International Journal Dental and Medical Sciences Research
Volume 8, Issue 1, Jan.-Feb. 2026 pp: 116-119 www.ijdmsrjournal.com ISSN: 2582-6018

Orthodontic Movement of Root Canal–Treated Teeth

Dr. Lourdes De La Caridad Sanchez Perez

Date of Submission: 03-02-2026 Date of Acceptance: 12-02-2026

Abstract
Orthodontic treatment in patients with endodontically treated teeth is a common clinical scenario. Historically, concerns have existed regarding the biological response, risk of external root resorption, ankylosis, and long-term prognosis when orthodontic forces are applied to teeth that have undergone root canal therapy. This narrative review synthesizes current biological principles, clinical evidence, and practical considerations regarding orthodontic movement of root canal–treated teeth. Available evidence suggests that, when endodontic treatment is adequate and periodontal health is maintained, orthodontic movement of root canal–treated teeth is generally safe and predictable, with risks comparable to those of vital teeth when appropriate forces are applied.

Keywords: orthodontics, root canal treatment, endodontically treated teeth, orthodontic tooth movement, root resorption

I. Introduction

Advances in orthodontics and endodontics have increased the likelihood that adult patients seeking orthodontic treatment present with one or more root canal–treated teeth. Clinicians have long questioned whether devitalized teeth respond differently to orthodontic forces compared with vital teeth, particularly in relation to periodontal ligament (PDL) response, bone remodeling, and susceptibility to root resorption.

Understanding the biological behavior of endodontically treated teeth under orthodontic loading is essential for safe treatment planning. This review aims to evaluate the biological basis, clinical outcomes, and evidence-based recommendations related to orthodontic movement of root canal–treated teeth.

Biological Basis of Orthodontic Tooth Movement

Orthodontic tooth movement is mediated by mechanical forces transmitted to the periodontal ligament, leading to bone resorption on the pressure side and bone apposition on the tension side. This process depends primarily on the vitality of the periodontal ligament and surrounding alveolar bone rather than the pulp status.

After root canal treatment, the pulp tissue is removed, but the periodontal ligament remains viable.

International Journal Dental and Medical Sciences Research
Volume 8, Issue 1, Jan.-Feb. 2026 pp: 116-119 www.ijdmsrjournal.com ISSN: 2582-6018

Therefore, the fundamental biological mechanism of tooth movement is preserved. Studies have demonstrated that orthodontic forces induce similar cellular and molecular responses in the PDL of endodontically treated and vital teeth.

Endodontic Status and Orthodontic Considerations

Quality of Root Canal Treatment

The success of orthodontic movement largely depends on the quality of the root canal treatment. Teeth with well-obturated canals, absence of periapical pathology, and adequate coronal sealing show favorable responses to orthodontic forces. In contrast, teeth with persistent periapical lesions or inadequate endodontic therapy may exhibit delayed or unfavorable responses.

Timing of Orthodontic Forces

Orthodontic forces can be applied after completion of root canal treatment once acute symptoms have resolved. In cases of pre-existing periapical pathology, it is generally recommended to wait for radiographic signs of healing before initiating orthodontic movement.

Root Resorption and Orthodontic Movement

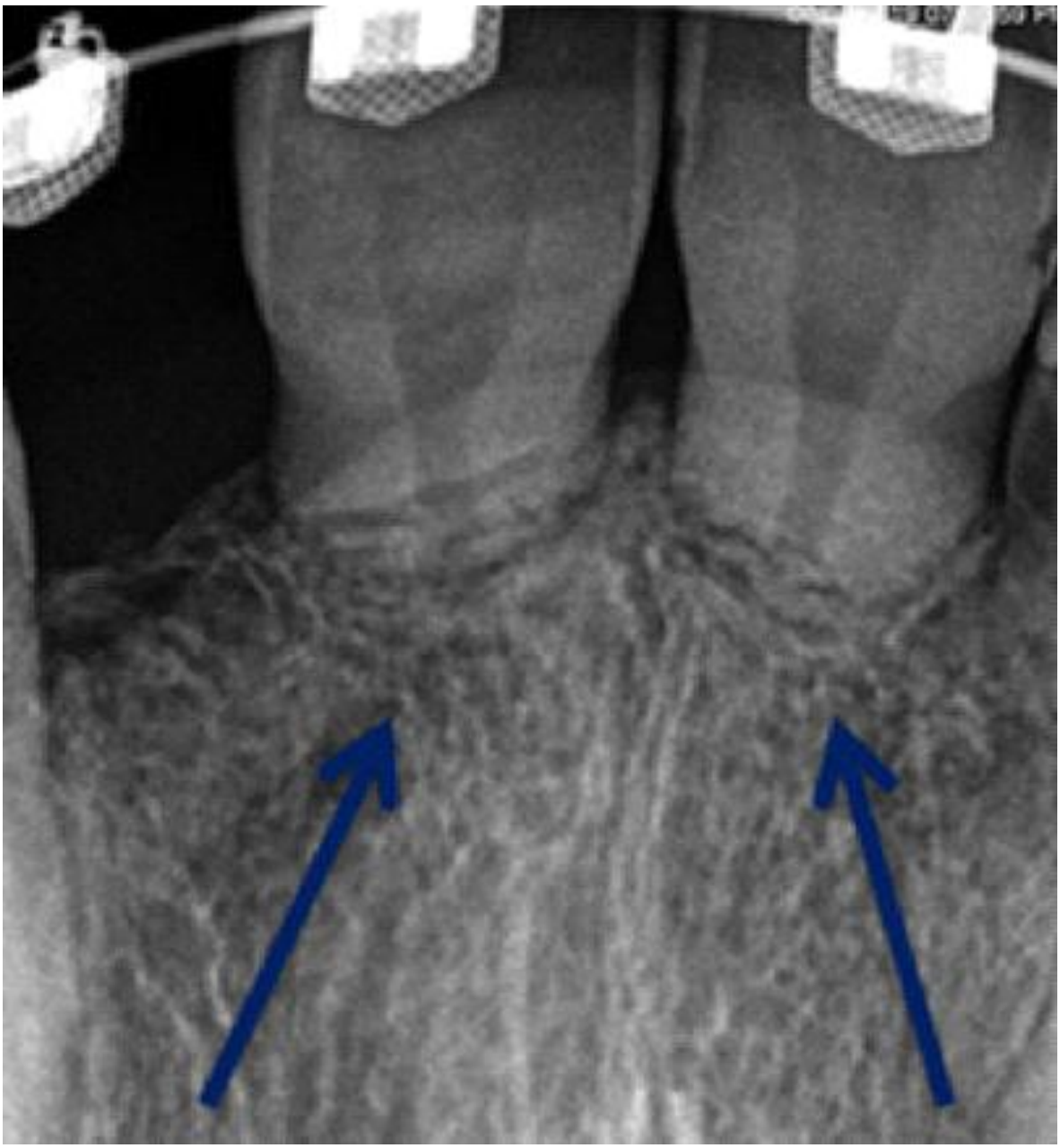
External apical root resorption is a known risk associated with orthodontic treatment in both vital and non-vital teeth. The literature suggests that endodontically treated teeth do not exhibit a higher incidence or severity of orthodontically induced root resorption compared to vital teeth.

Interestingly, some studies report that vital teeth may demonstrate slightly higher resorption due to inflammatory mediators originating from the pulp tissue. However, the difference is not considered clinically significant, and force magnitude, duration, and individual susceptibility remain the primary determinants of resorption risk.

Orthodontic Force Magnitude and Mechanics

Light, continuous forces are recommended for orthodontic movement of all teeth, including those that are endodontically treated. Excessive forces increase the risk of hyalinization, root resorption, and periodontal breakdown.

International Journal Dental and Medical Sciences Research
Volume 8, Issue 1, Jan.-Feb. 2026 pp: 116-119 www.ijdmsrjournal.com ISSN: 2582-6018



Clinicians should avoid using endodontically treated teeth as sole anchorage units, particularly if they have reduced root length or compromised periodontal support. Careful biomechanics and regular monitoring are essential.

Periodontal and Structural Considerations

Root canal–treated teeth may present with structural changes due to caries, restorations, or post placement. These factors can influence orthodontic planning and bracket placement. Teeth restored with posts may be more susceptible to fracture under excessive orthodontic or occlusal loads.

Periodontal health is a critical prerequisite. Orthodontic movement should only be initiated in the presence of controlled inflammation and adequate alveolar bone support.

Clinical Outcomes and Prognosis

Clinical studies and systematic reviews consistently demonstrate that orthodontic movement of root canal–treated teeth has a favorable prognosis when appropriate diagnostic, biomechanical, and periodontal principles are followed. Long-term outcomes, including tooth survival and periodontal stability, are comparable to those of vital teeth.

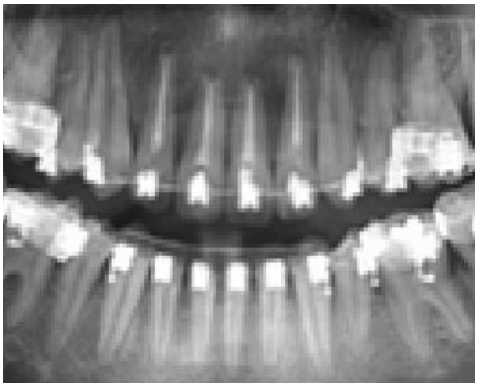
Regular radiographic evaluation during orthodontic treatment is recommended to monitor periapical status and root integrity.

Clinical Recommendations

- Ensure high-quality root canal treatment before orthodontic movement.
- Delay orthodontic forces in teeth with active periapical pathology until healing is evident.
- Use light, controlled orthodontic forces.
- Monitor radiographically for root resorption and periapical changes.
- Maintain optimal periodontal health throughout treatment.

II. Conclusion

Orthodontic movement of root canal–treated teeth is biologically sound and clinically safe when evidence-based principles are applied.



The pulp status alone does not contraindicate orthodontic treatment. Instead, treatment success depends on endodontic quality, periodontal health, and appropriate orthodontic biomechanics. A multidisciplinary approach between orthodontists and endodontists is essential to optimize patient outcomes.

References

[1]. Consolaro A, Consolaro MF. Orthodontic movement in endodontically treated teeth: biological and clinical considerations. *Dental Press J Orthod*.

[2]. Krishnan V, Davidovitch Z. Cellular, molecular, and tissue-level reactions to orthodontic force. *Am J Orthod Dentofacial Orthop*.

[3]. Brezniak N, Wasserstein A. Orthodontically induced inflammatory root resorption. *Am J Orthod Dentofacial Orthop*.

[4]. Mavragani M, et al. Orthodontic tooth movement and root resorption in endodontically treated teeth. *Angle Orthod*.