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## REVIEWER'S REPORT

Manuscript No.: IJAR-58080

**Title: Comparative evaluation of sealing ability of four different root repair materials used for furcation perforation repair: An in vitro study**

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

| Rating | Excel. | Good | Fair | Poor |
|---|---|---|---|---|
| Originality | | √ | | |
| Techn. Quality | | √ | | |
| Clarity | | | √ | |
| Significance | | √ | | |

Reviewer ID: JP085

**Reviewer's Comment for Publication.**

This in-vitro experimental study evaluated the sealing ability of four root repair materials (HI DENSE, Bio MTA, Biodentine, and Bio-C Repair) used for furcation perforation repair. Protein leakage was assessed using a bovine serum albumin model and UV spectrophotometry. The results showed that Bio-C Repair exhibited the least protein leakage, followed by Bio MTA, indicating superior sealing ability compared to Biodentine and HI DENSE. The study concludes that Bio-C Repair and Bio MTA may be effective alternatives for furcation perforation repair.

**Strength**:

1. Clinically relevant topic in endodontics.
2. Clear objective comparing different repair materials.
3. Use of protein leakage model provides reliable assessment of sealing ability.
4. Inclusion of control group strengthens the study design.
5. Appropriate statistical analysis (ANOVA) performed.
6. Results are clearly presented with tables and graphs.
7. Findings have practical implications for selecting perforation repair materials.

**Weakness**:

1. In-vitro study; findings may not fully represent clinical conditions.
2. Sample size justification is not provided.
3. No evaluation of biocompatibility, bond strength, or long-term outcomes.
4. Limited discussion comparing findings with recent literature.
5. Some inconsistencies in reporting results and interpretation.
6. Grammatical, typographical, and formatting errors are present.
7. Figures and tables require better formatting and labeling.

**Overall assessment:**

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The manuscript addresses an important issue in endodontic treatment and provides useful comparative data on the sealing ability of different furcation perforation repair materials. The methodology is appropriate, and the results suggest that Bio-C Repair and Bio MTA offer superior sealing performance. However, the study's laboratory-based design and presentation issues limit its overall impact. Minor improvements in language, discussion, and manuscript formatting would strengthen the paper.

**Recommendation**: Manuscript accepted for publication after minor revision.