

## **Medical Advice Disclaimer:**

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## **Technique for treating Periodontal Pockets without bone grafting or flap surgery using 3D Exosomes and Polypeptide 3D Exosome Media (PEM) Paste**

When treating localized periodontal pockets, leveraging the regenerative potential of 3D exosomes and tissue regeneration techniques can significantly enhance healing.

Below is a suggested strategy based on the latest research and clinical practices:

### **1. Preparation of 3D Exosome-Functionalized Platforms**

#### **Materials**

- **Exosome Source:** Use MSC-derived 3D exosomes, known for their osteogenic, regenerative soft tissue and angiogenic properties. Each mL contains 8 Billion Particles and 80 Million 3D Exosomes.
- **Polypeptide 3D Exosome Media (PEM) Paste:** 3D exosomes integrated into the 3D culture material which also includes additional regenerative and growth factors: Epithelial Growth Factor (EGF), Fibroblast Growth Factor (bFGF), Platelet Derived Growth Factor (PDGF), Hepatocyte Derived Growth Factor (HGF), Collagen type 1, Factor-11 (GDF-11) growth differentiation-rejuvenation factor and regenerative markers. This material provides structural support and is conducive to soft tissue regeneration.

### **2. Delivery Approach**

#### **Technique**

- Curettage the periodontal pocket(s) removing any granulation tissue and calculus attached to the root cementum making sure to only remove the calculus and not aggressively root planing the cementum.

- Isolate the periodontal pocket(s) so that saliva cannot contaminate the sulcus (cotton rolls and a mouth prop with saliva reduction device).
- Place a dispenser tip on the 1 mL PEM Paste syringe.
- Gently extrude a small amount of PEM Paste into the periodontal pocket(s) so that it fills the pocket.
- Leave the PEM Paste in the isolated periodontal pocket(s) for 10-15 minutes.
- Remove the isolation devices (the sulcus will slowly purge the PEM Paste naturally over time).
- Using an insulin syringe (BD Insulin Syringe 31 gauge ultra fine 8 mm {5/16"} needle), inject 0.5 mL of 3D exosomes at the facial muco-gingival line adjacent to the area of the periodontal pocket(s).
- Check the patient's pocket depths in 4-6 weeks.
- The patient may require 2-3 procedures for pockets over 8 mm to reduce the pocket depths to acceptable levels.
- Some practitioners provide a maintenance dose of 0.5 mL of 3D exosomes injected at the facial muco-gingival line per quadrant every 6-12 months.

## Advantages

- **Synergistic Effects:** Combining the layered 3D exosome-loaded PEM Paste leverages the strengths of this technique, providing a sustained release of 3D exosomes from the PEM Paste and the localized 3D exosome injection.
- **Enhanced Healing:** This combined approach can enhance early soft tissue/bone healing and promote long-term regeneration, improving the overall success of the procedure.

## Clinical Considerations

### Patient Selection

- **Assessment:** Evaluate the patient's overall health, compliance, soft tissue/bone quality, and the extent of the defect to determine the suitability of using exosome-functionalized platforms.

**Post-Operative Care:** Monitor the patient for signs of healing and provide appropriate post-operative care to ensure optimal outcomes.

### Conclusion

Using 3D exosome-functionalized PEM Paste for localized periodontal pockets offers a non-invasive approach to enhance healing and soft tissue regeneration. By combining 3D exosome-functionalized PEM Paste and direct 3D exosome placement at the

mucogingival line clinicians can create a conducive and inductive environment for soft tissue/bone regeneration, improving the success rates of localized periodontal pockets.