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REVIEWER'S REPORT

Manuscript No.: 55938

Title: MANAGEMENT OF ENDODONTIC FAILURE IN LOWER ANTERIOR TEETH BY APICECTOMY IN AN ADOLESCENT PATIENT

Recommendation:
Accept as it is …….
Accept after minor revision……Yes……
Accept after major revision ……
Do not accept (*Reasons below*) ……

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

Reviewer Name: Dr. Sireesha Kuruganti **Date:** 28/01/2026

Detailed Reviewer's Report

*1. Title & Abstract (Lines 1–20)*
Lines 1–20* present the manuscript title and abstract, which describe the clinical focus: *management of endodontic failure in lower anterior teeth via apicectomy in an adolescent*. The abstract emphasizes:

- *Cause of failure*: persistent periapical pathology despite adequate root canal treatment (Lines 1–4).
- *Indication for surgery*: nonsurgical retreatment not feasible (Lines 5–8).
- *Case overview*:
- 13-year-old male with pain in mandibular anterior region.
- Prior trauma and root canal therapy on teeth 31 and 41 (Lines 9–14).
- *Diagnosis*: persistent radicular cyst (Lines 15–17).
- *Treatment*: surgical enucleation, apicectomy, retrograde filling (Lines 17–19).
- *Outcome*: good clinical resolution and radiographic healing (Line 19).
- The abstract concludes by reinforcing the role of apicectomy in adolescents when nonsurgical options fail (Lines 19–20).

*2. Introduction (Lines 1–26 on Page 1–2)*

*2.1 Etiology of Endodontic Failure (Lines 1–9)*
- Endodontic therapy aims to eliminate infection, but failure occurs despite best practices (Lines 1–3).

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- Causes include residual infection, missed canal anatomy, inadequate disinfection, biofilms, and cystic lesions (Lines 4–6).
- Nonsurgical retreatment is first-line, but surgery is required when not feasible (Lines 6–9).

*2.2 Role of Apicectomy (Lines 10–16)*
- Apicectomy includes *root-end resection, curettage, and retrograde sealing* (Lines 10–14).
- Indicated for persistent periapical lesions with well-filled or obstructed canals (Lines 12–13).
- Microsurgical advancements—magnification, ultrasonic preparation, biocompatible materials—improve success rates (Lines 14–16).

*2.3 Special Considerations in Adolescents (Lines 17–26)*
- Lower anterior region presents challenges due to thin bone and esthetic concerns (Lines 17–18).
- Adolescents require conservation due to ongoing craniofacial growth and psychological impact (Lines 19–21).
- The introduction states the focus: a surgically managed case using apicectomy in a 13-year-old (Lines 22–26).

*3. Case Report (Lines 27–55)*

*3.1 Patient History & Symptoms (Lines 27–35)*
- 13-year-old male with chin swelling and pain for two weeks (Lines 27–28).
- History of traumatic occlusion; non-vital teeth 31 & 41 with previous RCT six months earlier (Lines 29–31).
- Initial asymptomatic period followed by symptom onset (Lines 31–32).
- Swelling present, tender, no sinus tract or discharge (Lines 33–35).

*3.2 Radiographic Evaluation (Lines 36–40)*
- IOPAR, OPG, and CBCT were used (Lines 36–37).
- A well-defined radiolucency was observed around apices of 31 and 41 (Lines 38–39).
- CBCT revealed a *large unilocular cystic lesion ~2 cm × 1.5 cm* (Line 39).

*3.3 Diagnosis & Pre-operative Management (Lines 41–43)*
- Diagnosis: persistent periapical pathology secondary to endodontic failure (Line 41).
- Surgical intervention was planned; antibiotics given (Line 42–43).

*4. Surgical Procedure (Lines 44–55)*

*4.1 Access & Enucleation (Lines 44–47)*
- Local anesthesia administered.
- Two vertical releasing incisions + crevicular incision created full-thickness flap (Lines 44–45).
- Cystic tissue completely enucleated; curettage performed (Lines 45–46).
- Root-end resection of ~3 mm at shallow angle (Line 47).

*4.2 Retrograde Sealing & Closure (Lines 48–54)*
- Retrograde cavity prepared and sealed with MTA (Lines 48–49).

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- Hemostasis achieved; Surgicel placed (Lines 49–50).
- Flap sutured with 3-0 Vicryl (Line 50–51).
- Tissue sent for histopathology → confirmed *infected periapical cyst* (Line 52).
- Follow-up: 1 week, 3 months, 6 months → no symptoms (Lines 53–54).
- Six-month OPG: complete resolution and bone regeneration (Line 55).

*5. Discussion (Lines 56–94)*

*5.1 Etiology & Need for Surgical Intervention (Lines 56–63)*
- Persistent pathology occurs due to microbial persistence, apical ramifications, extraradicular biofilms (Lines 57–60).
- Large cystic lesion + prior RCT → nonsurgical retreatment unpredictable (Lines 61–63).

*5.2 Role of Apicectomy (Lines 63–68)*
- Surgery is essential when canals are well-obturated or anatomically complex (Lines 63–65).
- Apicectomy provides direct access to pathology and removes infected tissue (Lines 65–67).
- This case supports the effectiveness of surgical intervention (Line 68).

*5.3 Adolescent-Specific Considerations (Lines 70–76)*
- Retention of natural teeth and bone is crucial in young patients (Lines 70–72).
- Extraction may cause long-term esthetic & occlusal issues (Lines 72–73).
- Mandibular anterior region requires precision due to thin cortical bone (Lines 74–75).
- Therefore, conservative surgical treatment is preferred (Line 76).

*5.4 Advancements Improving Success (Lines 77–84)*
- Microsurgical techniques, minimal root-end resection (3 mm), ultrasonic prep improve outcomes (Lines 77–80).
- MTA ensures sealing, biocompatibility, and promotes cementogenesis (Lines 81–82).
- Likely contributed to bone regeneration in this case (Lines 83–84).

*5.5 Evidence from Literature (Lines 85–94)*
- Torabinejad et al.: surgery shows higher short-term success than retreatment (Lines 85–86).
- Longer-term: nonsurgical retreatment has higher success (Lines 87–88).
- Histopathology confirmed inflammatory cyst → surgery justified (Lines 89–91).
- Complete enucleation reduces recurrence risk (Lines 91–92).
- No postoperative complications; predictable success in adolescents (Lines 92–94).

*6. Conclusion (Lines 95–102)*
- Apicectomy is an effective conservative treatment when nonsurgical retreatment is not feasible (Lines 95–96).
- Especially significant for adolescents in whom tooth preservation and bone maintenance are critical (Lines 96–99).
- Case reinforces apicectomy as a reliable treatment when endodontic approaches fail (Lines 99–102).

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*7. References (Lines 103–148)*

- Extensive references covering causation of endodontic failure, microsurgical techniques, MTA properties, pediatric guidelines, biofilm studies, and comparative outcomes (Lines 103–148).

- These validate the rationale and methods used in the case.