

## EVALUATION OF CLINICAL EFFECTS OF OCCLUSAL TRAUMA ON GINGIVAL RESSION

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### ABSTRACT

**Aim of the study** The aim of this study was to investigate the occlusal contacts during maximum intercuspation to protrusive, lateroprotrusive and lateral excursive movements and their effects on gingival recession. **Material and methods** Fourteen subjects having gingival recession aged by 18–53 years old were selected, examined about the location and extent of gingival recession and occlusal wear facets were recorded. The type of occlusion and the nature of occlusal contact in maximum intercuspation and eccentric mandibular movements were also recorded using articulating foil. **Results** Our results indicated that gingival recession was more frequent in patients with occlusal function group than at patients with occlusal canine protection. At patients with occlusal canine protection gingival recession was located on the labial surface while at patients with function group recession was equally distributed on vestibular surface of the teeth in the anterior and posterior areas. Almost all patients with interference in protrusive, lateroprotrusive movements had teeth with gingival recession. Also abrasion was observed in most teeth with gingival recession. **Conclusions** These results suggest that occlusal interferences in maximum intercuspation and eccentric movements in one form or the other and absence of mutually protected occlusion can contribute to gingival lesions such as gingival recessions.

**Key words:** gingival recession, occlusal interferences, occlusal canine protection, occlusal function group

### INTRODUCTION

A harmonious relationship between occlusion and periodontium is today considered mandatory to maintain a healthy dentition.[1,2]

When occlusion is unfavorable few cusps or a single cusp bear the occlusal forces initially during jaw closure. This affects the periodontal tolerance of the tooth or teeth which exhibit occlusal interferences.[3]

The aim of this study was to investigate the occlusal contacts during maximum intercuspation to protrusive, lateroprotrusive

and lateral excursive movements and their effects on gingival recession.

In spite of the voluminous nature of studies which relates occlusion to periodontal disease, the role of pathological occlusion to the incidence of gingival recession and has not been adequately investigated.

Our objectives are:

1. To study the maximum intercuspatal contact pattern in teeth showing gingival recession

2. To study the nature of occlusal contacts from maximum intercuspatal position to

protrusive, lateroprotrusive and lateral excursive movements in the same teeth showing gingival recession.

**MATERIAL AND METHODS**

Forteen subjects having gingival recession aged by 18–53 years old were selected, examined about the location and extent of gingival recession and occlusal wear facets were recorded. The type of occlusion and the nature of occlusal contact in maximum intercuspation and eccentric mandibular movements were also recorded using articulating foil.

The following investigation was made for the teeth showing gingival recession.

1. Recording the location and extent of gingival recession and occlusal wear facets
2. Recording the type of occlusion
3. Recording the nature of occlusal contact

in maximum intercuspation and eccentric mandibular movements.

**RESULTS AND DISCUSSIONS**

Among the three occlusal concepts, gingival recession was more commonly related to group function than to canine guided occlusion. Canine guided occlusion was associated with gingival recession on the labial surface while in group function occlusion; the recession was distributed equally on the facial surface of the anterior as well as posterior teeth.

Occlusal wear was seen on most teeth having gingival recession.

Nearly all subjects showed interferences in protrusive, lateroprotrusive and lateral excursive movements on teeth showing gingival recession.

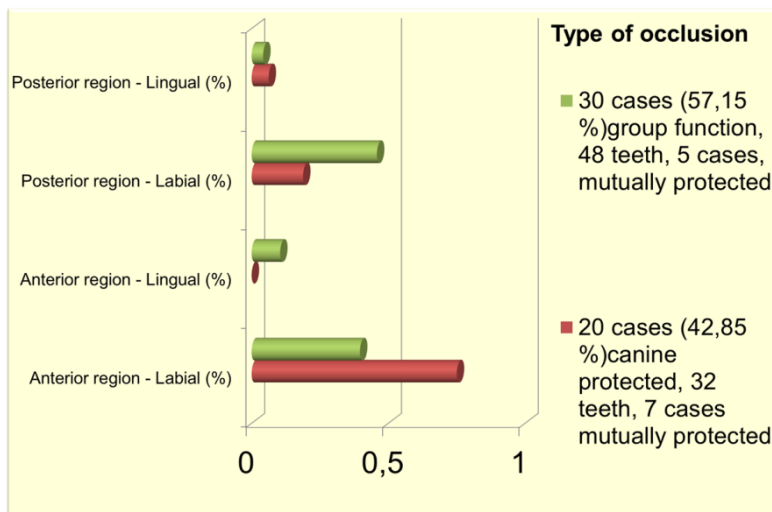


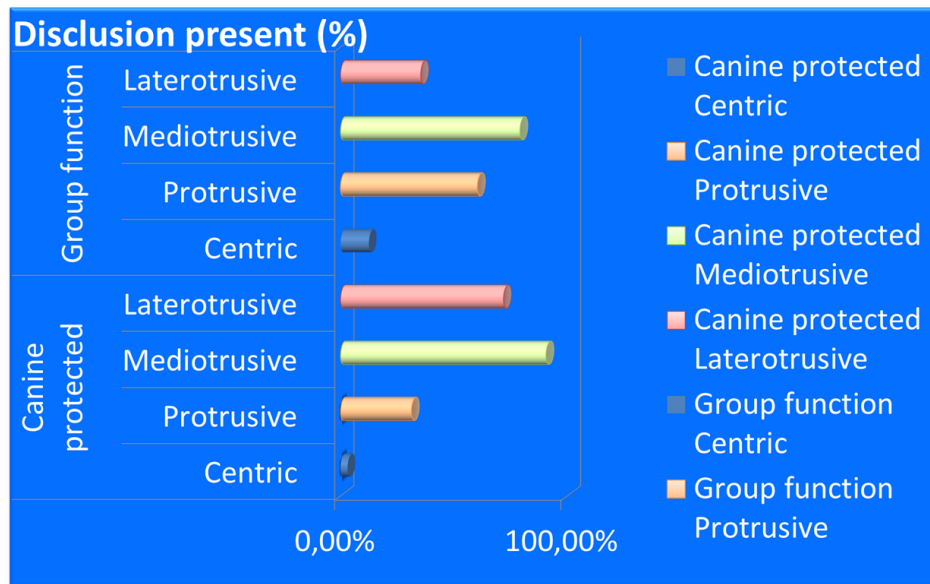
Figure 1. Type of occlusion

Table 1. Type of occlusion, region wise distribution, location of gingival recession

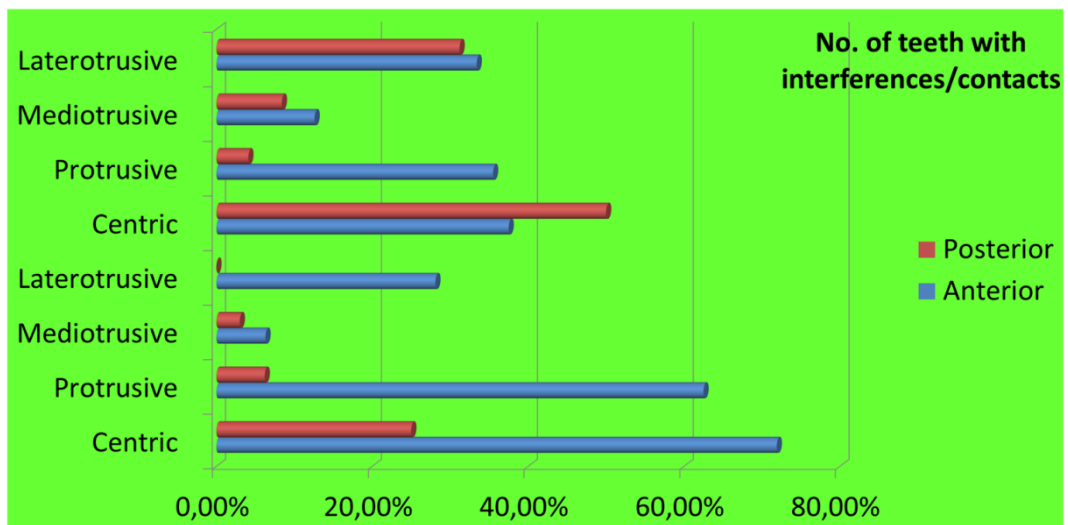
Type of occlusion	Anterior region Labial (%)	Anterior region Lingual (%)	Posterior region Labial (%)	Posterior region Lingual (%)
20 cases(42,85 %) canine protected, 32 teeth, 7cases mutually protected	75%	0%	18,80%	6,20%
30 cases(57,15 %) group function, 48 teeth, 5cases, mutually protected	39,60%	10,40%	45,80%	4,20%

**Table 2. Type of occlusion, region wise distribution, location of gingival recession**

Gingival recession	Type of occlusion	Disclusion Present (%)	No. of teeth with interferences/contacts	
			Anterior	Posterior
Canine protected	Centric	3,1 0%	71,90%	25%
	Protrusive	31,30%	62,5%	6,2%
	Mediotrusive	90,70%	6,30%	3%
	Laterotrusive	71,90%	28,10%	-
Group function	Centric	12,50%	37,50%	50,00%
	Protrusive	60,40%	35,50%	4,10%
	Mediotrusive	79,20%	12,60%	8,40%
	Laterotrusive	35,40%	33,40%	31,20%



**Figure 2. Disclusion present**



**Figure 3. Number of teeth with interferences and contacts**

Our results indicated that gingival recession was more frequent in patients with occlusal function group than at patients with occlusal canine protection. At patients with occlusal canine protection gingival recession was located on the labial surface while at patients with function group recession was equally distributed on vestibular surface of the teeth in the anterior and posterior areas.

Almost all patients with interference in protrusive, lateroprotrusive movements had teeth with gingival recession. Also abrasion was observed in most teeth with gingival recession.

Among the three occlusal concepts, mutually protected, canine guided and group function; gingival recession was more commonly related to group function than to canine guided occlusion [4,5,6]. This can be explained by the fact that in canine guided occlusion there was total disclusion of posterior teeth while in group function this was not the case. There is general predilection for the lesions to appear on the facial surface [6,7,8,9].

From the results of the foregoing

investigation the following conclusions were drawn.

Gingival recession was more commonly related to group function occlusion (60 %) as compared with canine guided occlusion (40 %). In subjects having canine guided occlusion, gingival recession was seen on the labial surface of the anteriors (75 %) whereas in group function occlusion, recession was distributed equally on the facial surfaces of the anterior and posterior teeth.

Gingival recession was seen on the labial surface of the mandibular anterior teeth in 85% when there was an absence of anterior disclusion in maximum intercuspation. Interferences in the form of protrusive, mediotrusive and laterotrusive contacts were associated with gingival recession.

## CONCLUSIONS

These results suggest that occlusal interferences in maximum intercuspation and eccentric movements in one form or the other and absence of mutually protected occlusion can contribute to gingival lesions such as gingival recessions.

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