



Endo-Perio Lesions Management Using T- PRF, GTR and Open Flap Debridement

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Abstract

To compare GTR, open flap debridement and T- PRF in Endo- Perio lesions management. 60 patients with Endo- Perio lesions were classified into three groups. Each group had 20 patients. Group A was Open flap debridement (OFD) group, group B was Guided tissue regeneration (GTR) group and group C was titanium- platelet-rich fibrin (T-PRF) group. There was considerable discrepancy in periodontal disease (PD), clinical attachment level (CAL) gain and intra-bony defects (IBDs) depth reduction recorded at baseline and after 6 months proceedings in all groups ($P < 0.05$). The average PD alteration was 3.32 mm, 5.65 mm and 4.70 mm in group A, B and group C correspondingly. CAL gain was 3.30 mm, 5.52 mm and 4.24 mm in group A, B and group C correspondingly. IBD depth reduction was 0.81 mm, 3.92 mm and 2.96 mm in group A, B and group C correspondingly. The variation found to be considerable ($P < 0.05$). GTR and T- PRF found to be effective in management of Endo- Perio lesions as compared to open flap debridement.

Keywords: Depth reduction, Endo- Perio lesions, Pulp

Full-length article

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1. Introduction

A Pulpal pain is the worst pain. Most of the patients experience severe sharp intolerable pain that necessitates immediate intervention. Pulp may be affected by numerous factors such as caries, traumatic injuries, periodontitis, restorative interventions and thermal or chemical injuries[1]. Endo- Perio lesions are widely encountered among population. The prognosis of these with endo- perio lesions is poor, however, early identification and prompt management may be proved useful[2]. The routes of infection from pulp to periodontium are accessory foramen, apical foramen, dentinal tubules, fracture of roots and iatrogenic canal perforation etc. Necrosis of tooth may be due to extension of pockets deep to the tooth apex resulting in these lesions. Multi-rooted tooth such as maxillary and mandibular molars are commonly affected[3].

Endo-Perio lesions are of various types. These can primarily involve pulp chamber, periodontium, true combined disease etc. helps in classifying these lesions. Identification of lesions into these categories is essential for better management of cases[4]. Endodontic therapy along with periodontal treatment of intra-bony pockets is the treatment of choice[5]. Various materials are available in the market for correction of intra-bony defects (IBDs). Guided tissue regeneration (GTR), grafts, enamel matrix proteins and autologous platelet concentrates are among commonly used materials of choice. A useful bioactive material such as platelet-rich fibrin (PRF) regenerates periodontal tissues. A new platelet concentrates like titanium- platelet-rich fibrin (T-PRF) is efficient in intra- bony defect. Open flap debridement (OFD) is another option modality for periodontal diseases[6]. Considering this, the present study

aimed at comparing T- PRF, GTR, and Open flap debridement in the management of Endo- Perio conditions.

2. Materials and Methods

2.1. Study design

The present study comprised of 60 healthy subjects age ranged 18-40 years of both gender with evidence of

Table 1:Recording of parameters at baseline and at six months of follow up

Parameters (mm)		Group A		P value	Group B		P value	Group C		P value
		Mean	SD		Mean	SD		Mean	SD	
PD change	Baseline	9.86	1.4	0.02	9.86	1.4	0.01	9.16	1.9	0.02
	6 months	6.54	1.0		4.21	1.6		4.46	1.4	
CAL gain	Baseline	9.67	1.2	0.04	10.5	1.8	0.05	9.28	1.5	0.01
	6 months	6.37	1.6		4.98	2.0		5.04	1.9	
IBD depth reduction	Baseline	6.50	0.20	0.01	6.72	1.3	0.04	5.94	1.7	0.01
	6 months	5.69	0.22		2.80	1.5		2.98	1.8	

Table 2: Changes in parameters

Parameters (mm)	Group A		Group B		Group C		P value
	Mean	SD	Mean	SD	Mean	SD	
PD change	3.32	1.2	5.65	1.4	4.70	1.9	0.02
CAL gain	3.30	1.4	5.52	1.8	4.24	1.5	0.01
IBD depth reduction	0.81	0.20	3.92	1.3	2.96	1.7	0.01

This observational study was done in the department of conservative dentistry and endodontic.

2.2. Sample size selection

The sample size was selected with $N = z^2 p (1 - p) / d^2$, where P = prevalence of disease, z was to calculate, 95% confidence interval, and d = acceptable margin of error (0.05). Samples were selected from outpatient department of conservative dentistry and endodontic. Inclusion criteria were teeth with probing pocket depth (PPD) more than 5 mm, teeth having 2 or 3 wall IBDs. Exclusion criteria were smokers, pregnant and lactating mothers, and patients on long standing antibiotics.

2.3. Procedure

The study was done by single trained investigator. Tooth was isolated with rubber dam. Endodontic treatment was started following all standardized procedures. Biomechanical step was done using Protaper Universal files with intermittent irrigation with 5.25% NaOCl. Root canals were obturated with Pro Taper Universal F 4 gutta-percha and restored with composite resin. Along with this, scaling and root planning (SRP) was done. Included patients were instructed to keep good oral health. The defect sites were categorized into three groups containing 20 patients in each. Group A was OFD group, group B was GTR group and group C was T-PRF group.

In this study we assessed probing depth (PD) and determination of CAL and plaque index (PI) was performed. Next, modified sulcus bleeding index (mSBI) was measured. All measurement was done before treatment as well as at 6 months follow-up. Digital intraoral radiographs were obtained with Shick RVG and were compared at both intervals. Patients were prescribed antibiotics amoxycillin 500 mg, cap metronidazole 400 mg, tablet diclofenac potassium 50 mg TDSX 5 days. 0.12% Chlorhexidine

Endo- Perio lesions involving multi- rooted molars of mandibular arch of either side. The research procedure was approved from institutional ethics committee. All participants were approved to involve in study with written consent.

gluconate mouth wash was prescribed BD for 7 days. After this period, sutures were removed.

2.4. Statistical analysis

The obtained data was tabulated and statistically evaluated with SPSS IBM software version 21.0 using Mann Whitney U test. Level of significance was <0.05.

3. Results

Table 1 indicates that there was considerable variation in PD, CAL gain and IBD depth reduction recorded at baseline and after 6 months follows up in all groups (P< 0.05). Table 2 shows that mean PD change was 3.32 mm in group A, 5.65 mm in group B and 4.70 mm in group C. CAL gain was 3.30 mm in group A, 5.52 mm in group B and 4.24 mm in group C. IBD depth reduction was 0.81 mm in group A, 3.92 mm in group B and 2.96 mm in group C. The discrepancy found to be considerable (P< 0.05).

4. Discussion

Endo-Perio lesions are challenge for clinicians as prognosis depends on correct diagnosis and treatment planning. Multidisciplinary treatment approach is required to deal such case[7]. Such lesions are common among multi-rooted molar teeth[8].Palatogingival groove, vertical root fractures and root perforations are possible way of communications between pulp tissue and periodontium[9]. The spread of infection from pulp to periodontium via apical foramen and lateral canals are also common. Bone grafts can be the treatment of choice for teeth with extensive loss of attachment.[10] The current research was aimed to evaluate different treatment options for Endo- Perio lesions.In present study, the defect sites were categorised into three groups. Group A was managed with OFD, GTR in group B and T-PRF in group C.

Ustaoglu et al[11] conducted a study on 45 patients with 15 patients each group which were divided into T-PRF (test group), GTR group and OFD group. Assessments of periodontal factors were done at baseline and nine months follow up. Data of the study demonstrated that significant improvement in clinical parameters was seen in PRF and GTR group in contrast to OFD group. Whereas PD and CAL between T-PRF and GTR groups revealed no significant differences in radiographic IBD depth. Schincaglia et al in their study, periodontal regenerative treatment was compared with single and double flap technique and found no significant differences in probing depth and radiographic defect fill between groups at 6-months[12]. Thorat et al determined the usefulness of autologous PRF in the management of 32 IBD with clinical assessment and radiographic analysis. Results showed that PRF performed better in terms of mean decrease of probing depth, greater bone fill and CAL gain, which was 4.56 in test and 3.56 in control, 46.92% in test group and 28.66 % in control group and 3.69 in test and 2.13 in control respectively. A PD of >4 mm showed 68.9% of PD reduction and 61.6% CAL gain in test group[13]. Pradeep et al evaluated efficacy of PRP and PRF in 3-wall IBDs and found that both modalities showed similar decrease in PD, gain of CAL and bone fill in sites combined with OFD.[14] Karunakar et al observed adequate radiographic bone fills in two teeth with endo-periodontal lesion treated with L-PRF[15].

5. Conclusion

Authors found that GTR and T- PRF found to be effective in management of Endo- Perio lesions as compared to open flap debridement.

6. References

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