment, in a full mouth reconstruction.
- To show the benefits of using digital dental implant planning software to ensure secure and prosthetically driven implant placement.

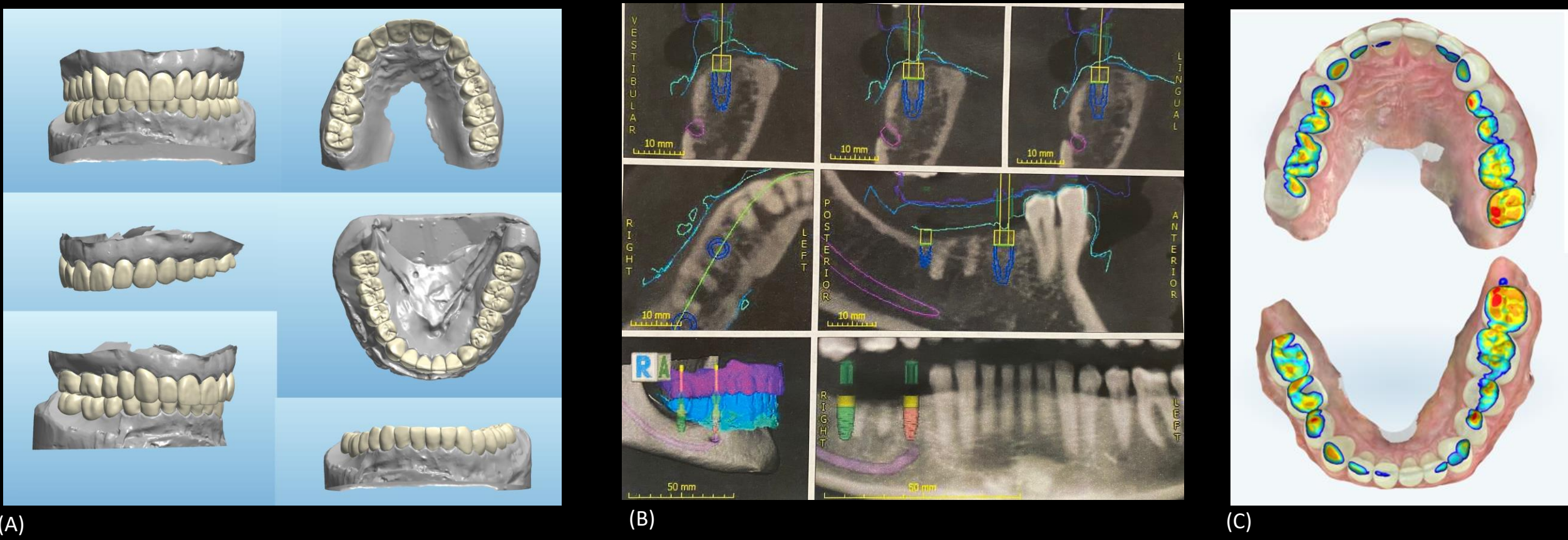


Fig 2) (A) Digital Wax-up, (B) Digital treatment plan for implant placement on sites #29 and 31, (C) Occlusal contacts evaluation with virtual models

CASE DESCRIPTION

A.L, a 62-year-old female patient, ASA II and NKDA, presented to the clinic with the following chief complaint: "I'm a breast cancer survivor that went through a lot of stress, and my teeth have deteriorated since then, especially the front teeth. I'm embarrassed. I want to rejuvenate my smile ".

Dental history: Multiple restored teeth with resin composites, missing teeth #30 and #31 due to caries. Root tip of tooth #29. Moderate attrition of the anterior teeth.
Proposed treatment: (Orthodontic treatment denied)
Full mouth reconstruction using CAD-CAM monolithic lithium disilicate ceramic veneers, overlays, and crowns with a minimally invasive preparation approach. Increased VDO 3mm to provide adequate interocclusal space for restorations. Extraction & socket preservation followed by implant placement of root tip #29. Implant placement on sites #29 and #31 for a Implant Supported Fixed Partial Prosthesis.

METHODS

1. **Initial stage:** Intraoral scanning of the patient's initial clinical situation was performed with a Medit i500 scanner. Interocclusal space was scanned in Centric Relation using a dental leaf gauge between the anterior teeth. The patient was asked to move back and forth in a protrusive manner to reach the mandible in centric relation, and the bite was recorded with an intraoral scanner.
2. **Testing stage:** This information (STL file) was transmitted to the CAD/CAM design software to design a digital wax-up using facial lines and dental proportion parameters previously established in the patient's mouth. A 3D model was printed to create a silicone index to guide tooth reduction, Mock up, and fabrication of provisional restorations. Digital scan (ITero) was used for a post-scanning case review every week for three months, and occlusal adjustments were done intraorally.
3. **Restorative stage:** Atraumatic extraction and socket preservation of root tip #29. Implant planning digital software was used to plan the implant placement (sites #29, 30, and 31) and to design a fully guided surgical guide according to the final restorative outcome. A minimally invasive tooth preparation using the mock-up reduction technique was done, and scanned. In this case, a bite scan was done using one-sided provisionals to keep the new VDO. (Fig 3, (B))
The material of choice for all restorations was monolithic lithium disilicate, and restorations were cemented with a light cure luting dual composite (Variolink LC) following manufacturing recommendations. Occlusal guard delivered at the end of treatment.
1. **Control stage:** Routine dental visits once a year, using intraoral scanner, Radiographs, and Photographs. (Fig.5)

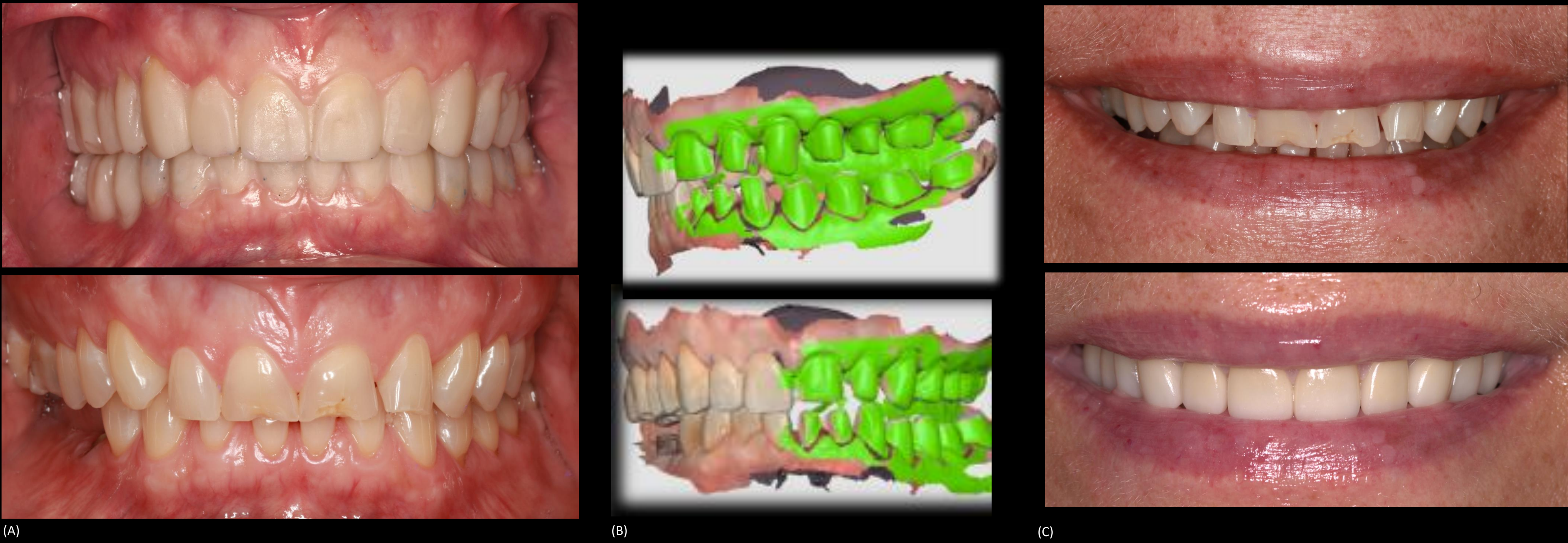


Fig. 3) (A) Mock – up testing new VDO , (B) Digital scan with new VDO, (C) Smile with final restorations

RESULTS

The digital evolution in dentistry allows time-effective complex cases treatment planning, restoration fabrication, and a secure and prosthetically driven implant placement, resulting in a more predictable outcome. Digital technology simplifies the process and provides a more precise outcome.

The patient was satisfied with the final restorations, which significantly improved the aesthetics, function, and mastication abilities.



Fig 5) Intraoral Photographs ,1-year Follow up.