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الجمعية السعودية لأمراض وجراحة اللثة
Saudi Society of Periodontology
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Ridge Expansion Using Osseodensification with Modified Ridge Split for Low-densityBone: A Case Report

Upcoming International Events

SSP Scientific Community Output

Newly Released to the Saudi Market

الجمعية تحت إشراف
الهيئة السعودية للتخصصات الصحية
Saudi Commission for Health Specialties

The official newsletter of the Saudi Society of Periodontology

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Saudi Society of Periodontology

Dear colleagues,

Ramadan Mubarak!

On behalf of the editorial team, we would like to welcome you all to the 10th issue of your specialized newsletter where you meet your professional community to discover, create, share, and learn.

Enjoy the reading.

Dr. Adnan Almaghlouth
Editor in Chief

EDITORIAL TEAM

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CASE REPORT

Ridge Expansion Using Osseodensification with Modified Ridge Split for Low-densityBone: A Case Report

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King Abdulaziz Medical City, Ministry of National Guard Health Affairs – Riyadh

INTRODUCTION

Horizontal bone remodeling after tooth loss is an inevitable occurrence faced by clinicians with implant placement, ranging from %63-29 during the first 6 months[8]. Hence many techniques were developed to overcome this hurdle but may pose drawbacks such as time-consumption, being technique sensitive, increasing cost and may lead to higher risks of dehiscence or fracture of the buccal plate affecting implants' primary stability [1,3].

Soft bone encountered in the maxilla (Type III or IV) which increases risk of implant failure [4], under-sizing of osteotomy is a method employed to reduce the sacrifice of bone during preparation along with increasing primary stability with compromised bone density.

Ridge split is a technique developed to counteract horizontal ridge deficiencies. It induces a greenstick fracture of the ridge developed by Simion et al 1992.

With advances in today's technology a safer and more efficient device (Piezoelectric surgery device) found to have advantages in ridge splitting with earlier bone formation and less inflammatory response [9], being mostly indicated for lower density bone (Types III or IV), it can provide simultaneous ridge expansion with implant placement.

More recently a bone conserving method being osseodensification (OD) protocol was introduced as a predictable method for placing implants in narrow ridges by producing low plastic deformation within bone creating a dense layer of the bone surrounding osteotomy, which increases primary stability, insertion torque for 4.1mm diameter implants (24 ± 49Ncm) and 6mm implants (56 ± 108Ncm), bone density in low-density bones such as maxilla, ridge width (0.66±2.83mm for ridge 4-3mm initial ridges [5], bone volume BV% (approximately by %30) 10, BIC% and reduces micromotion which is crucial for secondary stability [3,7,10].

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CASE REPORT

- Healthy 37 years old female patient presented to replace missing maxillary Left premolars #24,25, had good oral hygiene with a keratinized tissue 4mm
- Pre-surgical CBCT obtained shows a narrow ridge in an area of #24 with Bucco-palatal ridge width of 4mm incorporating 2mm of cancellous bone and 1 mm of cortical bone on either side of the ridge (Fig.1,2)
- Mucoperiosteal flap reflected buccal and palatal
- Piezosurgery saw cut in the crest reaching the full depth of final implant length 8mm
- Pilot Densah bur used initially at speed recommended by manufacturers speed used in cutting mode

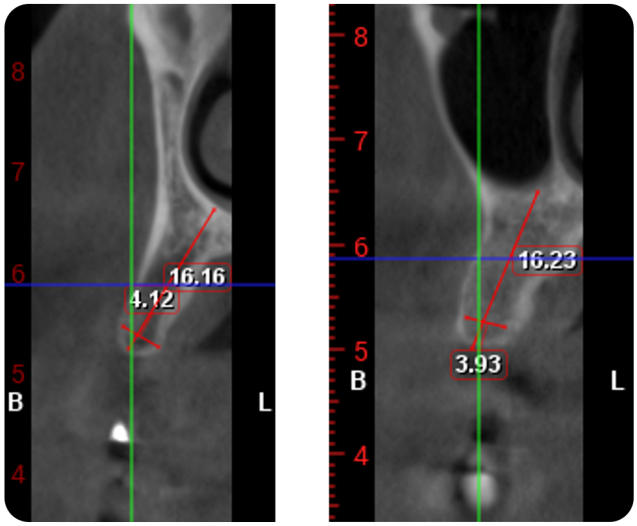

Figure 2 & 1 **Pre-Op CBCT**

- Followed by using Densah burs in densifying mode starting from narrowest bur (until reaching desired depth in a bouncing motion with copious irrigation)
- Implants inserted with a torque of >45Ncm
- Hard tissue augmentation done using xenograft to increase thickness and enhance bone contours
- Tension-free primary intention closure achieved using non-resorbable Gortex in horizontal mattress to secure graft and membrane, followed by modified laurell sutures
- Analgesics and Augmentin 625 TID for 7 days given, CHX %0.2 for 2 weeks

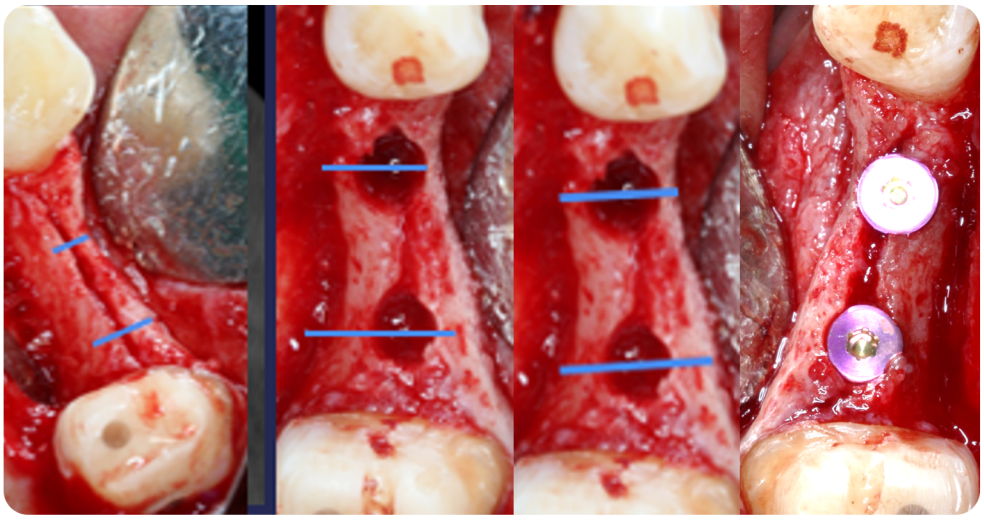

Figure 3 **Intra-op**

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TREATMENT RESULTS:

- Good primary stability obtained with insertion torque 45NCm was achieved.
- Implants were placed without fenestrations nor dehiscence.
- Increased bone width achieved from presurgical to post-OD burs usage (Fig.3).
- Maintained Buccal bone plate with implant in (short term F/U) (Fig.4).

DISCUSSION:

- Primary stability is of most importance for successful osseointegration (secondary stability) [3]
- Quality and quantity of bone, surgical technique, bone density are factors enhancing primary stability.
- Increased BIC% noted in histological studies with the use of OD technique6, Huwais and Meyer the mean increase in BIC% was %72 – 26 and %64 – 22 for 4.1 and 6mm diameter implants respectively.
- Spring-back effect a phenomenon noted with the use of OD technique due to viscoelastic properties of bone will retain some strain along the osteotomy walls, which is then exerted on the implant surface after insertion, leading to an intimate contact at the interface producing higher primary stability and BIC [3].

CONCLUSION:

- Ridge expansion with modified ridge split protocol proved to be efficient, safe, and predictable in obtaining expansion in ridge width as well as high insertion torque values for primary stability.

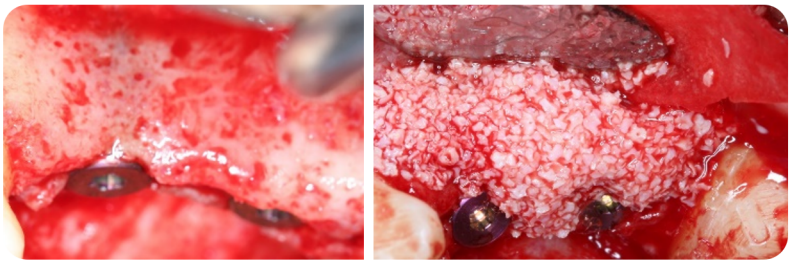

Figure 4

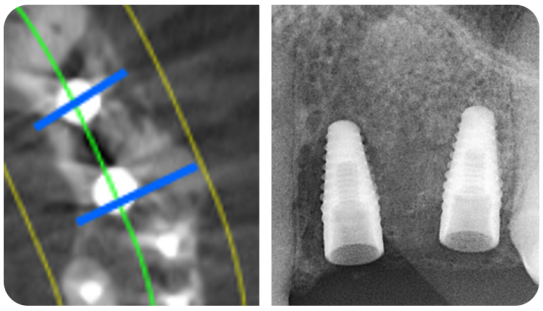

Figure 6 **CBCT Immediately Post-Operatively**

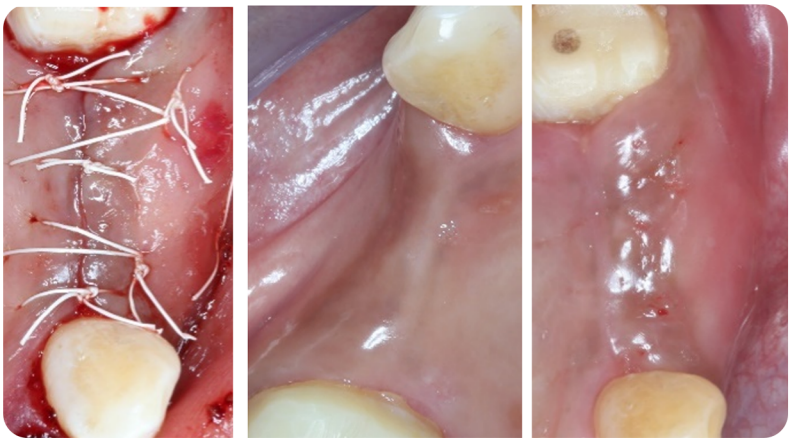

Figure 5 **Comparison between Pre & F/U Ridge width**

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Upcoming International Events

Name	Institution	Publication Title	Link to the Journal	Date
Dentistry and Oral Health	American Dental	7th Edition of international conference on Dentistry and Oral Health		April 29-27
66th Annual Scientific meeting	Canadian Academy of Periodontology	OSP Periodontics: For A Brighter Future		June 3-2
The 6th Penn Periodontal Conference	University of Pennsylvania	The 6th Penn Periodontal Conference 2023		July 28-24

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Name	Institution	Publication Title	Link to the Journal
Mohammed AlSarhan Razan S. Alaqeely Reham AlJasser Dalal H Otaibi Saleh AlOraini Ibraheem F. Alshiddi	King Saud University	**Evaluation of Complacency about Dental Implants with Shared Decision Making and Satisfaction Scores: A Cross-Sectional Study**	
Reham AlJasser Razan AlAqeely Manal AlKenani Sadeem AlQahtani Afnan AlZahrani Rhodanne Lambarte	King Saud University	**The Effect of Systemic Isotretinoin on Salivary Tissue Inhibitors of Metalloproteinases 1 and 2 and Salivary Flow Rate in Periodontal Disease**	
Reham AlJasser Razan AlAqeely Afnan AlZahrani Manal AlKenani Sadeem AlQahtani Mohammed AlSarhan Dalal AlOtaibi Rhodanne Lambarte	King Saud University	**Antimicrobial Effect of Isotretinoin Therapy on Periodontal Pathogens: A Case-Control Study**	
Mohammed AlSarhan Reham AlJasser Saleh AlOraini Syed Rashid Habib Rawan AlAyoub Lulwah AlMutib Haya Dokhi Aldokhi Heyam AlKhalaf	King Saud University	**Evaluation and Comparison of Cortisol Levels in Saliva and Hair Among Dental Students**	

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Newly Released to the Saudi Market

1. Company: Geistlich

Product: Geistlich Bio-Gide® Perio is a collagen membrane with improved handling characteristics for periodontal applications. The firmer upper surface that facilitates cutting when dry, eases application in guided tissue regeneration during surgery and retains its structural integrity even when wet.

Geistlich Bio-Gide® Perio

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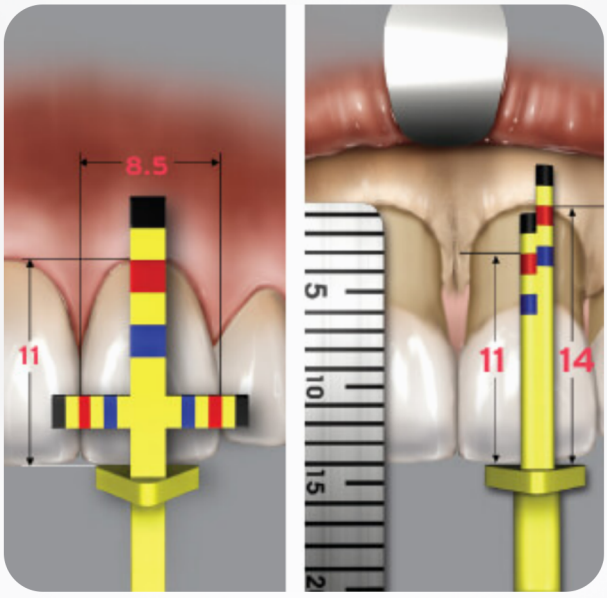
2. Company: Hu-Friedy

Product: Chu's Aesthetic Gauges: are used for quick, accurate measurements during a crown lengthening procedure. Predictable and swift diagnosis and correction can be accomplished with a minimum amount of stress and a maximum amount of patient gratification



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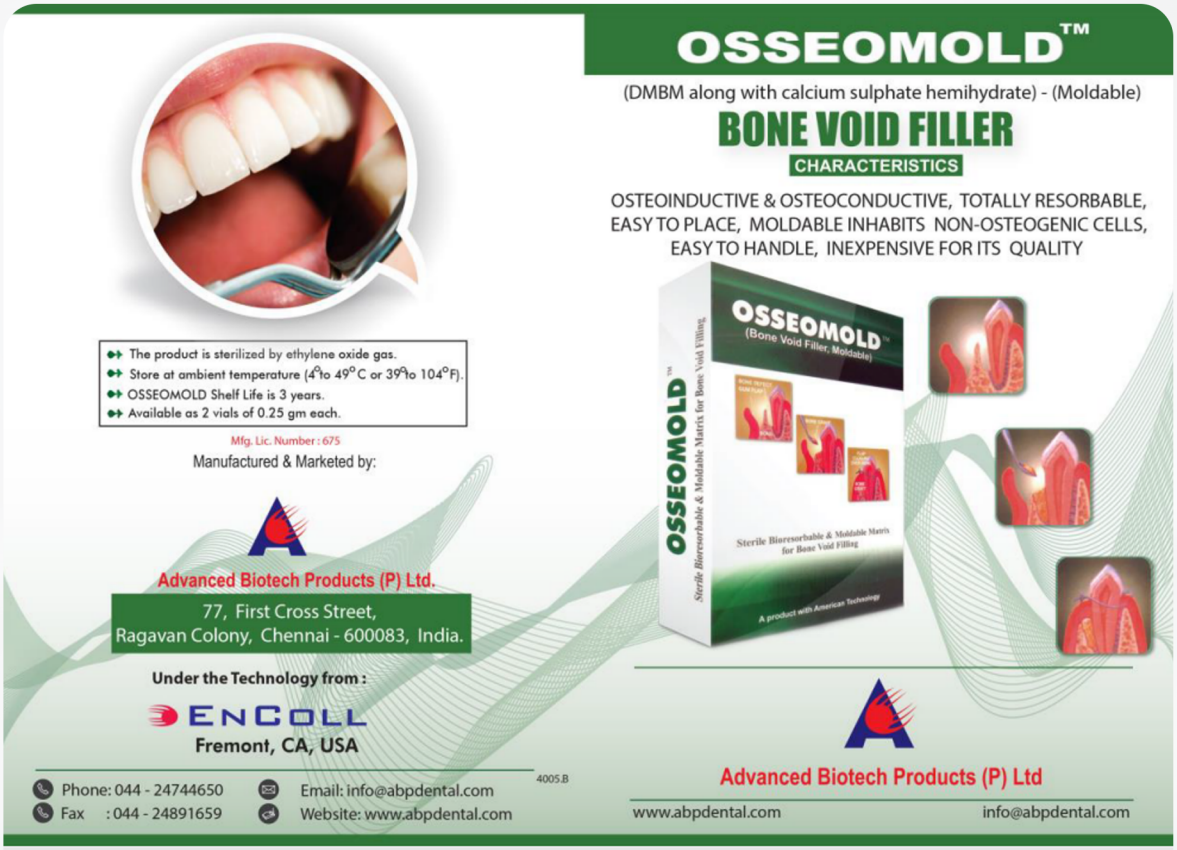
3. Company: Advanced Biotic Products

Product: OSSEOMOLD (DMBM – XENOGRAFT) along with Calcium Sulphate hemihydrate Moldable) High Purity Type-I collagen derived from bone is essential for tissue regeneration and remodeling in any osseous defect. Xenograft Material/DMBM is one such demineralized bone derived Type-I collagen for flap surgery, implants, sinus lift, ridge augmentation etc.

High purity Type- collagen derived from bone is essential for tissue regeneration and re-modelling in any osseous defect. Osseomold is a bio-compatible demineralized bone derived Type- collogen for bone space filling purposes. The presence of calcium sulphate hemi-hydrate helps to render molding features for this product



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3. Company: Meridol

Product: Meridol Parodont Expert toothpaste

Product Details:

- ✔ Advanced* Formula for Weakened Gums: Helps Increase Resistance Against Gum Problems
- ✔ Dual active formula with efficacy booster which was specifically developed for weakened gums
- ✔ Helps to strengthen the gums

*vs. meridol base toothpaste due to higher concentration of active ingredients in meridol Parodont Expert.