The Prevalence of Overhanging Margins in Posterior Restorations and Associated Periodontal Attachment Loss in Jammu

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ABSTRACT

Aim: The aim of the study is to find the prevalence of overhanging margins in posterior restorations and associated periodontal attachment loss in Jammu.

Materials and Methods: A total of 139 subjects were selected based on the inclusion criteria. The selected subjects were evaluated for the overhanging margins of the restorations radiographically with the help of radiovisiography. The subjects with overhanging restorations were evaluated for the periodontal attachment loss with the help of WHO probe.

Results: About 57.6% of the restored teeth had overhanging margins in comparison to the 42.4% of the posterior teeth without overhangs. The prevalence of restorations with overhanging margins on the distal aspect of the tooth was more in maxillary posterior teeth (65.3%), and molars (51.02%) are more commonly involved than premolars. However, the results were statistically insignificant. The mesial overhangs were associated with periodontal attachment loss <3 mm, whereas majority of distal overhangs showed a periodontal attachment loss of more than 3 mm, and the results were found to be statistically highly significant.

Conclusion: The maxillary posterior teeth had more overhanging restorative margins which can be attributed to lack of accessibility and clinicians negligence toward the use of matrix bands and wedges.

Key words: Cavity, Gingiva, Overhang restoration, Proximal

INTRODUCTION

The main cause of gingival inflammation is due to bacterial plaque along with predisposing factors such as calculus, overhang, orthodontic therapy, smokeless tobacco, radiation therapy, iatrogenic factors, and the materials used in restoration.[1]

The most commonly encountered local factor causing periodontal disease in adults is the overhanging dental restorations. Overhanging dental restoration refers to the extension of the restorative material beyond the corner of the prepared cavity.[2]

Overhanging interproximal restorations have long been viewed as a contributing factor toward gingivitis and possible periodontal attachment loss. Overhanging restorations pose a significant concern, as their prevalence has been estimated at 25–76% for all restored surfaces.[3] It is generally accepted that overhanging restorations contribute to gingival inflammation due to their retentive capacity for bacterial plaque. Gilmore and Sheiham demonstrated interproximal radiographic bone loss in posterior teeth associated with overhanging restorations.[4] Jeffcoat and Howell conducted a study on 100 teeth with overhangs and 100 without overhangs; they concluded greater bone loss around teeth with large overhangs. However, small overhangs were not associated with bone loss.[5]

In a literature review of overhang dental restorations and the effect on the periodontium, researchers reported a prevalence range of interproximal overhang from 25% to 76% dependent on the importance of appropriate restoration in tooth supporting tissues.[3]
Alizadeoskoee et al. surveyed the overhang of amalgam restorations of dental students in Tabriz and concluded that the overall prevalence of this problem was 25.7%, 23.5% was related to Mesio-occlusal-distal (MOD) proximal cavities, and 23% to MOD cavities. In total, 29% was also related to amalgam crown buildup.[6,10]

The relationship of overhang restoration to periodontal disease has been explored by three different methods.[4,5,7-10] The commonly employed one is to compare the periodontal status of teeth with overhang restoration with homologous teeth without overhang restoration.[5,11]

Another approach utilized extracted teeth to directly measure the attachment on tooth surface with and without overhang restoration.[10,12] By the third method, intentionally placed overhang restoration was studied in humans for their effects on the subgingival microflora and periodontal tissue.[13]

The present study is conducted to find the prevalence of overhanging margins in posterior restorations and associated periodontal attachment loss in Jammu region.

MATERIALS AND METHODS

Of a total of 193 patients visiting the Department of Conservative Dentistry, Indira Gandhi Government Dental College, Jammu, 139 subjects were selected based on the inclusion criteria.

Inclusion Criteria

- Patients without any periodontal disease.
- Presence of posterior teeth.
- Class II restorations.

Exclusion Criteria

- Missing posterior teeth.
- Systemic disease.

The selected subjects were evaluated for the overhanging margins of the restorations radiographically with the help of radiovisiography. The subjects with overhanging restorations were evaluated for the periodontal attachment loss with the help of WHO probe. A single examiner trained for the specific study performed all the clinical evaluations and also evaluated the radiographic images.

The evaluated data were subjected to statistical analysis using SPSS software version 20. Chi-square test was used to assess the relationship between the location and prevalence of overhanging margins.

RESULTS

Table 1 summarizes that 57.6% of the restored teeth had overhanging margins in comparison to the 42.4% of the posterior teeth without overhangs.

Table 2 summarizes that the prevalence of restorations with overhanging margins on the distal aspect of the tooth was more in maxillary posterior teeth (65.3%), and molars (51.02%) are more commonly involved than premolars. However, the results were statistically insignificant (P = 0.8228 [NS] and 0.3684 [NS]), respectively.

Table 3 summarizes that the mesial overhangs were associated with periodontal attachment loss <3 mm, whereas majority of distal overhangs showed a periodontal attachment loss of more than 3 mm, and the results were found to be statistically highly significant (P = 0.0000 [***]).

DISCUSSION

The present study was conducted in 80 subjects coming to the Department of Conservative Dentistry in Indira Gandhi Government Dental College, Jammu, to find the prevalence of overhanging margins in posterior restorations and associated periodontal attachment loss.

It has been proven by several authors in the past that overhanging margins of restorations promote plaque accumulation and increase the level of periodontal pathogens, which cause destruction to the periodontium as well as to the tooth substance.[11,14-20]

The findings of the present study showed that 57.6% of posterior teeth have restorations with overhanging margins indicating their higher prevalence. These results were in agreement with the results obtained from other studies.[11,12,14,15,21,22]

In this study, it was shown that the incidence of distal overhangs was more in maxilla and molars. However, the findings were insignificant. These results are in accordance with the results of Talabani et al.[23]

This study also showed that the periodontal attachment loss occurred more significantly adjacent to overhanging margin. Deeper pockets more than 3 mm were found adjacent to distal overhangs and these results are in agreement with other studies in this respect.[24,25]

CONCLUSION

It can be concluded that maxillary posterior teeth had more overhanging restorative margins which can be attributed to lack of accessibility and clinicians negligence toward the use of matrix bands and wedges. The overhanging restorative margins
lead to the increase in accumulation of dental plaque, which further leads to periodontal attachment loss. Thus, care should be taken while restoring posterior teeth to avoid the associated complications.

REFERENCES