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SPONTANEOUS REPOSITIONING OF PATHOLOGICALLY MIGRATED TEETH AFTER PERIODONTAL THERAPY: A CASE REPORT

Dental Science

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ABSTRACT

Pathologic tooth migration (PTM) is a periodontal pathology, referring to tooth displacement which may occur in association with gingival inflammation and pocket formation. It occurs most frequently in anterior region which can be extremely disfiguring. The importance of early detection and elimination of the causative factors involving multidisciplinary management can prevent serious periodontal involvements.

In the light of current periodontal literature this case attempts to support repositioning of pathologically migrated teeth after periodontal therapy alone.

KEYWORDS

Pathologic migration, Spontaneous Repostioning, Periodontal therapy

INTRODUCTION:

Pathologic 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% to 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 multifactorial. Periodontal bone loss appears to be a major factor in the etiology of pathologic migration[2]. Also considered important in the etiology of pathologic tooth migration is pressure produced from inflammatory tissues within periodontal pockets[3]. Of all the etiologic factors associated with pathologic migration pressure from periodontal inflammatory tissue needs a special focus, as it is crucial in spontaneous repositioning ("spontaneous" in this context is meant to emphasize that no orthodontic measures were taken and tooth moved back to its initial position). As early as 1933 Hirschfeld described pathologic drifting of teeth resulting from pressure of inflammatory tissue in periodontal pockets[3]. Subsequent case reports and case series also mentioned this phenomenon and often described the tooth movement in a direction opposite to the deepest part of the pockets[3,4,5]. This mechanism is not well understood at present. But Sutton et al proposed a theory that hydrodynamic and hydrostatic forces within the blood vessels and inflamed tissues in the periodontal pocket may account for abnormal tooth migration[6].

The term '"reactive positioning"' was introduced by Ross to describe spontaneous repositioning that occurred after periodontal therapy without the use of appliance[4]. Periodontal treatment of pathologically migrated teeth can in some instances induce reactive movement leading to repositioning of teeth within dental arch. This is mainly because of re-establishment of "Periodontal force" due to healing of the supracrestal gingival tissue, and re-implementation of the biomechanical situation that existed before the initiation of the pathologic process. But most of the pathologic migration needs orthodontic approach also, debate continues among the clinician regarding the use of orthodontic forces to treat them. There still exists a grey area which is needed to be cleared so that clinicians are in a better position to determine when to intervene pathologically migrated teeth with periodontal therapy alone, or when to combine it with orthodontic therapy. In the light of current periodontal literature this case attempts to support repositioning of pathologically migrated teeth after periodontal therapy alone.

CASE REPORT:

A 27 year old female reported to the department of periodontics, Nair Hospital Dental College, Mumbai with the chief complaint of bleeding gums and spacing between the upper central incisors since one year. Patient gave a history of increase in spacing since one year. Patient didn't give any relevant medical history and it was her first visit to dentist.

On examination 2mm wide diastema was seen between two upper central incisors, probing pocket depths of 5-6mm and was noted in the upper anterior teeth and an average of 6-7mm of probing pocket depths present in posterior teeth. Inflammatory gingival enlargement was seen in lower anteriors with 6 mm Probing pocket depth of Generalized bleeding on probing was present. Radiographic evaluation showed generalized bone loss.

Fig 1:Pre-operative front view showing diastema between central incisors

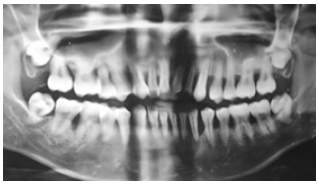

Fig 2: Pre-opeartive OPG

Complete periodontal examination including, plaque index, gingival index, probing pocket depth and clinical attachment level were evaluated. Basic therapy of scaling and root planning was performed and oral hygiene instructions were given. After the completion of Phase-1 therapy, the patient was re-evaluated, during which the pocket depth was reduced to 5 mm. 4 weeks after initial treatment surgical therapy was carried out. The surgical therapy consisted of routine open flap debridement. Sutures and periodontal pack were placed. Post-surgical instructions were given. After one week, periodontal pack sutures were removed and the area was thoroughly irrigated with saline.

Three months postoperatively, there was complete closure of the diastema. Intraoral periapical radiographs showed bone gain between the two maxillary central incisors. A complete diastema closure was noted, along with reduction in probing pocket depths and firm and resilient gingival architecture. Patient was put on a maintenance phase and asked to report for follow up after 6 months. The patient showed no signs of recurrence of pathological migration during the follow up.

Fig 3:Post-operative Front view after 6 months showing complete closure of diastema.

Fig 4:Post-operative OPG after 6 months

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.

The literature has consistently demonstrated that, in the process of pathologic migration caused by advanced loss of periodontal support, the tooth drifts in a direction diametrically opposite to the site exhibiting the most severe destruction[4,5,7,8,9,10]. Forces from within the pathologic granulation tissue were thought to be responsible for that event. Since spontaneously repositioning teeth were always observed to move straight in the direction of the site that had exhibited the greatest initial probing depth. It was concluded that the cause of this movement was the eradication of pathologic forces secondary to periodontal treatment. However, no scientific evidence demonstrating the production of such forces by the diseased tissue is available.

The periodontal wound healing model that was proposed by gaumet et al[11] is consistent with the observed pattern of this reactive movement. Whether it is in the form of connective tissue or epithelium, the area of greatest probing depth and bone loss is associated both quantitatively and qualitatively with the weakest attachment apparatus between the root surface and the gingival soft tissue. The benefit of therapy in terms of new attachment will therefore be most dramatic in this location.

To summarize, Gaumet et al[11] suggested that spontaneous movement of pathologically migrated teeth could be due to wound contraction during healing. They state that periodontal disease can induce tooth movement only by altering the distribution of physiologic periodontal forces, those generated by the transseptal fibers. After periodontal therapy, the tissue remodeling that takes place during healing might be able to generate a normal biomechanical environment at the tooth-periodontium interface. The consequence of this newly re-established equilibrium of forces could be the spontaneous movement of the tooth back into the previous alignment in the dental arch.

CONCLUSION:

In the present case, the patient was subjected to Phase-I (nonsurgical) therapy followed by surgical treatment. 3 months after surgery spontaneous repositioning of the migrated teeth took place and there was a complete closure of the diastema. This case report supports the view that there is reactive repositioning of the migrated teeth with periodontal therapy alone in cases of pathological tooth migration with mild degree of migration.

Hence it can be hoped that early diagnosis and prevention of pathologic migration will lead to less complex and time consuming treatment, since early stage PTM is reversible with periodontal therapy only.

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