

Abstract Submitted  
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**Filling a Conical Cavity** KYLE NYE, AZAR ESLAM-PANAH, Penn State University — Root canal treatment involves the removal of infected tissue inside the tooth's canal system and filling the space with a dense sealing agent to prevent further infection. A good root canal treatment happens when the canals are filled homogeneously and tightly down to the root apex. Such a tooth is able to provide valuable service for an entire lifetime. However, there are some examples of poorly performed root canals where the anterior and posterior routes are not filled completely. Small packets of air can be trapped in narrow access cavities when restoring with resin composites. Such teeth can cause trouble even after many years and lead the conditions like acute bone infection or abscesses. In this study, the filling of dead-end conical cavities with various liquids is reported. The first case studies included conical cavity models with different angles and lengths to visualize the filling process. In this investigation, the rate and completeness at which a variety of liquids fill the cavity were observed to find ideal conditions for the process. Then, a 3D printed model of the scaled representation of a molar with prepared post spaces was used to simulate the root canal treatment. The results of this study can be used to gain a better understanding of the restoration for endodontically treated teeth.

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