



SMART DENTAL UPDATES

Dear Doctor,

Greetings from Micro Labs Limited. We are happy to bring you “**SMART DENTAL UPDATES**” which contains latest and interesting news in the field of Dentistry.

This issue contains

- Postendodontic pain following occlusal reduction in mandibular posterior teeth: A randomized trial
- Influence of Cementoenamel Restorations in the Treatment of Multiple Gingival Recession Defects
- Role of obesity on orthodontic treatment outcome in adolescents

Should you require any specific article or medical information, please feel free to contact us at medicalservices@microlabs.in

Looking forward to your valuable feedback

Best Regards,
Medical Team, Micro Labs Limited

Postendodontic pain following occlusal reduction in mandibular posterior teeth : A randomized trial

Post endodontic pain is a common complication after root canal treatment with an incidence ranging from 3% up to 80% with a maximum incidence within the first 24h. This randomized, prospective, controlled trial assessed the effect of occlusal reduction on post endodontic pain and medication intake following root canal treatment of mandibular posterior teeth with symptomatic irreversible pulpitis with sensitivity to percussion treated in two visits.

Occlusal reduction was effective in reducing the intensity of postoperative pain 12h and 24h after root canal instrumentation.

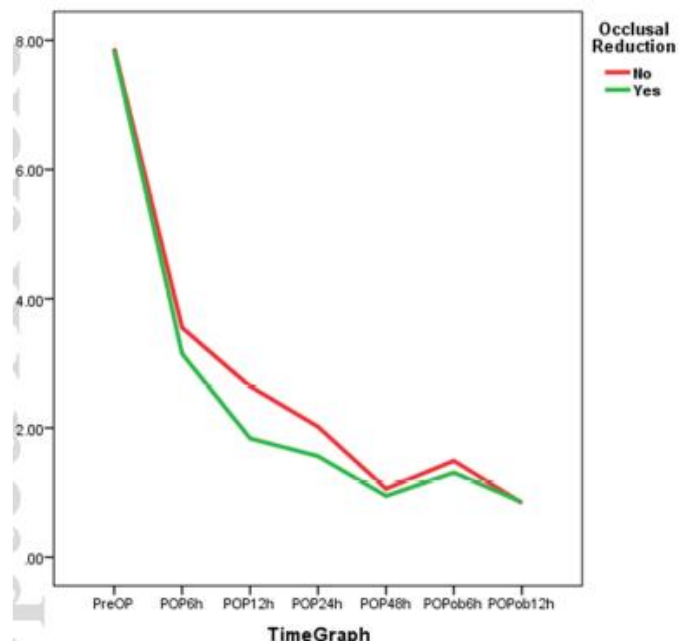
Three hundred and eight patients were randomly assigned into two equal groups according to whether occlusal reduction was done or not (n=154). For all patients, root canal treatment was carried out in two visits without intracanal medication. Patients assessed their pain using the 0-10 numerical rating scale (NRS) 6h, 12h 24h, 48h after the first visit (Post instrumentation) and 6h and 12h following root canal filling (Post obturation). Patients, also, recorded their medication intake (Sham or analgesic) post instrumentation and post obturation; patients initially received a sham capsule, but, if pain persisted, an analgesic was prescribed. Data were analysed using Mann-Whitney U-test, Friedman's test, Wilcoxon's rank test and Chi2 (χ^2) test. The Relative Risk (RR) and its 95% confidence interval (CI) were calculated for binary data.

Occlusal reduction was associated with less pain intensity than no occlusal reduction at 12h and 24h post instrumentation ($p < 0.05$). Pain intensity significantly and gradually decreased with both groups at all post instrumentation and post obturation time points compared to preoperative pain ($p < 0.05$). The RR of moderate-to-severe pain was 0.61 (95% CI: 0.41, 0.91) 12h post instrumentation and the RR of pain incidence, regardless of its level, was 0.75 (95% CI: 0.61, 0.92) 24h post instrumentation. There was no significant difference in medication intake (sham or analgesic) between groups ($p > 0.05$).

Time point	Intervention (n=154)					Control (n=154)					p-value 1†
	Med	IQR	Min	Max	Mean (SD)	Med	IQR	Min	Max	Mean (SD)	
PreOP	8 ^{a, A}	3	3	10	7.84 (1.81)	8 ^{a, A}	4	3	10	7.88 (1.93)	0.724
POP6h	3 ^{b, B}	5	0	10	3.14 (2.62)	3 ^{b, B}	4.25	0	10	3.56 (2.86)	0.233
POP12h	1 ^{b, C}	3	0	10	1.84 (2.18)	2 ^{b, C}	5	0	10	2.64 (2.72)	0.016*
POP24h	0 ^{b, C}	3	0	10	1.55 (2.12)	1.5 ^{b, D}	3	0	10	2.03 (2.17)	0.016*
POP48h	0 ^{b, D}	1	0	10	0.95 (1.71)	0 ^{a, E}	1	0	10	1.06 (1.90)	0.716
POPob6h	0 ^{b, D}	2	0	8	1.30 (2.26)	0 ^{b, E}	3	0	10	1.50 (2.43)	0.527
POPob12h	0 ^{b, E}	1	0	10	0.85 (1.80)	0 ^{b, F}	1	0	7	0.84 (1.56)	0.668
p-value 2‡	<0.001*					<0.001*					

Pain intensity in participants with (Intervention) or without (Control) occlusal reduction

Occlusal reduction was effective in reducing the intensity of postoperative pain 12h and 24h after root canal instrumentation in the first visit in patients with symptomatic irreversible pulpitis with sensitivity to percussion. Occlusal reduction lowered the risk of moderate-to-severe pain by about 40% 12h post instrumentation and the overall risk of pain by 25% 24h post instrumentation; yet, it did not affect medication intake



Source: Ahmed YE. et al. Int J Endodontics. 2020 May. [published online ahead of print] doi:10.1111/iej.13328

Influence of Cementoenamel Restorations in the Treatment of Multiple Gingival Recession Defects

The multiple coronally advanced flap (MCAF) is a technique demonstrated to be very effective for the treatment of multiple recession defects affecting teeth in esthetic areas of the mouth. The aim of the present prospective study was to evaluate the clinical outcomes of the MCAF with a site-specific application of CTG for the treatment of multiple gingival recession defects with or without the presence of NCCLs. Analysis of periodontal conditions was performed in order to determine if CEJ restorations could affect adequate plaque control as well as maintenance over time.

MCAF+CTG does not have any influence on periodontal conditions and on the amount of CRC, producing a satisfactory esthetic result.

This study was a prospective study, performed in accordance with the Helsinki Declaration of Human Studies. Twenty-three patients were selected for this study on a consecutive basis among patients who attended the Dental Department of San Raffaele Hospital between September 2017 and April 2018 requiring a treatment for multiple gingival recessions. All patients signed a specific informed consent and presented the following inclusion criteria: aged > 18 years; presence of at least two adjacent teeth with recession type 1 (RT1) gingival recessions with NCCLs; systemically healthy; and full-mouth plaque score (FMPS). All CEJ restorations were performed by the same restorative specialist (D.G.) and all surgical procedures by the same experienced operator.

A total of 23 patients (11 women and 12 men; mean age: 46.2 ± 10.6 years) with multiple recession defects were included in the study, and 93 recession defects were treated. The mean number of such defects in each subject was 4.04 (range: 2 to 6). Of these, 59 recessions (63%, 14 patients) were located in the maxilla and 34 (37%, 9 patients) in the mandible. The presence of NCCLs was detected on 57 teeth showing gingival recessions (61%). Among these, 36 (63%) were located in the maxilla (7 incisors, 8 canines, 15 premolars, 6 molars) and 21 (37%) were located in the mandible (1 incisor, 3 canines, 12 premolars, 5 molars).

The restorative treatment was performed for every NCCL, since all defects involved both the crown and the root of the teeth. The surgical treatment involved MCAF+CTG for 54 sites (of which 35 had a restored CEJ) and MCAF alone for 39 sites (of which 22 had a restored CEJ).

Changes in Clinical Parameters at 12 Months

	a-CEJ (n = 36)	r-CEJ (n = 57)	P	MCAF (n = 39)	MCAF+CTG (n = 54)	P
RECRed, mm	2.19 ± 0.92	2.53 ± 1.12	.97 ^a	1.92 ± 0.87	2.74 ± 1.05	< .001 ^a
%RC	92.13 ± 18.47	98.48 ± 6.67	.02 ^a	97.86 ± 9.5	94.7 ± 14.83	.24 ^a
CRC, %	83	93	.07 ^b	95	87	.207 ^b

CEJ = cemento-enamel junction; a-CEJ = anatomical CEJ; r-CEJ = restored CEJ; MCAF = multiple coronally advanced flap; CTG = connective tissue graft; RECRed = recession reduction; %RC = percentage of root coverage; CRC = complete root coverage. RECRed and %RC reported as mean ± standard deviation.

^aStudent t test.

^bChi-square test.



Figure (a) Baseline situation showing multiple gingival recession defects in the maxilla. (b) The sites after flap elevation: Composite resin restorations of NCCLs were performed on all teeth. (c) The CTG was positioned at the level of the canine and the first premolar according to the baseline KTW. (d) Clinical outcome at 1 year: CRC was obtained in all treated teeth

It can be concluded that the proposed treatment modality does not produce a negative effect on periodontal condition and amount of CRC, thus resulting in a satisfactory esthetic result.

Source: de Sanctis M et al. Int J Periodontics Restorative Dent. May/Jun 2020;40(3):333-342. doi: 10.11607/prd.4639.

Role of obesity on orthodontic treatment outcome in adolescents

The presence of obesity would also appear to influence oral health and has been identified as a risk factor for the development of periodontitis, variation in inflammatory markers in the presence of periodontal disease and poor response to nonsurgical periodontal therapy. The potential implications of managing orthodontic treatment for patients with obesity have also been described and include consideration of precocious development, variation in cephalometric and soft tissue norms, and the possibility of underlying obstructive sleep apnoea.

Obesity does not appear to be a risk factor for negative orthodontic treatment outcome with fixed appliances.

This prospective clinical cohort study investigated the potential influence of obesity on orthodontic treatment outcome. A prospective cohort of adolescent patients undergoing routine fixed appliance treatment were recruited into normal-weight or obese groups based upon body mass index (BMI) centile and followed up until the completion of treatment. Primary outcome was treatment duration, and secondary outcomes included treatment outcome (occlusal change measured using peer assessment rating [PAR]), appointment characteristics, and compliance measures

A total of 45 patients mean age 14.8 (1.6) years were included in the final analysis. The normal-weight group included 23 patients with mean BMI 19.4 (2.4) kg/m² and the obese group 22 patients with mean BMI 30.5 (3.8) kg/m². There were no significant differences in baseline demographics between groups, except for BMI and pre-treatment PAR. The normal-weight group had a mean pre-treatment PAR of 25.6 (8.3) and the obese 33.3 (11.8) giving the obese group a more severe pre-treatment malocclusion ($P = 0.02$). There were no significant differences in treatment duration between groups ($P = 0.36$), but obese patients needed less time per each additional baseline PAR point compared to normal weight ($P = 0.02$). Obese patients also needed less appointments compared to normal-weight patients ($P = 0.02$). There were no significant differences between groups

for appointment characteristics or compliance. Finally, obese patients were more likely to experience a great PAR reduction than normal-weight patients (relative risk = 2.6; 95% confidence interval = 1.2–4.2; $P = 0.02$).

Outcome	Normal weight		Obese		<i>P</i>
	<i>N</i>		<i>n</i>		
Tx duration (months), median (IQR)	23	27.4 (22.3–37.1)	22	26.9 (21.7–28.9)	0.36**
Tx duration (months)/1 PAR point at baseline, median (IQR)	23	1.14 (0.81–1.69)	22	0.88 (0.62, 1.03)	0.02**
Final PAR, median (IQR)	22	7.5 (4.0–11.0)	20	4.0 (3.0–8.0)	0.25**
ΔPAR, median (IQR)	22	18.0 (9.0–22.0)	20	29.0 (19.5–33.5)	0.004**
Great ΔPAR, <i>n</i> (%) [*]	22	6 (27%)	20	14 (70.0%)	0.006***
% ΔPAR, median (IQR)	22	64.3% (47.4–80.0%)	20	83.7% (79.7–90.6%)	0.02**
% ΔPAR/1 month of Tx, median (IQR)	22	2.3% (1.4–2.9%)	20	3.2% (2.4–3.7%)	0.03**
Appointments, median (IQR)	23	20.0 (17.0–22.0)	22	18.0 (13.0–19.0)	0.02**
WNB visits, median (IQR)	23	1.0 (0–3.0)	22	2.0 (1.0–4.0)	0.14**
Emergency visits, median (IQR)	23	2.0 (1.0–4.0)	22	2.0 (1.0–3.0)	0.99**
Appliance breakages, median (IQR)	23	2.0 (1.0–4.0)	22	2.5 (0–4.0)	0.97**
Poor oral hygiene, <i>n</i> (%)	23	7.0 (30)	22	8.0 (30)	0.67***

ΔPAR, change in peer assessment rating; AE, adverse event; PAR, peer assessment rating; IQR, interquartile range; SD, standard deviation; Tx, treatment; WNB, was not bought (to appointment).

^{*}Great PAR reduction' means a reduction of at least 22 points (or a final PAR of zero, if initial PAR less than 22 points).

^{**}From Mann-Whitney *U*-test.

^{***}From chi-squared test.

Comparison of normal-weight and obese patients for all clinical outcomes

There were no significant differences in treatment duration between obese and normal-weight patients. Obesity does not appear to be a risk factor for negative orthodontic treatment outcome with fixed appliances.

Source: Saloom HF et al. *Eu J Orthodontics*. 2020 May. [published online ahead of print] cjaa032, <https://doi.org/10.1093/ejo/cjaa032>



This scientific input is prepared from the Department of Medical Services, an initiative of M/s Micro Labs Limited under the aegis of Micro Knowledge Academy. The information contained herein is for education purpose only. The content is developed by compiling information from various authentic and published literatures. Although great care has been taken to assure the accuracy of the publication, M/s Micro Labs Limited shall not be responsible or in any way liable for any inaccuracy, errors, or omissions resulting from negligence or otherwise howsoever or any consequences arising there from. In spite of best efforts, the information in this publication may become outdated over time. M/s Micro Labs Limited shall not be responsible in any manner whatsoever, for any action taken, opinions expressed, advice rendered or accepted, any direct, incidental, special or consequential loss and damage caused on the basis of any material or information presented in this publication / update