

Enamel Matrix Proteins Improve Clinical Outcomes in the Regeneration of Periodontal Attachment in Intrabony Defects

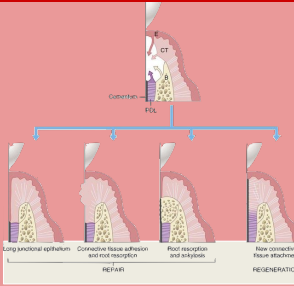
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Clinical Problem

Periodontal therapy of intrabony defects tends to rely on reparative healing while the goal would be to achieve regeneration of the periodontium. Biologics is a new category of treatment aiming at favouring regeneration Emdogain. Given the novelty this type of therapy, evidence-based guidelines need to be established.



Clinical Question

P: Periodontal patients with intrabony defects

I: Enamel matrix proteins (Emdogain)

C: Flap surgical debridement

O: Clinical attachment gain

T: 12 months or more



VS



Question: In adults with periodontal intrabony defects, to what extent does enamel matrix proteins (Emdogain) affect clinical attachment gain compared to flap surgery for debridement within 12 months or more of follow up?

Search Strategy

1 exp Dental Enamel Proteins/ or EMD.mp. (4378)	8 4 and 7 (447)
2 Enamel matrix protein.mp. (204)	9 limit 8 to last 10 years (191)
3 Enamel matrix proteins.mp. (994)	10 Enamel matrix derivative.mp. (650)
4 1 or 2 or 3 (4477)	11 Enamel matrix derivatives.mp. (93)
5 Alveolar bone loss.mp. or exp Alveolar Bone Loss/ (9812)	12 4 or 10 or 11 (4533)
6 exp Bone Regeneration/ or exp Periodontitis/ or exp Periodontal Pocket/ (40377)	13 7 and 12 (459)
7 5 or 6 (45665)	14 limit 13 to ((guideline or meta analysis or practice guideline or "systematic review" or systematic reviews as topic) and last 10 years) (17)

Selected Studies

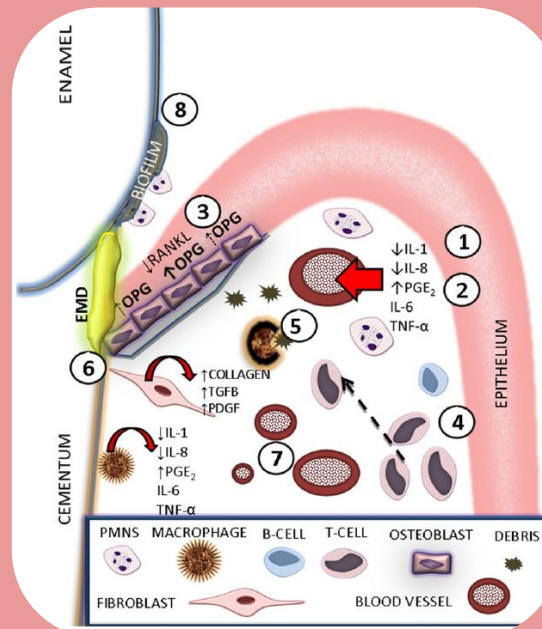
Enamel matrix derivative (Emdogain(R)) for periodontal tissue regeneration in intrabony defects

Esposito et al. 2009. PMID: 19821315

Search: The Cochrane Oral Health Group Trials Register, The Cochrane Central Register of Controlled Trials, Medline, Embase.

Clinical Bottom Line

- Emdogain potentially demonstrates a better clinical outcome compared to flap surgery
- Results for periodontal regeneration (PAL) were clinically meaningful favouring Emdogain
- Results for periodontal pocket depth (PPD) and gingival recession (REC) were not clinically meaningful
- Emdogain-treated-defects presented statistically significant improvement in PAL and PPD but findings were not clinically precise.
- REC was not statistically significant nor clinically precise
- Applicability of the results is compromised
 - Most studies had a high risk of bias
 - Reduced follow-up time
- More studies with long-term follow up and higher methodological quality are needed to address the precision of the results and heterogeneity issues.



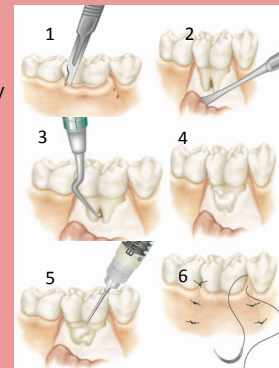
Evidence Quality

Strength

- Comprehensive Cochrane review
- Validated GRADE Cochrane tool
- Comprehensive search of literature
- Duplicate assessment of search results by two independent reviewers
- Sensitivity analysis

Limitations

- Missing PRISMA chart
- Heterogeneity between study designs
- Some industry funding (Bias)
- Only 4 of 13 trials at low risk of bias
- Only 1 year follow-up



Applicability

- Emdogain use is feasible
- Patient population is comparable to our target population
- Clinically meaningful results favour its use
- Results aren't clinically decisive
- Consider cost to potential benefit in clinical practice.

References

Esposito, M., Grusovin, M. G., Papanikolaou, N., Coulthard, P., & Worthington, H. V. (2009). Enamel matrix derivative (Emdogain(R)) for periodontal tissue regeneration in intrabony defects. *The Cochrane database of systematic reviews*, 2009(4), CD003875. <https://doi.org/10.1002/14651858.CD003875.pub3>
 Flap Design in Dento-alveolar Surgery | Geeky Medics. (2021). Retrieved 9 June 2021, from <https://geekymedics.com/principles-of-flap-design-in-dento-alveolar-surgery/>
 HA Systems. (2021). Retrieved 9 June 2021, from http://www.ha-systems.co.il/files/catalog/banenet/מסמך_מחקר_הוארמון.pdf
 Miron, R. J., et al. (2016). Twenty years of enamel matrix derivative: The past, the present and the future. *Journal of Clinical Periodontology*, 43(8), 668-683. <https://doi.org/10.1111/jcpe.12546>

Acknowledgements

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