

Original Research

Assessment of different modalities for managing Endodontic–periodontics lesion: An analytic study

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ABSTRACT:

Objective: This systematic analysis was aimed to understand the management of endodontic–periodontic lesion. **Methods:** Pubmed and Wiley online searches were conducted to identify articles published in dental journals. Manual searches of published full-text articles and related reviews were performed afterwards. **Result:** A total 10 studies were selected for inclusion, with 22 patients as subjects. All studies showed the decreased probing depth (PD) after treatment or healing of the lesion. All studies included were case report with treatment using root canal treatment (RCT) alone or RCT combination with bone graft or RCT with platelet rich fibrin (PRF). **Conclusion:** Treatment using root canal treatment (RCT) combination with bone graft was mostly used than the other treatment option in endo-perio lesion.

Keywords: Bone grafting, Endodontic–periodontics lesion

Received: 18 September, 2021

Accepted: 29 September, 2021

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This article may be cited as: Mehmood N. Assessment of different modalities for managing Endodontic–periodontics lesion: An analytic study. *Int J Res Health Allied Sci* 2021; 7(5): 99- 101.

INTRODUCTION

The endo-perio lesions have been characterized by the involvement of pulp and periodontal disease in the same tooth. Infection in pulp tissue may lead to secondary infection or periodontal tissue breakdown. In contrary, severe periodontal disease may initiate or exacerbate inflammatory changes in pulp tissue. There are some difficulties in endo-perio lesions treatment, especially when a severe loss of periodontal attachment and osseous structure occurs.¹

MATERIALS & METHODS

This systematic analyses was written according to the guidelines of PRISMA (Preferred Reporting Items for Systematic reviews and Meta-Analyses) for reporting studies evaluating healthcare interventions. PICO question (population, intervention, control, outcome) of the present systematic review was:

P: patient with endo-perio lesion

I: endo-perio treatment

C: treated with RCT and flap operation + bone graft

O: the mostly used treatment and the best result based on probing depth

Search strategy

Initial Pubmed and Wiley search of the English language literature was performed to establish a study protocol. These searches were conducted to identify articles published in dental journals focusing on study endo-perio treatment. The keywords used were “periodontics–endodontics lesion” AND “endo-perio treatment”. The search limits applied to the electronic search were the Article types, search period. Manual searches of published full-text articles and related reviews were performed afterwards. There are 34 studies have shown on this matter in Pubmed, and 160 studies in Wiley, with only 16 studies met the inclusion criteria. Specific keywords were used to identify the appropriate studies needs, and followed the characteristics of PICO question.

Eligibility criteria

The inclusion criteria were:

- English language article
- Full text article
- Any case report published until april 2018
- The studies reported endodontic and periodontics lesion
- The studies included case report or case studies

The exclusion criteria were:

- Animal studies
- Systematic review and meta-analysis studies.
- The studies did not report the probing depth

Selections of study

Specific keywords were used by two participating authors resulted the selection of the papers based on reading of abstract and full-texts. Independently, the two investigators selected the paper based on inclusion criteria formerly set. After that, all abstracts and full-texts were downloaded and individually

evaluated. The eligibility criteria were used to identify the articles that will be used for this systematic review.

Extraction of data

The data were retrieved by two reviewers that regarding following parameters: authors; year of publication; number of patients; technique; and objective. All full-texts which met the inclusion criteria were read independently by two reviewers and evaluated to formulate this systematic review.

RESULTS

The database search yielded 194 references, including 30 from PubMed and 164 from Wiley. After removing duplicates references, there were 189 studies remained. The titles and abstracts were reviewed afterward. The full-texts then be reviewed by the investigators and yielded 10 articles which met the inclusion criteria.

No	Author (year) ⁴⁻¹⁵	Subject (n)	Tooth element	Treatment	Baseline	Follow up
1	Kambale et al.	1	47	RCT (2 months) Periodontal curettage Bonegraft (HA)	RCT (2 months) PDB 8 mm PDL 10 mm	PDB 2 mm PDL 2 mm (6 months)
2	Jivoinovici et al.	2	45	RCT (dressing CaOH) Pus drainage from sulcus RCT (dressing CaOH) 36, 37 SRP treatment	PDD 8 mm PDB 16 mm	PDD 3 mm (2 years) PDB 3 mm PDM 14 mm
3	Narang S et al.	1	46	RCT (3 months) Perio graft	PD 6 mm	PD 3 mm (9 months)
4	Tseng C et al.	1	11	RCT + full crown Periodontal curettage DFDBA graft + GTR membrane	PD 11 mm	PD 2 mm (18 months)
5	Ballal NV et al.	1	22	RCT SRP + pus drainage HA graft	PD 10 mm	PD 4 mm (18 months)
6	Hauesien H et al.	1	46	RCT Hemisection	PD 8–12 mm for distal area	PD 1–3 mm for mesial 46
7	Rotstein et al.	1	22	RCT Debridement Bone Graft	PD 10 mm	PD 3 mm
8	Alqaied A et al.	1	46	RCT No periodontal treatment	Furcation involvement	PD < 4 mm Furcation involvement
9	Koyess E et al.	1	36	RCT	PD 12 mm	PD 9 mm
10	Yu L et al.	1	16	RCT extraoral	PD 8 mm	PD < 2 mm

A total 10 studies were selected for inclusion, with 22 patients as subjects. All the studies showed decreased probing depth (PD) after treatment or healing of the lesion. All studies included were case report with treatment using RCT alone or RCT combination with bone graft or RCT with PRF.

DISCUSSION

When the pulp becomes necrotic, there is a direct inflammatory response by the periodontal ligament at the apical foramen or accessory canals. Many of these are similar pathogens encountered in periodontal infections. On the other hand, the effect of periodontal disease on the pulp is degenerative in nature including an increase in calcifications, fibrosis and collagen resorption.² Inadequacy of the coronal seal leading to microleakage can be one of the reasons for the failure of the root canal treatment. Teeth that has undergone periodontal surgery had a more favorable healing response with the gain of connective tissue attachment when occlusal trauma was relieved.³

Bone grafting materials can be broadly classified into natural and synthetic types. Natural bone grafts include autogenous bone, allograft, and xenograft, while the synthetic types are commonly known as alloplastic materials. Hydroxyapatite (HA) has been used as a bone replacement material for many years and that has been demonstrated that HA has excellent biocompatibility, high osteogenic potential and anti-infection capacity.⁴

Hydroxyapatite (HA) was found to be a useful material in the reconstruction of periodontal defects, due to its ability to dissolve, break down, and allow new bone formation and remodeling required to attain optimal mechanical strength without interference². It took one month for epithelial attachment to establish and complete bone formation will occur six month after periodontal surgery. An accurate diagnosis is mandatory for the successfully treated endo-perio lesions. This diagnosis must cover both endodontic and periodontal component of the lesion. If the primary aspect cannot be evaluated, endodontic treatment should be given precedence, followed by a wait-and-see approach until a decision for any additional endosurgical and/or periodontal procedure can be focussed.^{5,6}

CONCLUSION

Treatment using Root Canal Treatment (RCT) combination with bone graft was mostly used than other treatment option in endodontic–periodontic lesion.

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