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TANGIBLE RESULTS FOLLOWING SCALING AND ROOT PLANING IN TREATING: GENERALIZED AGGRESSIVE PERIODONTITIS (GAP) – A CASE REPORT.

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ABSTRACT:

The purpose of this report is to describe a case of Generalized Aggressive Periodontitis (GAP) that was managed successfully by non-surgical therapy with systemic antibiotics as an adjuvant to mechanical therapy. A 27-year-old male presented with clinical and radiographic evidence of clinical attachment loss and pocket depths around several teeth and reduced mouth opening. He presented with a history of tobacco chewing but had no history of systemic disease, periodontal disease, or caries prior to the swollen and bleeding gums that prompted him to seek treatment. Routine haematological test did not reveal any systemic involvement. Treatment consisted of mouth opening exercises, scaling and root planing, adjuvant anti-biotic therapy. The patient's periodontal condition showed marked improvement by the end of 1 month duration of the treatment.

Key Words: Aggressive Periodontitis, Systemic antibiotics.

INTRODUCTION:

Aggressive periodontitis is a specific type of periodontitis with clearly identifiable clinical and radiographic findings, that make it sufficiently different from chronic periodontitis, to warrant a separate classification. Aggressive periodontitis occurs in a patient who otherwise is clinical healthy (except for periodontal disease).Common features include rapid attachment loss and bone destruction, and familial aggregation. In addition, patients with aggressive periodontitis generally, but not universally, exhibit amounts of microbial deposits inconsistent with the severity of periodontal tissue destruction, phagocyte abnormalities, and elevated proportions of Aggregatibacter actinomycetemcomitans and, in some populations, Porphyromonas gingivalis.1

The disease includes 2 forms of presentation localized and generalized. Generalized aggressive periodontitis (GAgP) is characterized by "generalized interproximal attachment loss affecting at least 3 permanent teeth other than first molars and incisors"2.It is a multifactorial disease where interplay of microbiologic, genetic, immunologic, and environmental/ behavioural risk factors decides the onset, course, and severity.

Pathogenic bacteria in the dental plaque especially *Aggregatibacter actinomycetemcomitans* and *Porphyromonas gingivalis*3,4 have an indispensable role which elicits an aggravated host response which in turn is determined by the genetic and immunologic profile of the patient modified by environmental risk factors like smoking.

This paper attempts to describe the diagnostic features along with the periodontal management of generalized aggressive periodontitis (GAP).

CASE PRESENTATION:

A 27 year old male patient reported to The Oxford Dental Hospital and College, Oral medicine and Radiology department with the following chief complaints of limited mouth opening and associated burning sensation on consuming spicy food stuffs since one month with swollen & bleeding gums since 4-5 months and associated soreness of mouth also progressive spacing between his upper lower anterior teeth since one year. The patient presented with no previous history of periodontal disease and also no medical history. However, the patient presented with a habit of tobacco chewing one packet/day since one year and had discontinued the habit, a week before reporting to the dental hospital. He mentioned that he used to place tobacco in the right and left buccal vestibular region. The patient was referred to the Department of Periodontics for the treatment of his periodontal condition.

Soft tissue examination revealed – On inspection: Reduced mouth opening and blanching with white patches on buccal mucosa (right & left) and labial mucosa. On Palpation: there were 2 fibrous bands extending from upper to lower vestibule on both right & left buccal mucosa were tender.

Gingival presentation was as follows: The gingival appeared dark pink in colour with a bluish hue and its consistency was soft and edematous with a diffuse enlargement involving the anteriors (upper and lower) and posterior regions (right side upper and lower).The gingiva showed accentuated scalloping with bulbous interdental papilla and rounded gingival margins in general. Gingival recession was noted with upper and lower anteriors, 16, 46. Spontaneous bleeding was noted with 13, 14 and lower anteriors with presence of exudation with respect to upper & lower anterior teeth,16, 46 (figure 1).

The periodontal status showed – Probing pocket depths were seen ranging from 5 to 10mm and pathologic migration noted with upper and lower incisors (disto-labially). Furcation involvement was noted with 16 (grade I) and 47 (grade II) also, grade I mobility was noted with 11, 31 and grade III mobility was noted with 18. (Figure 1).

Radiographic presentation – Orthopantomograph (OPG) and Intra Oral Peri Apical (IOPA) radiographs showed prominent generalized distribution of horizontal bone loss especially severe in the upper and lower anteriors. Furcation involvement was seen with respect to 16, 36, 46, 47 and premolars affected to a lesser degree. Vertical bone loss was noted with 47 (Figure 2).

Hematological report revealed that, the patient had no systemic involvement. Diagnosis was made according to the criteria set by the American Academy of periodontology, 1999 classification of periodontal diseases and conditions[5] using history, clinical features, and radiographic features. Thus, the case was diagnosed as having generalized aggressive periodontitis and considering the soft tissue examination, it was also diagnosed that, the patient also had Oral sub mucous fibrosis.

MANAGEMENT:

Phase I therapy was started with mouth opening exercise like jaw stretching and dexamethasone and hyaluronic acid injection for two days a week upto 3 to 4 weeks. Extraction of 18 was performed. Treatment for aggressive periodontitis was initiated by scaling and root planing after the completion of which, antibiotic regimen was started which included a combination of Amoxicillin 250mg and Metronidazole 250mg thrice daily for 8 days. The patient was recalled on weekly basis and the clinical parameters were evaluated and root planing, was

performed for areas which showed persistant inflammation.

By the end of non-surgical therapy, gingival status revealed: marked improvement with respect to: colour, consistency, size, absence of tenderness to palpation, reduced soreness of mouth and bleeding. The probing depths were seen in the range of 2-4mm (figure 3a and 3b). However, only 47 showed pocket depth of 7mm and radiographically, deep vertical defect was noted. Hence, access flap surgery was performed respectively only in relation to 47.

After the completion of periodontal therapy, the patient was referred to the Department of Endodontics for the root canal treatment with 11 and later to the Department of Orthodontics, for the treatment of spacing between his upper lower anterior teeth.

DISCUSSION:

The key to successful treatment is early diagnosis. Early diagnosis of aggressive periodontitis helps in prevention of progression of the disease thus avoiding the possibility of advanced tissue destruction and alveolar bone loss. Earlier the diagnosis, better is the prognosis. Management of generalized aggressive periodontitis (GAP) patients essentially consists of a nonsurgical phase, surgical therapy an interdisciplinary therapy and a lifelong supportive periodontal therapy.

The host response of the patient or the susceptible individual to pathogenic bacteria in the dental plaque plays a vital role in the pathogenesis and expression of the disease, and this host response is genetically determined and is an unmodifiable risk factor.6 However, since the expression of the disease in susceptible individuals is also influenced by microbial and environmental risk factors, the disease can be successfully kept under control by controlling these factors. Thus, keeping these factors in mind, the importance of optimal plaque control both by personally employed methods used by the patient himself and professionally employed plaque control measures by the dental team to the patient can be noted. Even a minimal amount of plaque is enough to elicit untoward host response in those patients susceptible to the disease, and a reduced resistance to the invasion of subgingival plaque can be compensated for by a correspondingly strong emphasis on total plaque control.7

Nonsurgical therapy remains the first line of antimicrobial therapy in GAgP. Cases with mild to moderate periodontal destruction may be managed entirely by nonsurgical therapy with systemic antibiotics as an adjuvant to mechanical therapy.

Mechanical plaque control was successfully achieved by educating and motivating the patient to maintain good oral health by demonstration of brushing technique and use of interdental cleanings aids like interdental brush. Regular recall appointments to monitor the efficacy of the patient's plaque control measures were maintained and continued even after the orthodontic treatment was started.

Systemic antibiotics are indicated in aggressive periodontitis since the pathogenic bacteria like *Aggregatibacter actinomycetemcomitans* and *Porphyromonas gingivalis* have been found to be tissue invasive and mechanical therapy is insufficient to eliminate the bacteria from these sites.8,9 Hence, the scientific rationale of adding systemic antimicrobial agents theoretically is to reduce the residual bacteria after SRP. Although SRP proves beneficial in disrupting subgingival deposits and removes bacteria, recolonization of bacteria left after SRP is fast and recurrence of disease in inevitable; hence, adjunctive role of antibiotics would be beneficial.10

The combination antibiotic therapy used for the treatment in this case of GAgP is 250mg amoxicillin thrice daily along with metronidazole 250 mg thrice daily for 8 days. The selection of this combination of antibiotics is based on the ample evidence that shows, Amoxicillin-Metronidazole combination as an adjunctive treatment in GAgP at initial therapy significantly improves the results and hence should be preferred over other

antibiotic regimens as the first-line treatment.11,12 Also this combination plays an important role in treating anaerobe-related infection in the oral cavity and may significantly improve the short-term results of non-surgical therapy in patients with aggressive periodontitis diminishing the need for surgical therapy13,14 and has shown good results by presenting a synergic effect between the drugs.15,16

The results of the case report revealed that, the positive non-surgical therapy outcomes were seen to be consistent with no further deterioration in the periodontal status of the patient during the 14 months course of orthodontic treatment. After the initiation of orthodontic therapy, the periodontal status of the patient was evaluated every 3 months period and it was noted that, there were no further signs of deterioration in the periodontal status.1

CONCLUSION:

Even though the prevalence of aggressive periodontitis is much lower than chronic periodontitis, the management of aggressive periodontitis is more challenging compared to that of chronic periodontitis because of its strong genetic predisposition as an unmodifiable risk factor.

The key to successful management at present lies in early diagnosis of the disease and rigorous treatment employing the different treatment modalities mentioned in the paper along with systemic antibiotic therapy followed by meticulous lifelong maintenance therapy.

Thus, it can be concluded that, with the current treatment modalities, successful long-term maintenance of the dentition in a healthy and functional state can be achieved. A comprehensive periodontal treatment consisting of mechanical/ surgical and systemic antimicrobial therapy is found to be an appropriate treatment regimen for long-term stabilization of periodontal health with arrest of periodontal disease progression in 95% of the initially compromised lesions.17

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Figure 1: Pre-Operative

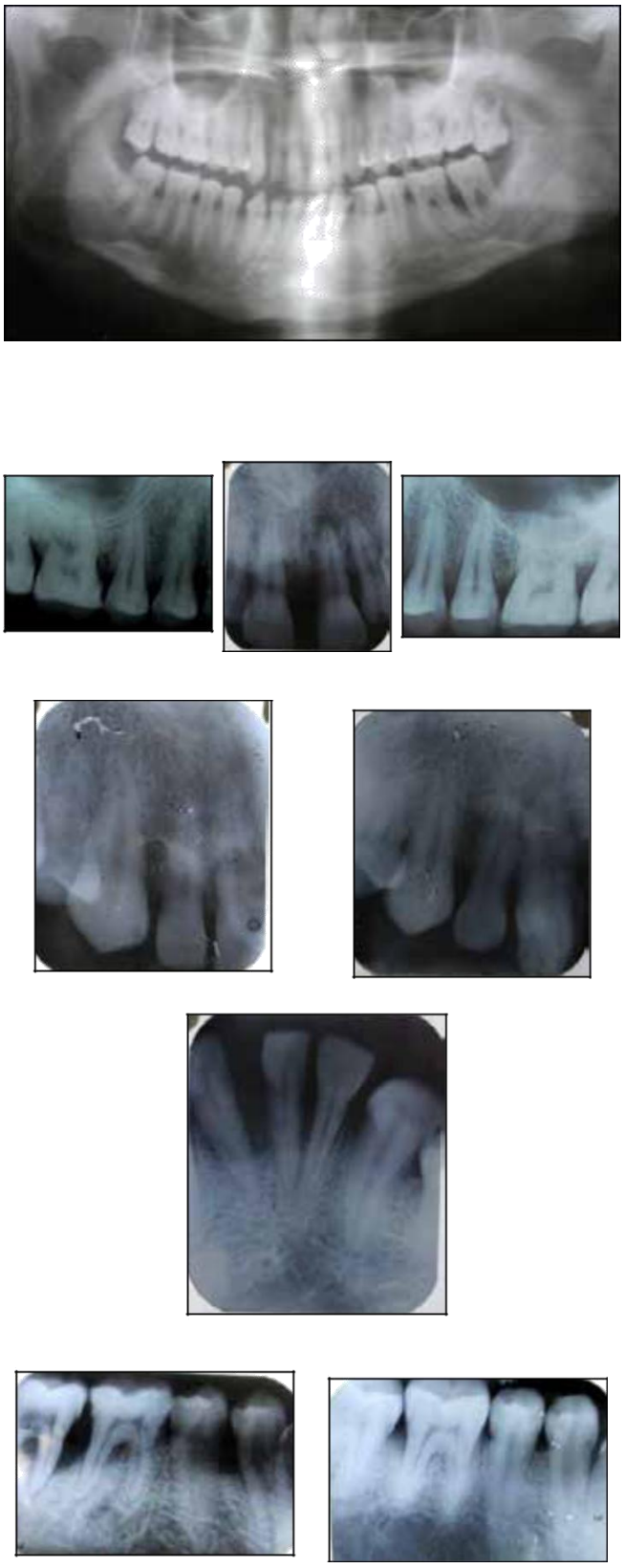

Figure 2: Orthopantomograph (OPG) and Intra Oral Peri apical Radiographs (IOPAs)

Figure 3: Post operative 3(a) After the completion of non-surgical periodontal treatment:

3 (b) 14 Months recall: