



Ridge Expansion Technique :a Case Report

KEYWORDS

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ABSTRACT *The compromised width and height of the bone are the major problems faced by an implantologist during the placement of an implant.Ridge splitting technique helps in placing the implant in a bone with reduced bone width if there is adequate height of the bone.*

This report describes a procedure where the maxillary cortical plates are separated and widened for immediate implant placement without the need for any autogenous or artificial bone graft.The implant was placed in the esthetic zone and the advantage of the ridge splitting technique can be seen in this case report.

INTRODUCTION

Dental Implantation procedures have become the first mode of treatment for the replacement of missing teeth. The availability of an adequate amount of bone both vertically and horizontally is of prime importance for a successful implant therapy. At times when adequate bone is not present alternative procedures have to be followed for successful implant surgery such as autogenous or artificial bone grafting, guided bone regeneration, or ridge expansion.¹

This report describes a procedure where the maxillary cortical plates are separated and widened for immediate implant placement without the need for any autogenous or artificial bone graft.

Ridge splitting technique is utilized to increase the width of bone by splitting and expansion of the existing residual ridge.^{2,3}

We can consider this procedure for the following reasons:

1. To increase the bucco-palatal width of thin alveolar bone when a standard osteotomy cannot be prepared
2. Improving the angle of the implant placement in the alveolar bone to improve aesthetics
3. To separate the cortical plates for grafting or guided tissue regeneration⁴

CASE REPORT

A 25 years old female patient visited the Department of Implantology with a chief complaint of a missing upper right central incisor because of which she felt it gave her a poor appearance.

On local examination of the area it appeared to have loss of bucco-palatal bone width. Ridge mapping was done

and the bucco-palatal bone width was measured 3.4mm . Patient previously had an anterior FPD but was not satisfied and was ready for an implantation procedure.



The pre-operative OPG(Fig 1) shows vertical bone loss but adequate bone is present for implant procedure. Ridge mapping was done to evaluate the available bone, after which it was observed that the bucco-palatal width was 3mm.Hence the choice of ridge expansion technique was considered.

The patient was prepared for implant procedure and antibiotic prophylaxis was given. Local anesthesia was administered high into buccal vestibule. Incision was given and minimum full thickness flap was raised, with the help of a periosteal elevator the flap was reflected and the crest of the alveolar ridge exposed.



The ridge was split with a chisel and with the help of the tapered osteotome (Ankylos ridge expansion kit) the facial plate was expanded by inserting the osteotome with the help of a mallet until an optimal bucco-palatal width is achieved.(Fig 2)

Once the desired bucco-palatal width is achieved the implant of dimension 3.5 × 11 (A11 C/x Ankylos® implant)is placed. The primary stability of implant was achieved and the flap was closed. After 2 months of healing period the implant was exposed and gingival former was placed for 7 days. A closed tray implant level impression was made, Cercon Balance C/ large 3.0 0° (Ankylos® abutment) was used. Finally an e.max all ceramic crown (Ivoclar®) was cemented with a resin bonded cement (RelyX U200 3M ESPE).(Fig 4)



DISCUSSION

The technique of ridge splitting was introduced by Dr Hilt Tatum⁵. We have observed through clinical experience that ridge splitting can be useful in managing narrow ridges. In some cases alternate to placing graft and increasing the treatment time, ridge splitting can be a viable alternative. The process of new bone formation is similar to fracture repair of bone.⁶

A mid crestal incision with minimal flap reflection is done so that intact periosteum on the lateral surface provides

sufficient blood supply. After the crestal bone is exposed, with the help of the tapered osteotome the ridge is expanded to the desired amount so that implant can be placed.

On a one year follow radiographically crestal bone level has been maintained at the level of the implant shoulder , clinically the gingiva looks healthy with well maintained interdental papilla.(Fig 5)

No signs of hard or soft tissue loss where observed



CONCLUSION

The technique of ridge expansion provides the advantage of immediate placement of an implant in narrow ridges. In some cases it can be achieved without the use of any autogenous or artificial bone graft whereby reducing the treatment time and cost without compromising on the quality of treatment given

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