Non-Surgical Management of Aggressive Periodontitis: Report of Two Cases

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Abstract: The term 'aggressive' literally means 'ready or likely to attack'. As the name suggests, aggressive peridontitis is a severe form of periodontal disease with a rapid course of progression in younger individuals. It is more prevalent in younger age groups, especially in females. It requires a complex treatment approach and its stabilization often requires surgical management.

Here,we are presenting report of two cases of generalized aggressive periodontitis, successfully managed by only non-surgical periodontal treatment and long term follow up at frequent interval.

Keywords: Aggressive periodontitis, non- surgical periodontal treatment.

1. INTRODUCTION

Aggressive periodontitisis (AP) characterized by severe destruction of the supporting apparatus of the teeth, which may lead to edentulism early in life. The disease was traditionally considered to have an unfavourable prognosis, which often led to the use of radical treatments. Clinically, generalized aggressive periodontitis (GAP) is characterized by "generalized interproximal attachment loss affecting at least three permanent teeth other than the first molars and incisors" [1].

GAP is frequently associated with elevated proportions of Aggregatibacter actinomycetemcomitans and Porphyromonas gingivalis. The prevalence rates of aggressive periodontitis in epidemiologic studies are variable. The prevalence of localized aggressive periodontitis (LAP) is less than 1% and that of GAP is 0.13%. In Asia the prevalence rate is 1.2% for LAP and 0.6% for GAP [2].

There is no accepted treatment protocol for aggressive peridontitis [3]. Successful treatment of GAP is dependent on early diagnosis and elimination or suppression of the infecting microorganisms and providing an environment for long term maintenance.

Here, we report the successful management of two cases of generalized aggressive periodontitis with non-surgical periodontal therapy with the adjunctive use of systemic antibiotics.

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2. CASE REPORT 1

A 21 year old male, reported with the chief complaint of bleeding from gums while tooth-brushing since 6-7 months. He also complained of bad breath. He had never undergone any dental treatment in the past and his medical history too was non-contributory. The patient was a non-smoker and there was no history of use of any other forms of tobacco.

On extra oral examination, his face was asymmetrical since birth. Intra oral examination revealed that there was an Angle's class I occlusion and the left mandibular 1st molar was missing. The patient had a habit of unilateral chewing on the right side. On soft-tissue examination, the gingival tissue was bright red in color on left side and greyish pink on right side. (Figure **1**) Gingival margins were rolled out and interdental papillae were blunt. Consistency of gingiva was soft and edematous. Suppuration was also present in relation to left side of maxillary anterior teeth and mandibular left side in canine and 1st premolar. There was pathological migration of mandibular left 2nd

Figure 1: Intraoral examination showing bright red colored gingival with bleeding on probing.

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premolar with grade II mobility. Mandibular 2nd molar of left side also had grade II mobility.

On radiographic examination, severe bone loss with root resorption on left side of mandibular 2nd molar was found (Figure **2**). In maxillary anterior tooth there was vertical bone loss present. In mandibular anterior teeth horizontal bone loss was present. His complete blood cell count and blood sugar level were found normal on lab investigations.

Figure 2: On radiographic examination, severe bone loss with root resorption left mandibular 2nd molar.

Considering the patient's age, systemic health and severity of the disease, a diagnosis of generalised aggressive periodontitis was made. In the treatment, firstly the teeth with hopeless prognosis which were the mandibular 2nd premolar and 2nd molar were extracted. After that a thorough supragingival scaling was performed following which the patient was motivated for better plaque control and the patient was educated on the use of interdental cleansing aids including dental floss and interdental brushes. Chlorhexidine mouthwash (0.12%) was prescribed to further aid in plaque control. Systemic antibiotics (Amoxycillin 500mg and Metronidazole 400 mg of each thrice daily) were prescribed for 7 days, and the patient was recalled after 2 weeks for evaluation of the response to treatment.

Healing was uneventful, and a postoperative evaluation 8 weeks after the treatment showed absence of bleeding on probing and probing depths within normal limits (Figure **3**). The patient was put on regular recall appointments for evaluation of the gingival and periodontal status and maintenance therapy along with host modulation therapy in the form of sub-antimicrobial dose of doxycycline (SDD) with doxycycline 20mg twice daily for 3 months.

3. CASE REPORT 2

A 19-year-old female patient presented with the chief complaint of generalized swollen gums since 6 months. There was no history of any other previous dental treatment. She was systemically healthy, and medical history did not reveal any relevant findings. Family history revealed that the patient's mother had similar complaints of mobility and swelling in gums and early exfoliation of all teeth by the age of 40.

On extra oral examination, no abnormality was detected. Intraoral examination revealed that all teeth were present. The oral hygiene status of the patient was fair with moderate deposits of calculus and plaque. Colour of the gingiva was reddish pink and generalized suppuration was present. There was grade II gingival enlargement in maxillary and mandibular anterior region. Generalized bleeding on probing and recession in relation to most of the teeth (especially more in maxillary central incisors and mandibular anterior teeth) was present. (Figure **4**) Grade II mobility was seen in relation to mandibular anterior tooth. Proximal contacts were lost between maxillary anterior teeth. A full mouth periodontal examination revealed generalized deep periodontal pockets and severe generalized clinical attachment loss.

Figure 3: Post-operative view with absence of bleeding on probing and healthy periodontium.

Figure 4: Grade II gingival enlargement in maxillary and mandibular anterior region.

Figure 5: Generalized severe bone loss present on OPG.

Ortho-pentomogram (OPG) revealed a bone loss which was generalized in distribution and more severe in the maxillary and Mandibular incisor and cuspid regions with the molars and bicuspids affected to a lesser severity (Figure **5**). Routine blood investigations were within normal ranges.

According to the history, clinical examination and based on the established criteria (American Academy of Periodontology, 1999), a diagnosis of generalized aggressive periodontitis was made.

In the treatment, supragingival scaling was done and patient was educated on oral hygiene maintenance and also advised to use interdental brushesfor optimal plaque control. The patient was prescribed chlorhexidine mouthwash (0.12%) twice daily for 2 weeks. Systemic antibiotics were prescribed (amoxicillin 250mg thrice and metronidazole 250mg twice daily for 8 days) along with a desensitizing agent. Also, subgingival scaling and root planing was performed. At 8 weeks follow-up, significant reduction in pocket depths was evident along with complete absence of bleeding on probing and exudation. The patient was put on a regular maintenance. Regular recall appointments were given for periodic maintenance along with host modulation therapy for 3 months which the treatment results were well-maintained. However, a slight increase in recession was noted due to the shrinkage of gingiva on healing and hypersensitivity after the treatment which gradually subsided on regular use of desensitizing agents and fluoride mouth rinses (Figure **6**).

Figure 6: Post-operative view showing periodontal health.

4. DISCUSSION

Successful treatment of GAP depends on its early diagnosis. Such early diagnosis helps in prevention of disease progression as well as the possibility of advanced tissue destruction and alveolar bone loss. Nonsurgical therapy remains the first line of antimicrobial therapy in GAP. Early stages of the disease with mild to moderate periodontal and bone destruction may be managed entirely by nonsurgical therapy with systemic antibiotics as an adjuvant to mechanical therapy. Therapy should start with attempts at controlling or eliminating the etiologic agents and modifiable risk factors for the disease.

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 the microbial and environmental factors. This signifies the importance of optimal plaque control both by the patient as well as professional plaque control provided by the clinician. Minimal amount of plaque is enough to elicit untoward host response in 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 [4].

Chemical plaque control agents like chlorhexidine 0.12% or 0.2% mouthwashes, and 1% povidone iodine can be advised for further plaque control as an adjunct to the patient's mechanical plaque control measures [5]. Amine fluoride and stannous fluoride mouth rinses and tooth pastes as an adjunct to mechanical oral hygiene procedures in GAP patients were found to be effective in controlling supragingival plaque accumulations in aggressive periodontitis [6].

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 [7]. The adjunctive effect of the metronidazole– amoxicillin antibiotic combination, originally proposed by Van Winkelhoff *et al*. in 1989 [8]. The preferred combination antibiotic therapy at present for treatment of generalized aggressive periodontitis is 250mg of amoxicillin thrice daily along with metronidazole 250mg twice daily for 8 days [9]. It is one of the most evaluated drug combinations in generalized aggressive periodontitis, and there is so many evidence now to show that Amoxycillin- Metronidazole combination as an adjunctive treatment in generalized aggressive periodontitis at initial therapy significantly improves the results and hence should be preferred over other antibiotic regimens as the first-line treatment [10].

Host modulation therapy is a novel approach in the treatment of aggressive periodontitis. Sub-antimicrobial dose doxycycline (SDD) is used as an effective host modulation agent approved by FDA. It helps to prevent the destruction of the periodontal attachment by controlling the activation of matrix metalloproteinases, especially collagenase, from both the infiltrating cells and resident cells of the periodontium, primarily neutrophils [11]. SDD, used as an adjunct to mechanical therapy, helped us to achieve significant clinical improvement in the patients with generalized aggressive periodontitis.

Supportive periodontal therapy (SPT) is of paramount importance in the management of aggressive periodontitis. Regular maintenance visit was found to be effective in maintaining clinical and microbiological improvements attained after active periodontal therapy in early onset periodontitis [12]. The maintenance should be continued throughout the lifetime of the patient. The frequency of the recall visits will depend on the response of the patient to treatment and also depend on whether other risk factors (e.g smoking etc.) are present or not. Nonetheless, in the patients with generalized aggressive periodontitis, the recall generally will be more frequent than that in chronic periodontitis or in localized aggressive periodontitis.

CONCLUSION

By mean of analysis of two significant case report we can conclude that patient's medical and family history, careful clinical examination and proper radiographic analysis are key to reach early diagnosis and treatment for successful management of aggressive periodontitis (LAP/GAP). As reported in the paper, timely diagnosis and non-surgical treatment in the form of scaling and root planing and systemic antimicrobial therapy followed by meticulous lifelong maintenance therapy can aid in successful management of such cases. With such an approach successful long-term maintenance of the dentition in a healthy and functional condition can be possible.

KEY MESSAGES

Early diagnosis and non-surgical periodontal treatment is key for successful management of aggressive periodontitis.

REFERENCES

[1] American Academy of Periodontology. Parameter on aggressive periodontitis. J Periodontol 2000; 71: 867-869. http://dx.doi.org/10.1902/jop.2000.71.5-S.867

[2] Susin C, Haas AN and Albandar JM. Epidemiology and demographics of aggressive periodontitis. Periodontology 2000 2014; 65: 27-45. http://dx.doi.org/10.1111/prd.12019

[3] Buchmann R, Nunn ME, Van Dyke TE and Lange DE. Aggressive peridontitis; 5- years follow up of treatment. J periodontal 2002; 73: 675-683. http://dx.doi.org/10.1902/jop.2002.73.6.675

[4] Waerhaug J. Plaque control in the treatment of juvenile periodontitis. Journal of Clinical Periodontology 1977; 4: 29-40. http://dx.doi.org/10.1111/j.1600-051X.1977.tb01880.x

[5] Moran JM. Chemical plaque control—prevention for the masses. Periodontology 2000. 1997; 15: 109-117. http://dx.doi.org/10.1111/j.1600-0757.1997.tb00110.x

[6] Guarnelli ME, Zangari F, Manfrini R, Scapoli C and Trombelli L. Evaluation of additional amine fluoride/ stannous fluoride-containing mouthrinse during supportive therapy in patients with generalized aggressive periodontitis: a randomized, crossover, double-blind, controlled trial. Journal of Clinical Periodontology 2004; 31: 742-748. http://dx.doi.org/10.1111/j.1600-051X.2004.00552.x

[7] Carranza Jr FA, Saglie FR, Newman MG and Valentin PL. Scanning and transmission electron microscopic study of tissue-invading microorganisms in localized juvenile periodontitis. Journal of Periodontology 1983; 54: 598-617. http://dx.doi.org/10.1902/jop.1983.54.10.598

[8] vanWinkelhoff AJ, Rodenburg JP, Goene RJ, Abbas F, Winkel EG and de Graaff J. Metronidazole plus amoxycillin in thetreatment of Actinobacillusactinomycetemcomitans associated periodontitis. Journal of Clinical Periodontology 1989; 16: 128-131. http://dx.doi.org/10.1111/j.1600-051X.1989.tb01626.x

[9] Walker C and Karpinia K. Rationale for use of antibiotics in Periodontics. Journal of Periodontology 2002; 73: 1188-119. http://dx.doi.org/10.1902/jop.2002.73.10.1188

[10] Griffiths GS, Ayob R, Guerrero A, *et al*. Amoxicillin and metronidazole as an adjunctive treatment in generalized aggressive periodontitis at initial therapy or re-treatment: a randomized controlled clinical trial. Journal of Clinical Periodontology 2011; 38(1): 43-49. http://dx.doi.org/10.1111/j.1600-051X.2010.01632.x

[11] Caton J, Bleiden T and Ciancio S. Treatment with Subantimicrobial Dose Doxycycline improves the efficacy of Scaling and Root planing in Patients with Adult Periodontitis. J Periodontol 2000; 71: 521. http://dx.doi.org/10.1902/jop.2000.71.4.521

[12] Kamma JJ and Baehni PC. Five-year maintenance followup of early-onset periodontitis patients. Journal of Clinical Periodontology 2003; 30: 562-572. http://dx.doi.org/10.1034/j.1600-051X.2003.00289.x

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