When Is The Buccal Bone Plate Preserved After Tooth Extraction?

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Introduction

- Studies have determined that the resorption of the alveolar process after tooth extraction in the maxilla and the mandible is significantly greater at the labial/buccal aspect than at the lingual/palatal aspect of the ridge and that most of the resorption occurs during the first 3 months of healing.
- Dimensional changes can be observed up to 1 year after tooth extraction, resulting in approximately 50% reduction of the bucco-lingual dimension of the alveolar ridge, mainly due to the resorption of the labial/buccal bone plate.
- A case report is presented where bone resorption after teeth extraction occurred mainly on the palatal plate and middle of the ridge with almost no loss of the buccal bone plate.

Fig.1a

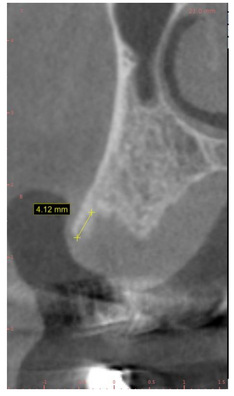

Fig.1b

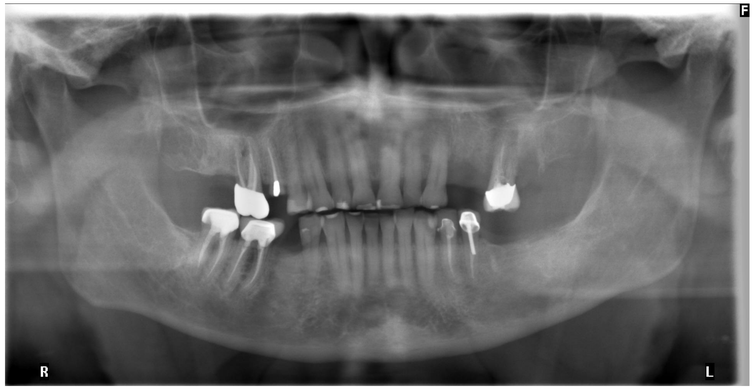

Fig.1c

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Academy of Osseointegration

Methods and materials:

- A 66-year-old male presented for implant placement after eight months following extraction of teeth #12 and 13 due to non-restorable teeth.
- CBCT was obtained, which revealed bone deficiency on the palatal and middle of the edentulous ridge revealing deficiency in horizontal (7-8mm) and vertical dimensions (≈ 4mm). (**figures 1a, b, c**)
- The buccal plate was the only remaining bony wall
- Since the vertical bone defect was not >4mm, it was decided to do simultaneous implants placement with guided bone regeneration with the use of implants as tenting for the membrane.
- Osteotomy for the two implants were prepared,
- Implants were placed 1.0 mm below the buccal bone plate and 3.0 mm supra-crestal in relation to the palatal wall and middle of the ridge. (**Figures 2a, b, c**)

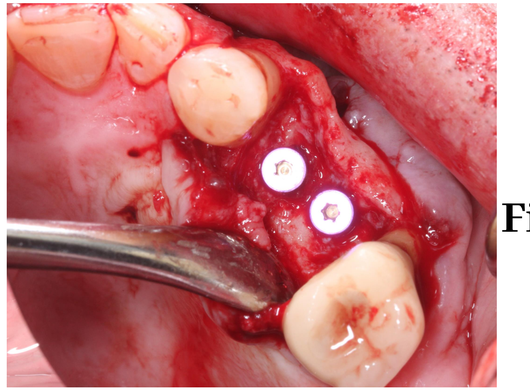

Fig.2a

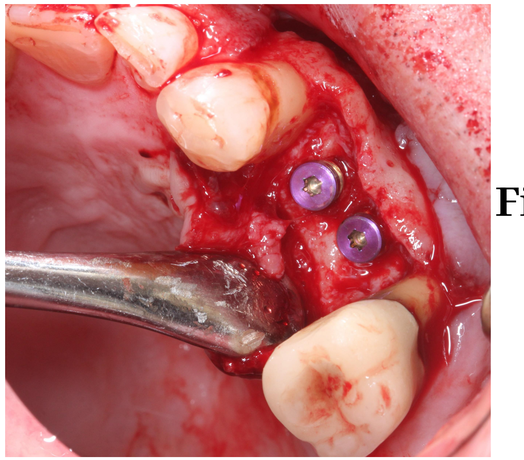

Fig.2b

Fig.2c

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- The alveolar ridge around the implants was grafted horizontally and vertically with a mixture of 70% xenograft bone material and 30% autogenous bone which was collected from the same area at a higher level of the maxilla using bone scrapper. (**Figure3**)
- Resorbable collagen membrane was used to cover the graft and the implants. (**Figure 4**)
- The membrane was stabilized using Titanium tacks. (**Figure 5**)
- The flap was sutured with horizontal mattress and single interrupted sutures. (**Figure 6**)
- Postoperative panoramic radiograph was taken. (**Figure 7**)

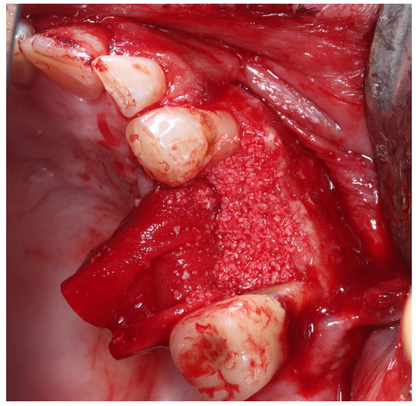

Fig 3

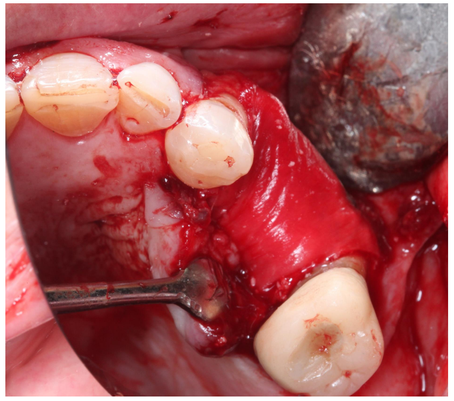

Fig 4

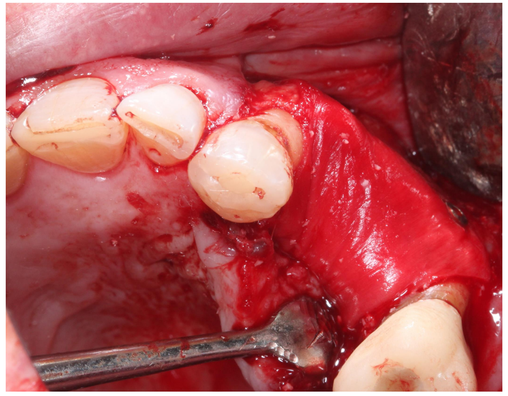

Fig 5

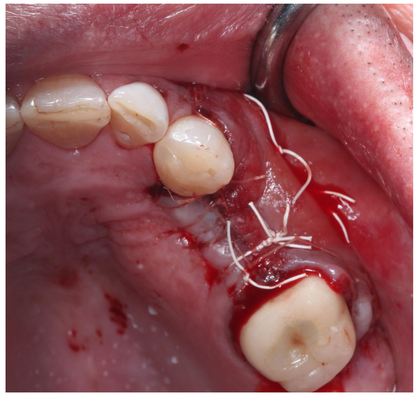

Fig 6

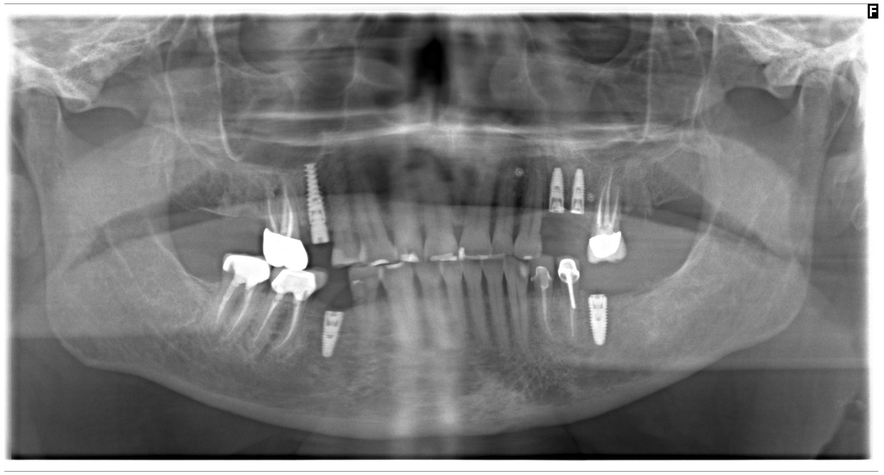

Fig. 7

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Results

- Vertical gain in the alveolar ridge of around 5.0 mm and 7.0 mm horizontal bone gain (**Figures 8a, b, c**) with the bone covering the implants cover screws after 8 months. (**Figure 9**)
- A significant amount of interproximal bone gain was achieved on the adjacent teeth mesial and distal to the extraction sites. CBCT showed interproximal bone level before (**Figures 10a, b**) and after bone graft. (**Figures 10c, d**)
- The implants were uncovered and restored. (**Figures 11a, b, c, d, e**)

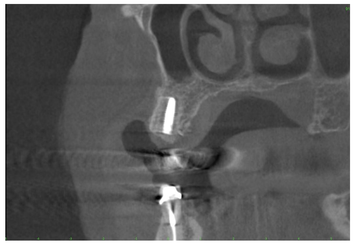

Fig 8a

Fig 8b

Fig.8c

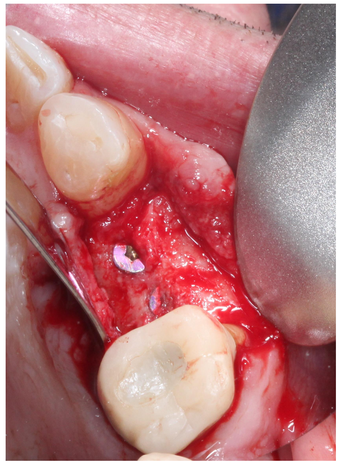

Fig.9

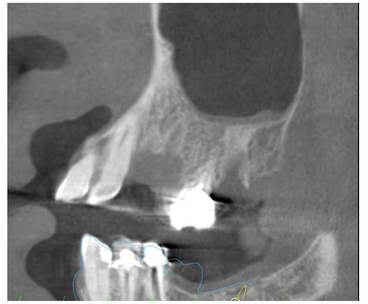

Fig.10a

Fig.10b

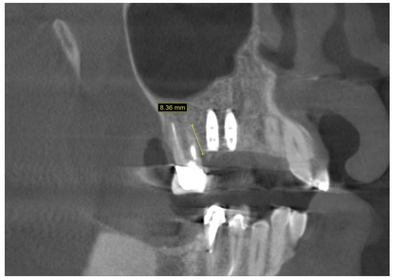

Fig.10c

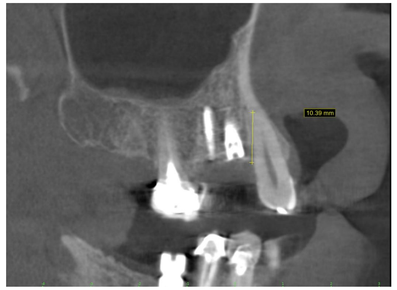

Fig. 10d

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Conclusion

- There are possible factors that may modify the pattern of labial/buccal bone plate resorption after extraction.
- The presence of remaining buccal plate may aid bone gain in vertical, horizontal and interproximal areas following grafting where implants were used for tenting.
- Bone gain in interproximal area of teeth mesial and distal to extraction site, gives the possibility of vertical interproximal bone regeneration

Fig.11a

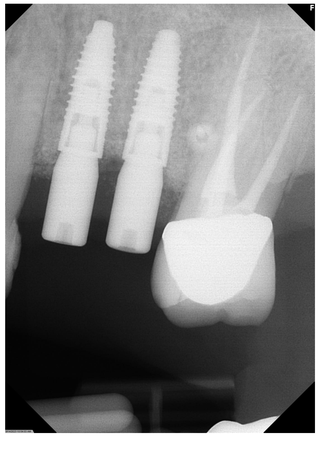

Fig.11b

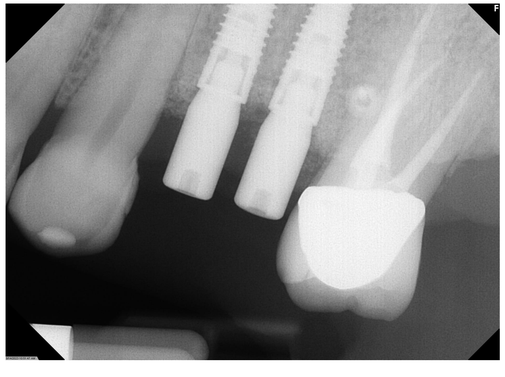

Fig. 11c

Fig. 11d

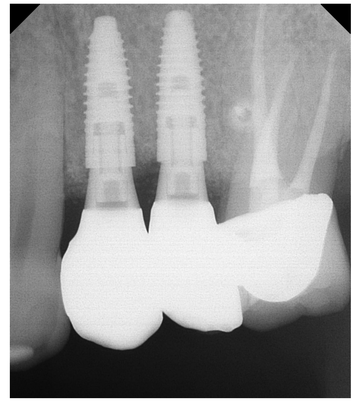

Fig.11e