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REVIEWER'S REPORT

Manuscript No.: IJAR-56838

Title: Guided Endodontics: A Paradigm Shift Toward Precision and Minimally Invasive Root Canal Therapy

Recommendation:

- Accept as it isYes.....
- Accept after minor revision.....
- Accept after major revision
- Do not accept (*Reasons below*)

Rating	Excel.	Good	Fair	Poor
Originality	•			
Techn. Quality	•			
Clarity	•			
Significance	•			

Reviewer's ID: JPR-Dr. Sireesha Kuruganti

Detailed Reviewer's Report

This manuscript provides a comprehensive review of Guided Endodontics, exploring its transition from traditional freehand methods to a digitally integrated, precision-driven paradigm.

Manuscript Review Report

1. General Overview

The article is well-structured and follows a logical progression from historical context to future implications. It effectively highlights how the integration of CBCT, Intraoral Scanning, and CAD/CAM has addressed long-standing challenges in endodontics, particularly pulp canal obliteration (PCO).

2. Detailed Section Analysis

Abstract and Introduction

* Precision and Methodology: The abstract clearly defines the core technologies involved (CBCT, intraoral scanning, and CAD/CAM).

* Problem Statement: Lines 29–31 accurately identify the limitations of 2D radiographs and tactile sensation when dealing with complex or calcified canals.

* Procedural Innovation: Lines 34–39 detail the workflow of creating a 3D digital model to virtually plan access cavities, which is then translated into a physical 3D-printed guide.

Historical Background and Evolution

* Early Foundations: Lines 55–57 credit Dr. Harry B. Johnston with coining the term "endodontics" in 1928.

* Technological Shift: The transition from 20th-century microscopy to 21st-century CBCT imaging is well-documented (Lines 63–66).

* Emergence: It correctly notes that guided endodontics was formally introduced around 2016–2017 to manage calcified canals.

Clinical Core: Indications and Principles

* Advantages: Listed in lines 83–88, emphasizing minimally invasive tooth structure preservation and operator independence.

REVIEWER'S REPORT

* Indications: The review identifies primary uses such as Pulp Canal Obliteration (PCO) (Line 96), Dens Invaginatus (Line 98), and Microsurgical Endodontics (Line 100).

* Contraindications: Crucial limitations are noted in lines 104–106, specifically regarding severely curved canals and restricted mouth opening, which hinder guide placement.

Future Perspectives

* AI Integration: Lines 178–183 discuss the role of Artificial Intelligence in automatically analyzing CBCT scans to suggest optimal access paths.

* Dynamic Navigation: Lines 184–188 highlight the shift from static guides to real-time "GPS-like" tracking, which offers more flexibility in posterior teeth.

3. Technical Observations by Line Number

| Section | Line(s) | Observation |

| Terminology | 33, 42, 94 | Consistency in distinguishing between Static Guidance (templates) and Dynamic Navigation. |

| Evidence | 145–148 | Appropriately cites Moreno-Rabie et al. (2020) regarding systematic evidence for calcified anterior teeth. |

| Education | 169–173 | Notes the value of guided systems as a teaching aid to reduce reliance on student experience. |

| Safety | 127–129 | Correctly identifies the reduction of iatrogenic risks like perforations as a primary rationale. |

4. Conclusion of the Review

The manuscript successfully argues that guided endodontics is a "paradigm shift" (Line 224). It balances the excitement of technological advancement with the pragmatic reality of costs and technical complexity (Lines 90–95).