

Histological Findings 8 Weeks Following Customized Alveolar Ridge Splitting Technique – A Case Report

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INTRODUCTION

Following tooth extraction, different techniques have been introduced when replacement is planned with a dental implant. The conventional approach consists in waiting 3-4 months before implant placement. However, many other options are available for implant placement including immediate implant placement (IIP), IIP and immediate provisionalization (IIPIP) and early implant placement (EIP). When the ridge is deficient, guided bone regeneration (GBR) with simultaneous implant placement can also be performed.

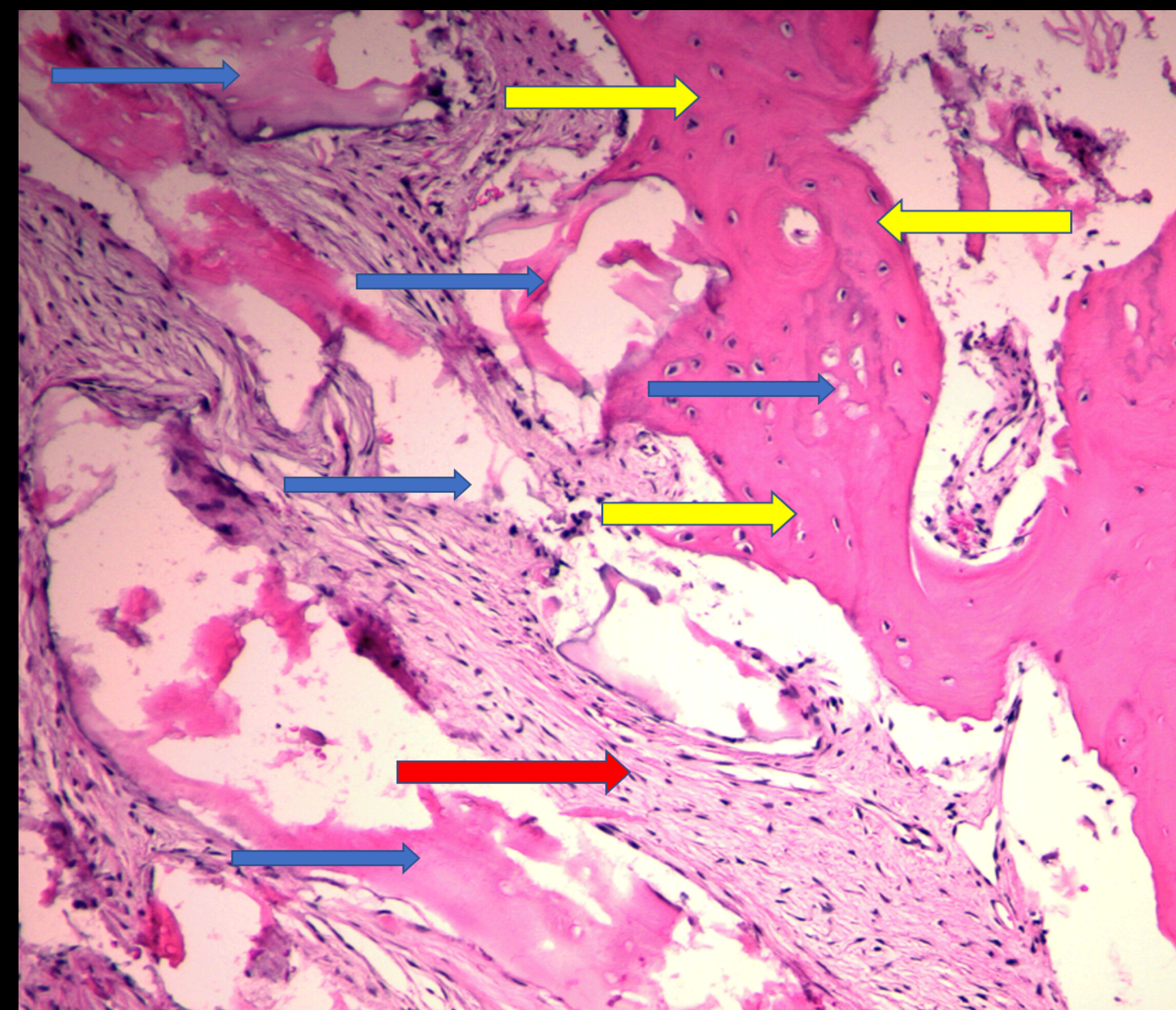
Nevertheless, this procedure has potential for post-operative complications and patient discomfort, as well as an extended treatment time. The recent introduction of the Customized Alveolar Ridge Splitting (CARS) technique can help to avoid many of these problems. The purpose of this case report is to demonstrate the step by step surgical and restorative procedure for the CARS technique and present histological data of the new bone generated utilizing this technique.

RESULTS

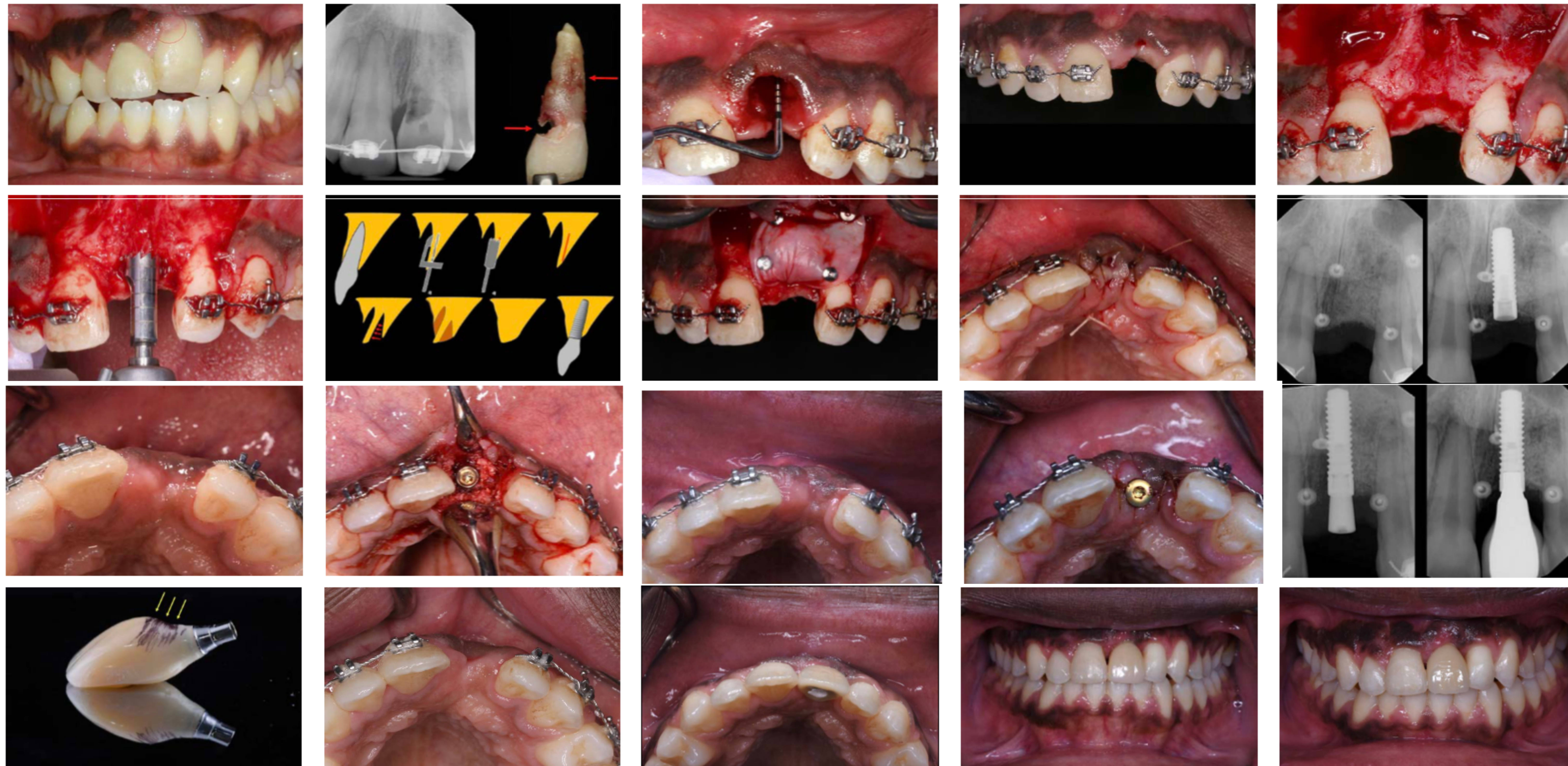
The CARS technique was used to create an innovative ridge split using a trephine for creating cuts on the ridge, to be limited only to the site planned for implant placement. And new bone formation is expected 8 weeks after performed the CARS technique according to the biological concept.

A sample was taken during the preparation of the osteotomy eight weeks following the procedure for histological analysis. The biopsy showed multiple smoothed-surfaced, irregular-shaped pieces of white, tan and brown tissue measuring in aggregate 0.5cm x 0.4cm x 0.2cm which was submitted for histological reporting. Sections showed multiple fragments of tissue composed of residual bone consistent with new bone formation.

- **Blue arrow:** Avascular bone consistent with graft
- **Yellow arrow:** Bone formation around graft
- **Red arrow:** fibrous connective tissue with scattered inflammatory cells



CASE PRESENTATION



CONCLUSION

This case report demonstrates the step-by-step surgical and restorative procedure for the CARS technique used and presents histological data of new bone created utilizing this procedure. The CARS technique was used to avoid complications associated with the conventional ridge split procedure and enable the implant to be placed in the patient's native bone. Histological findings from this case support the biologically based theory of new bone formation at 8 weeks after performing the CARS technique.

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