

SDDS MIDWINTER 2017

February 9, 2017

Periodontal Regeneration Therapies: A Revolution in Soft Tissue Grafting
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Dr. David Jolkovsky- Principles and Advances in Surgical Techniques

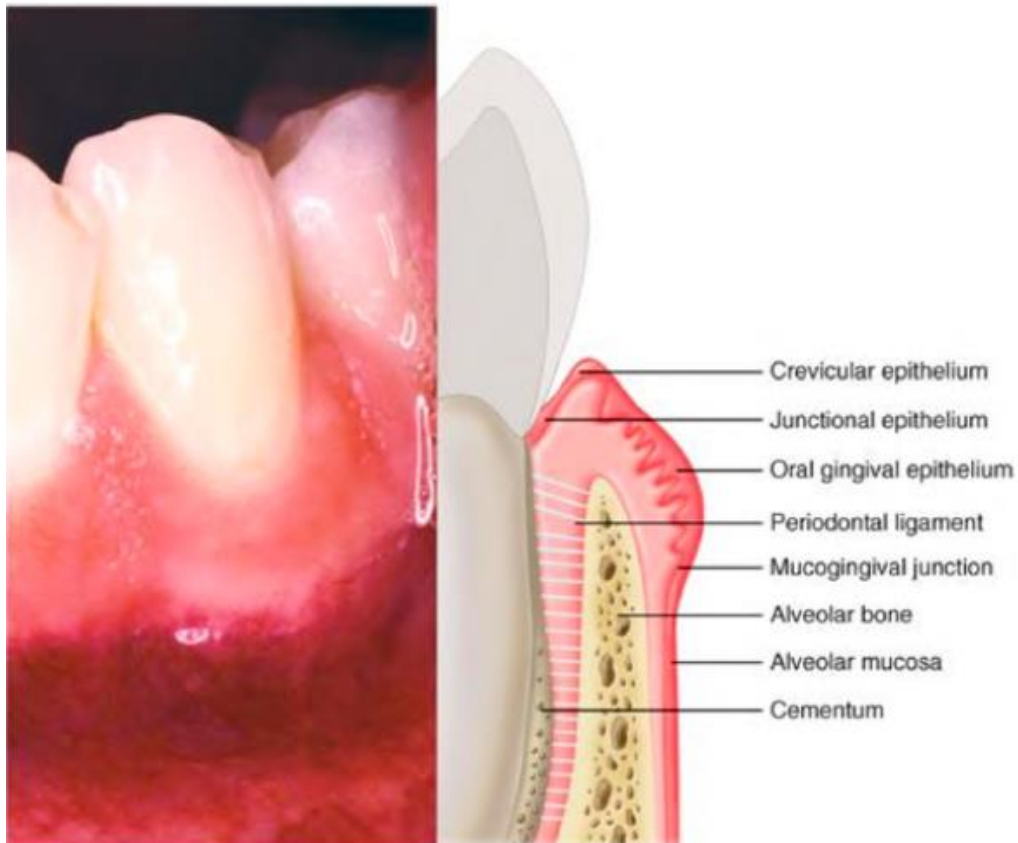
The Problem

Recession is an acquired deformity of the gingival marginal tissue displaced apical to cemento-enamel junction (CEJ), resulting in exposed root surface and loss of attached gingiva. This is a loss of periodontal attachment which includes not just gingival tissue, but also the supporting bone. The resulting exposure of root surface predisposes the tooth to both caries and cervical abrasion, resulting in loss of tooth structure and possible loss of the tooth.

Basic Dental Science Review

Anatomy - Dental, Bone, Vascular, Blood Supply, Histology

Physiology - What is keratinized and attached tissue? What is the clinical difference? Why do we need it?



Predisposing Factors

Genetics/Morphology, Trauma, Orthodontics, Bruxism

Intervention

-Types of Intervention

-Indications for Intervention- Lack of Stability, Esthetics, Symptoms; The “Deadly Triad” (gingival inflammation, recession, no attached tissue)

-Contraindications for Intervention (Relative and Absolute)

Prevalence

Gingival recession prevalence common in the US- 23.8 million people (22.5%) above the age of 29 have ≥ 3 mm of gingival recession. JM Albandar, A Kingman. Gingival recession, gingival bleeding, and dental calculus in adults 30 years of age and older in the United States, 1988-1994 - Journal of periodontology, 1999 - Am Acad Periodontology

Classification of Recession

(Miller PD. A classification of marginal tissue recession. Int J Periodontics Restorative Dent 1985;5(2):9-13.)

- Class I – Marginal recession coronal to the MGJ with no periodontal loss in interdental areas
- Class II – Marginal recession extending beyond the MGJ, but with no periodontal loss in interdental areas
- Class III – Marginal recession extending beyond the MGJ, and some soft tissue or bone loss in interdental areas (only partial root coverage can be expected)
- Class IV – Marginal recession extending beyond the MGJ, with severe loss of soft tissue or bone loss in interdental areas (root coverage cannot be anticipated)
- **NOTE: 100% root coverage can be predictable with Class I and Class II defects**

History and Review of Principles of Periodontal Plastic Surgery

- Free gingival grafts
- Pedicle grafts - lateral sliding, double papilla, coronally advanced
- Subepithelial connective tissue grafts
- Pouch (no incision)
- Acellular Dermal Matrix Allografts - Alloderm®; Puros®
- Tunneling
- Vista Technique
- Pinhole Technique®

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Acellular Dermal Matrix- Alloderm®; Puros®

- Complete removal of epithelium by uncoupling bond w/the dermis, ensuring no damage to dermal structure, and maintenance of BM complex
- Dermal cells removed w/non-denaturing detergent agents
- Cryoprotected/freeze-dried to preserve “critical” components (i.e. BV channels, collagen (Type 4/6), elastin, and proteoglycans)
- Biologic scaffold for normal tissue remodeling
- Thickness = 0.89 – 1.68 mm

Enamel Matrix Derivative- Emdogain

- Derived from porcine teeth and FDA approved for periodontal regeneration
- EMD mimics the cementogenesis of nascent root development
- New cementum, new attachment, new bone
- Great handling properties
- Unlimited amount
- Great soft tissue healing with increased mitotic activity
- Higher cost

Rh Platelet Derived Growth Factors- Gem 21

- Recombinant human FDA approved for periodontal regeneration
- Binds to cell receptors initiating a cascade that leads to cell migration and mitogenesis of osteoblasts, periodontal ligament fibroblast and cementoblast.
- Great handling properties
- Unlimited amount
- Great soft tissue healing with increased mitotic activity
- Higher cost

Platelet Rich Fibrin (PRF)

- 2nd generation plasma concentrate- PRF clot concentrates 97 % of platelets and >50 % of leukocytes in a specific three dimensional distribution
- Platelet alpha granules are a reservoir of many growth factors such as PDGF, TGF-B, VEGF, IGF-1, EGF
- Leukocytes trapped in PRF have an anti-infectious effect and act as an immune regulation node
- Ease of retrieval
- Mixed with bone handling properties are great
- Low cost