Alveolar reconstruction for implant placement in a patient with a history of bisphosphonate treatment

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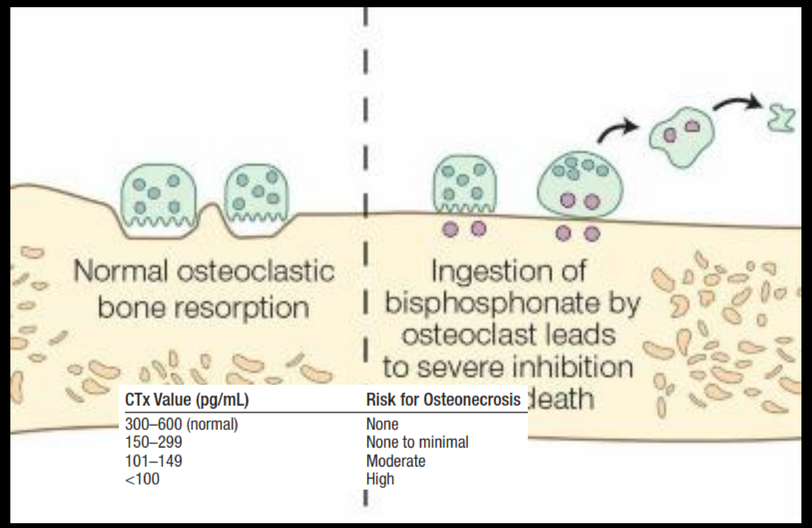
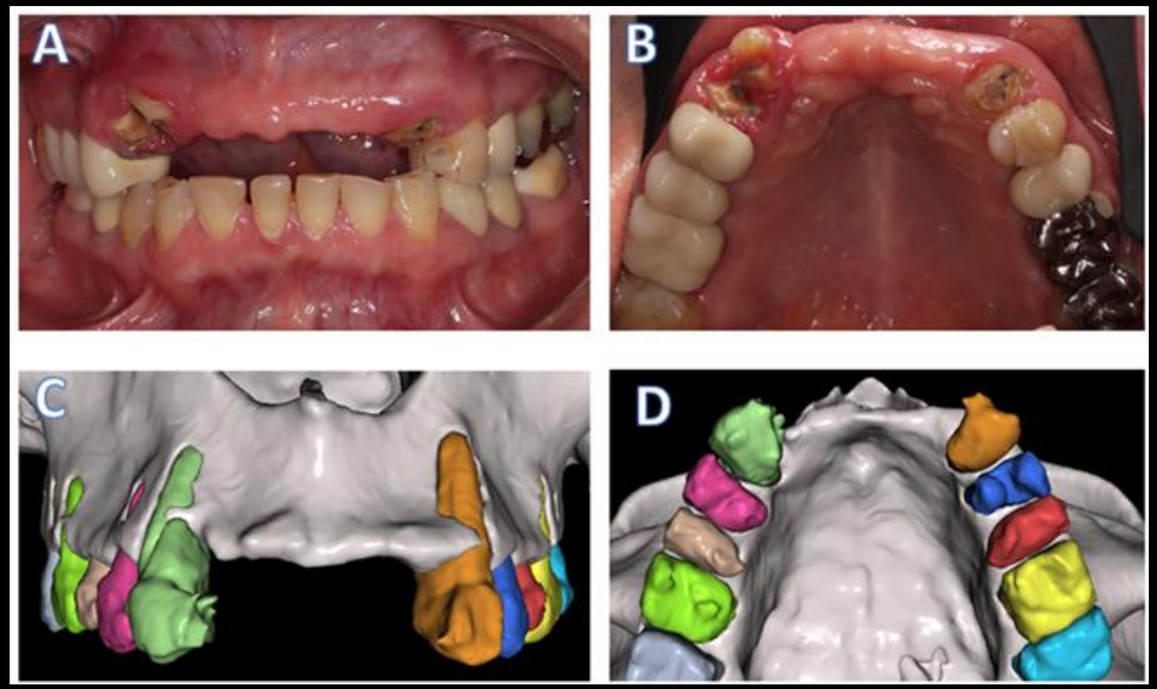
INTRODUCTION

Bisphosphonates are drugs that inhibit bone resorption present in diseases such as osteoporosis and bone metastasis. They are characterized by presenting an irreversible binding to hydroxyapatite, which has been described as being present for up to 10 years.



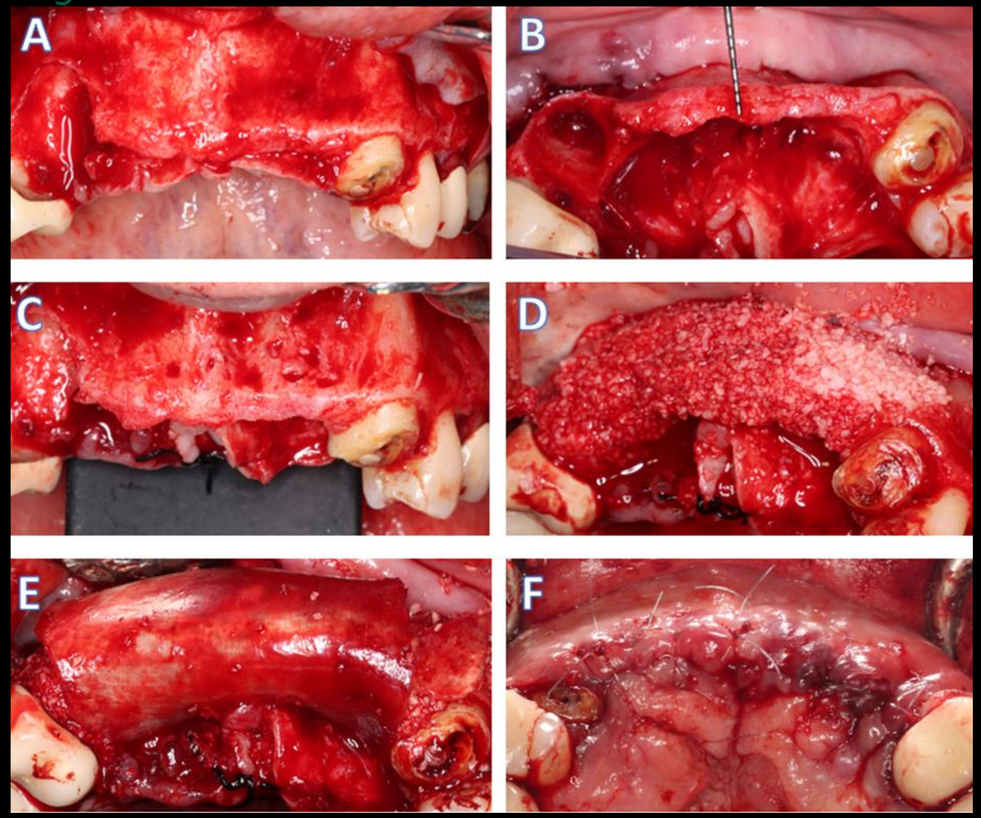
From : Marx Ed, Robert E Oral and Intravenous Bisphosphonate-Induced Osteonecrosis of the Jaws: History, Etiology, Prevention, and Treatment *Quintessence, (2016), 2nd*

CASE



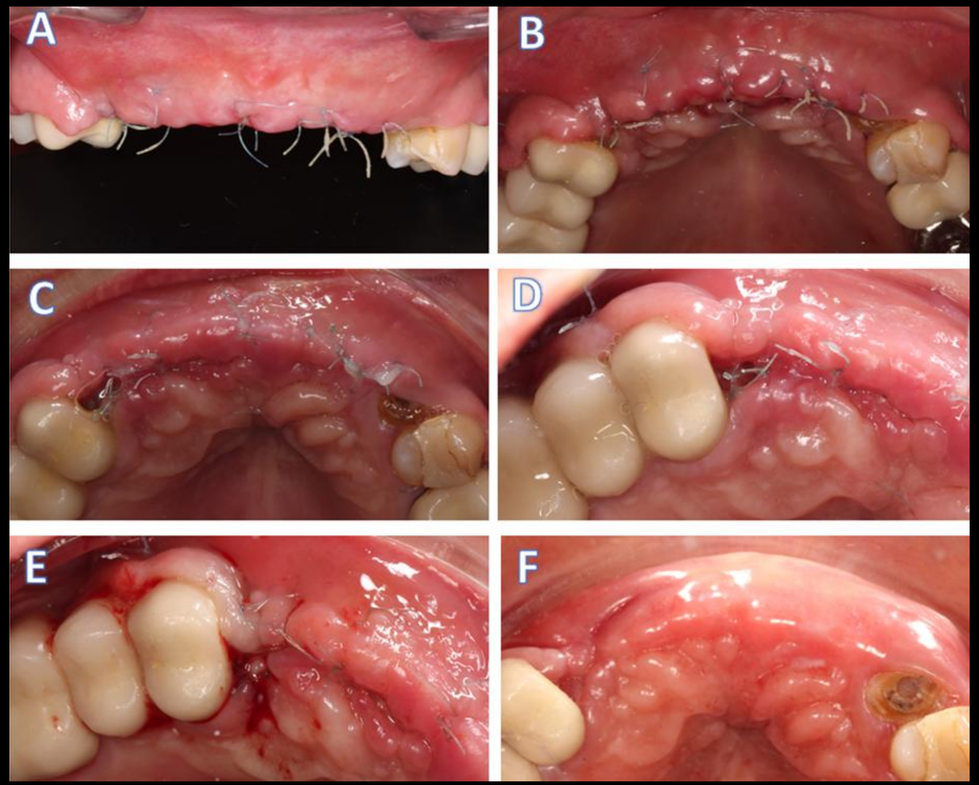
A 66-year-old female with reported history of breast cancer in remission, annual applications of Zoledronic acid, receiving her last dose in 2014. Patient came for dental rehabilitation with implants, laboratory studies reported C-terminal telopeptide values of 160 pg/dl to guide our treatment plan was decided to perform premedication by means of pentoxifylline 400 mg every 8 hours to improve the vascular supply of the tissues.

INTERVENTION

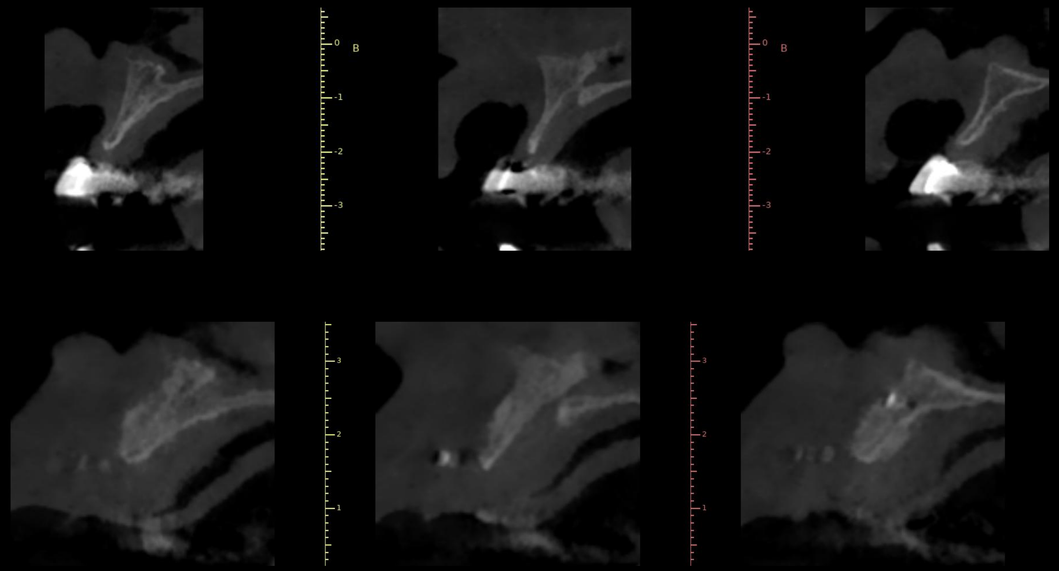


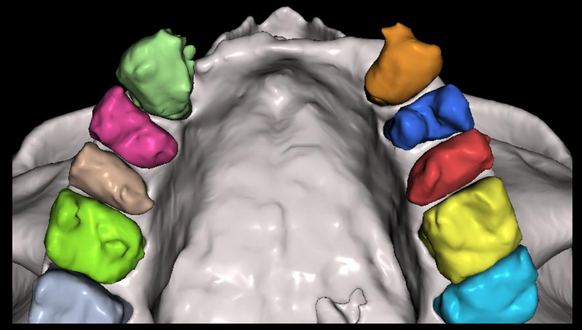
Full-thickness flap was raised (A), tooth 13 was extracted. The alveolar crest was exposed with a thickness of 2 and 3 mm (B). Perforations are made in the bone (C) and particulate graft are placed (D), the curved sheet is adapted to the surface to generate the dome effect and then fixed using 3mm tacks (E). The flaps are repositioned and the periosteum is released to allow primary closure. When facing the tissues, 4/0 Nylon is used (F)

Check-up consultation after 7 days with the presence of adequate healing (A,B). At the 14-day consultation, the wound dehiscence is present (C,D), so they begin washing with chlorhexidine and perform a new primary closure of the area (E). At one month of evolution, adequate healing is present according to the time of evolution, with no data of an active infectious process or exposure of the plate (F).

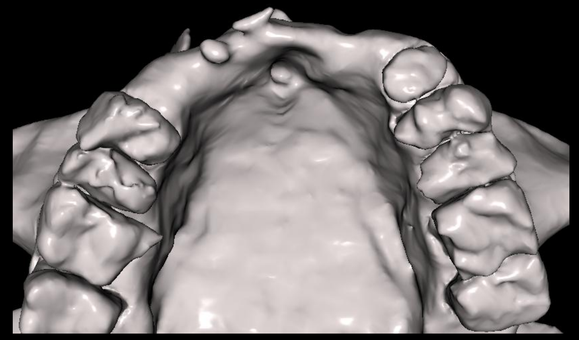


RESULTS

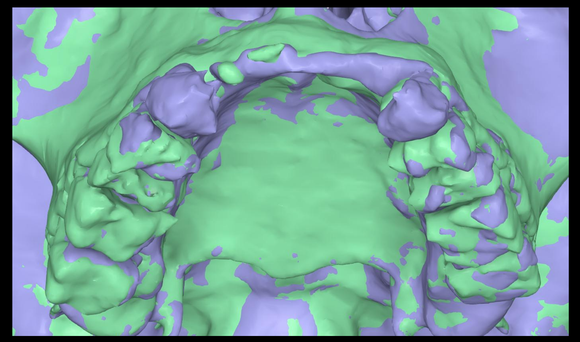




Pre-surgical



Post-surgical



Comparative

4-month follow-up. Adequate bone thickness gain of 3 – 5 millimeters in the anteroposterior direction, with greater gain towards the distal area of the regeneration, due to the way in which the lamina was placed, which caused collapse in the midline, presenting less bone gain on the vestibular side.

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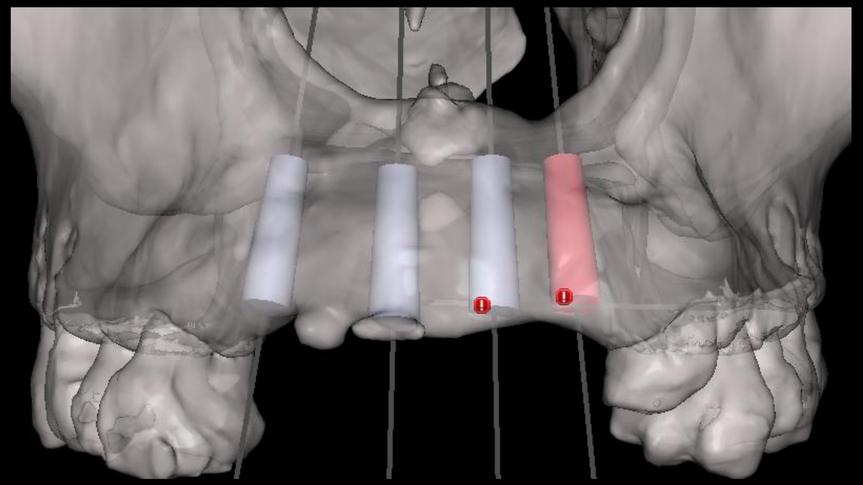
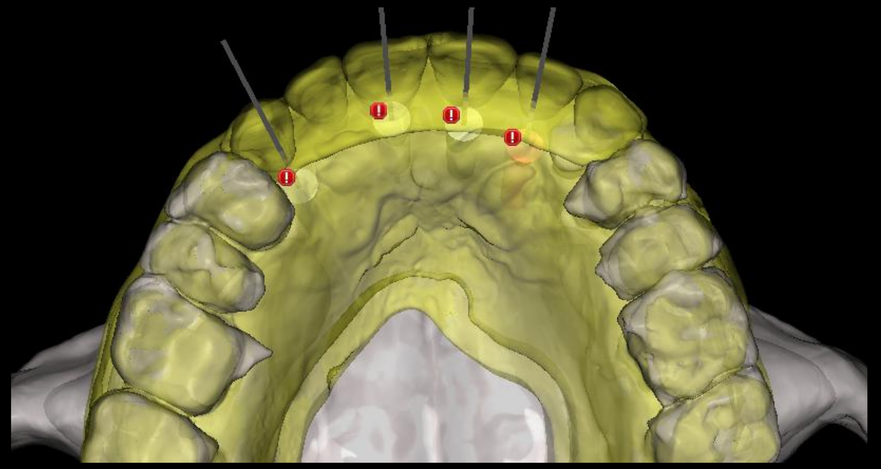
IMPLANT PLANIFICATION

The gain in bone thickness allowed the placement of 4 narrow implants, nonnetheless the low density observed in the bone led us to select the placement of 4 long implants to obtain stability in the native bone and to avoid modifications or even the loss of regenerated bone, placement is planned using a flapless technique.





CONCLUSION

Patients with a history of zoledronic acid use should engage in open discussions with their healthcare providers regarding any planned medical or dental procedures. They should also be informed about the potential side effects and the importance of monitoring their health conditions regularly. Furthermore, supplementation with calcium or drug treatment may be necessary to ensure adequate bone health before, during and after surgical procedure.

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