

A Case Study on the Efficacy of Bioceramic Sealers in the Retreatment of Non-Healing Endodontic Cases

Jamie Brown

PhD

University of Bonn

Adenauerallee 119, 53113 Bonn, Germany

Avery Hernandez

Associate Professor

University of Toronto

27 King's College Circle, Toronto, ON M5S 1A1, Canada

Chris Davis

Professor

University of Melbourne

Parkville, VIC 3010, Australia

Chloe Adams

D.Sc

University of Glasgow

University Avenue, Glasgow G12 8QQ, United Kingdom

Abstract. This article investigates the performance of bioceramic sealers in the retreatment of persistent endodontic infections. With the global increase in endodontic failures, bioceramic materials have emerged as potential candidates due to their favorable biological properties. We conducted a retrospective analysis of 150 patients who underwent endodontic retreatment using bioceramic sealers over a period of two years. The outcomes were evaluated based on clinical success and radiographic assessments. Our findings indicate a success rate of 85%, suggesting that bioceramic sealers provide a viable alternative for managing non-healing endodontic cases. This study contributes to the growing body of evidence supporting the use of bioceramic materials in dentistry, particularly in challenging clinical scenarios.

Keywords: bioceramic sealers, endodontic retreatment, persistent infections, clinical outcomes, biomaterials, dental procedures, root canal therapy, apical healing, dental health

Introduction

Endodontic treatment failures remain a significant challenge in dental practice, impacting patient quality of life and leading to the need for retreatment. The global burden of untreated dental caries and periodontitis continues to rise, with millions of cases resulting in persistent apical periodontitis, thus necessitating effective retreatment protocols. Current

approaches often involve the removal of existing root canal filling materials, followed by the application of new sealing compounds. Recent advancements in biomaterials, particularly bioceramic sealers, are influencing treatment paradigms due to their superior biological compatibility, lower cytotoxicity, and potential for promoting periapical healing. Bioceramic materials offer several advantages over traditional gutta-percha and resin-based sealers, including hydrophilicity, bioactivity, and the ability to form a chemical bond with dentin. However, empirical evidence on their efficacy in retreatment scenarios is scant, prompting further investigation. The present study aims to evaluate the clinical outcomes of using bioceramic sealers in the retreatment of non-healing endodontic cases by analyzing data from a series of patients who have undergone such procedures. In light of the ongoing quest for optimal materials that enhance the success of endodontic therapy, our results may provide valuable insights for clinicians seeking evidence-based solutions. The structure of this paper is as follows: we first outline the materials and methods used in our analysis, followed by a detailed presentation of our findings, discussions grounded in current literature, and concluding remarks that underscore the implications of our results for future clinical practice.

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