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## Topical phenytoin effects on palatal wound healing

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**Introduction:** The proven clinical benefits of autogenous soft tissue grafts are countered by associated donor site morbidity, including occasional healing delays, indicating a need to improve donor site outcomes. Studies have shown improved acute and chronic wound healing following phenytoin (PHT) application in various tissues. The aim of our prospective split-mouth clinical trial was to assess clinical, histological and patient outcomes following topical PHT treatment of experimental palatal wounds.

**Methods:** Systemically healthy adult nonsmokers were recruited. One 6 mm diameter wound (posterior) and one 4 mm diameter wound (anterior), each 1-1.5 mm deep, were created on both sides of the palate using custom stents and biopsy punches. Wounds on one randomly chosen side received PHT (10% phenytoin USP in 30% poloxamer gel; test) and on the other received carrier alone (30% poloxamer gel; control). Participants were blinded to treatment allocation. Customized stents were worn after medication application for wound protection.

**Results:** 20 participants completed all visits. 30% of the participants reported more pain on control side than the PHT side at D1 ( $p=0.014$ ). PHT treated sites were more likely to not exhibit swelling ( $OR=9.35$ ;  $p=0.009$ ) and to not experience pain on palpation ( $OR=6.278$ ;  $p=0.007$ ). PHT also had a significant and time-dependent effect on granulation tissue appearance ( $p=0.004$ ). Overall, the healing score index was significantly higher on PHT side at Day 5 ( $p=0.037$ ) and Day 21 ( $p=0.003$ ). Histologically, there was no significant difference

between control and PHT in superficial wound contraction at any time point ( $p\geq 0.853$ ). The results of the present study, the first one to report on the use of topical PHT as palatal wound treatment regimen, indicate that PHT application improved clinical outcomes on palatal wounds that model free gingival graft donor sites.

### Recent Publications

1. Doshi A, McAuley JW, Tatakis DN. Topical phenytoin effects on palatal wound healing. *J Periodontol.* 2021; 92: 409–418.
2. Wang Y, Doshi A, Tatakis DN. Phenytoin Effects on Palatal Wound Healing: Selective Gene Expression Analysis. *J Dent Res (Spec Iss 99):* 3593.
3. Zachariadou C, Doshi A, Kolli T, Chavez M et al., DDR1 Localizes to Epithelial Leading Edge During Palatal Wound Healing. *J Dent Res (Spec Iss 99):*0967.

### Speaker Biography

Anuja Doshi received her dental degree from Government Dental College & Hospital in Mumbai, India, and her MS and certificate in periodontics & moderate sedation from the Ohio State University (OSU) College of Dentistry. Upon graduation, she joined the University of New England as a full-time faculty and is currently the director of predoctoral periodontics. Dr. Doshi has presented her research at the American Academy of Periodontology (AAP) meetings and at IADR/AADR. She is also a published author in the *Journal of Periodontology* and serves as the peer reviewer for *Clinical Advances in Periodontics* and the *Journal of Dental Education*. In 2019 when she was awarded the prestigious Dr. D Walter Cohen Teaching Award, and in 2020 with the outstanding teaching and mentoring in periodontics award from AAP Foundation.

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