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Research Article

CORELATION OF PATHOLOGIC TOOTH MIGRATION OF ANTERIOR TEETH AND ATTACHMENT LOSS

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ABSTRACT

The purpose of this study was 1)To determine the prevalence of pathologic tooth migration of anterior teeth in patients with moderate to severe Periodontitis ,2) To identify the most common form of pathologic tooth migration and 3) Evaluate relationship between pathologic tooth migration of anterior teeth and attachment loss .

Prevalence of tooth migration in anterior teeth was studied in a group of 240 patients with moderate to severe Periodontitis before treatment. 34 patients with 56 pairs of migrated and non-migrated teeth were studied further to determine if there is any relationship between pathologic migration and attachment loss. Migrated teeth were compared to control contralateral teeth that did not have migration. The type and severity of migration was recorded for each affected tooth. The types of migration recorded were diastema, extrusion, rotation, facial flaring and drifting in edentulous spaces. Pathologic tooth migration prevalence was 35.41%(85/240).The mean attachment loss of migrated teeth(7.47±1.38) was significantly greater than control teeth (3.78±1.03).Although different types and combination of PMT made it more difficult to identify the most prevalent form of migration, yet most frequent type of migration in our study was facial flaring (53.84%) followed by diastema(42.30%) and extrusion(3.84%).The results of the study confirms clinical impression that periodontal destruction plays a major role in the etiology of pathologic migration.

INTRODUCTION

One of the challenges in Periodontics and esthetic dentistry, at large is management of those periodontal conditions that impair patients dento-facial esthetic. Pathologic migration is one such condition which can be extremely disfiguring, when associated with anterior teeth.

Pathologic tooth migration is defined as a change in tooth position, resulting from disruption of forces that maintain teeth in normal position with reference to skull[1]. Different types of pathologic migration include extrusion, diastema formation, facial flaring, rotation and tipping into edentulous spaces. The prevalence of pathologic migration is reported to range from 30.03%-55.8%. This condition is more frequent in anterior and is the most common complication in moderate to severe forms of Periodontitis[2].

A survey of literature regarding the etiology of pathologic migration appears to be mutifactorial. Possible etiologic factors include occlusal forces, soft tissue pressure of the cheek, tongue and lips, oral habits, periodontal inflammation and eruptive forces. Periodontal bone loss appears to be major factor in the etiology of pathologic migration[2].

The purpose of this study was to determine the prevalence of Pathologic tooth migration in anterior teeth and correlate the attachment loss in migrated and non –migrated teeth

Aims

1. To determine the prevalence of pathologic migration involving maxillary anterior teeth in patients with moderate and severe Periodontitis.
2. To study the most common type of pathologic migration.
3. To determine and evaluate the relationship of attachment loss in migrated and non-migrated teeth.

MATERIALS AND METHODS

240 patients aged 20-45 yrs with moderate to severe Periodontitis presenting with pathologic migration involving maxillary anterior teeth seeking treatment in department of Periodontitis, Nair Hospital Dental College were included in the study. Patient who have received periodontal treatment in past 6months, with tooth migration resulting from cause other than periodontitis, who have received orthodontic treatment and in which diastema was present earlier and remained stable were excluded from the study. A written consent was obtained

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from each patient and details of the study were explained. The diagnosis of pathologic migration was made by asking patients if they were aware of occurrence of spacing between maxillary anterior teeth in recent years.

34 patients with 56 pairs of migrated and non-migrated teeth were studied further to evaluate if there is any relation between pathologic migration and attachment loss.

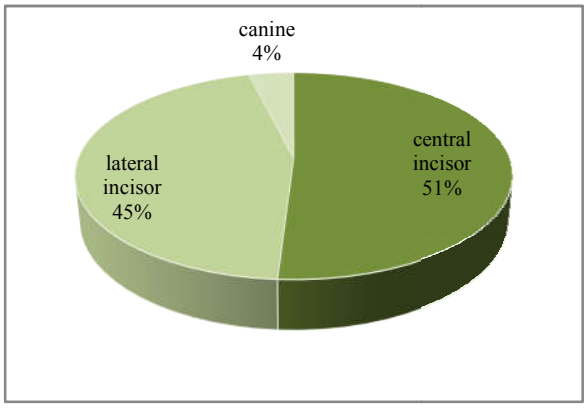
The selected patients underwent complete periodontal examination including plaque index, gingival index, probing pocket depth and clinical attachment level. The presence and kind of pathologic tooth migration (PTM) in anterior teeth and teeth loss were also evaluated. Probing pocket depth was measured using a graduated probe (UNC-15 probe). Measurements were recorded to the nearest millimetre at 6 sites Mesiobuccal, Buccal, Distobuccal, Mesiolingual, Lingual, and Distolingual. Probing depth measurements were followed by attachment level measurements.

RESULTS

The prevalence of pathologic migration in the 240 patients (154 females and 86 males) with moderate to severe periodontitis was 35.41% (85/240). The patient age ranged from 21-43yrs old with the mean age of 30.08 It was observed that the prevalence of pathologic migration was 50.98 % in central incisors, 45.09% in lateral incisor and3.9 % in canines. Graphical representation of prevalence of PTM is shown in graph no-1.The most frequent type of pathologic migration was facial flaring 53.84 % followed by diastema 42.30% and extrusion 3.84 %. Graphical representation of frequency of type of PTM is shown in graph no-2. An average of 2.1 sites was obtained on a subject (min 1 and max 4).

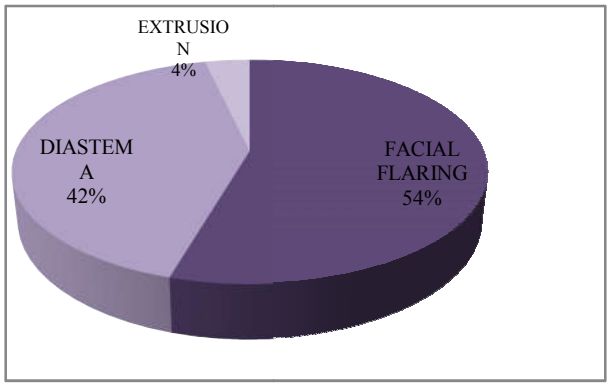
Table NO 1 Mean Values of Attachment Loss in Migrated And Non-Migrated Teeth.

	Mean value	Standard deviation
Migrated teeth	7.47	1.385835
Non-migrated teeth	3.78	1.393346

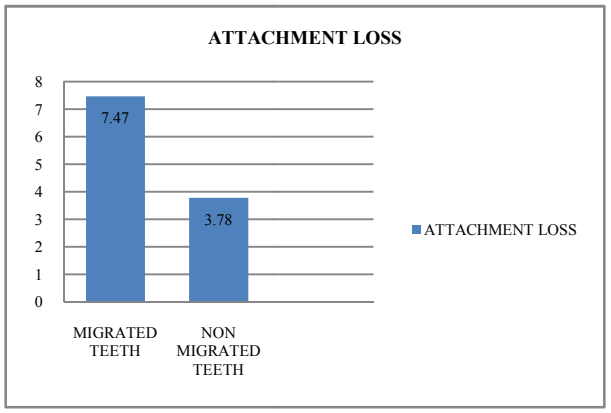


Graph No: 1 distribution of pathologic migration in maxillary anteriors.

34 patients presenting 56 pairs of migrated and non-migrated secondary to pathologic migration were studied further for attachment loss. The mean attachment loss of migrated teeth (7.47±1.38) was significantly greater than non-migrated control teeth (3.78±1.03).



Graph NO 2 Percentage of Different Types Of Pathologic Migration.



Graph NO3 Showing Mean Attachment Loss In Migrated And Non-Migrated Teeth

DISCUSSION

Pathologic tooth migration has been identified with the resulting feature of tooth migration that is a developing diastema with active periodontal disease. The diastema was considered a developing one based on the patients perception of either: (1) the appearance of a space between the teeth, which was not present in the past; or (2) the increase of a space which already occurred before. Those cases in which the diastema was present and remained stable were not considered and not included in the study.

Although different types and combination of Pathologic tooth migration made it more difficult to identify the most prevalent form of migration, yet most frequent type of migration in our study was, facial flaring(53.84%) followed by diastema (42.30%) & extrusion (3.84%). The reason why such presentation occurred was not within the realms of our study. It was observed that the prevalence of pathologic migration was 50.98 % in central incisors, 45.09 % in lateral incisor &3.9 % in canines. The obvious reason for low incidence in canine was the resistance offered by its long root against PM. However it is still not clear why central incisors had highest incidence? At this point it can be speculated that may be the resultant Anterior Component of occlusal Force was highest on central incisor and the effect of all the etiological factors acting on central incisor magnified and predisposed central incisor to migrate pathologically. Since central incisor fall in the direct esthetic zone patients were more motivated may have reported to seek periodontal care in more numbers then others. Further studies are needed to address this issue.

The most frequent type of migration was facial flaring (53.94%), followed by diastema (42.30%) & extrusion (3.9%).

Results indicated that pathologic migration was found in almost one-third of the patients studied. Teeth affected by pathologic migration had significantly more attachment loss than contralateral teeth without pathologic migration, while a combination of types of pathologic migration were noted making it difficult to identify a single form as being most common.

A major limitation of the study was the subjective nature of determining displacement or not.

Results of the study suggest that loss of attachment is an important part of etiology of pathologic migration. However from clinical observations it is obvious that other factors such as habits, occlusal interferences and inflammation can cause tooth migration. Further research should be carried out to analyze the role of other individual factors. Ultimately it is hoped that early diagnosis and prevention of pathologic migration will lead to less complex and time consuming treatment.

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