



## A DIAGNOSIS AND TREATMENT ON GENERALIZED AGGRESSIVE PERIODONTITIS ATTENDING THE OUTPATIENT DEPARTMENT OF DENTISTRY IN VARUN ARJUN MEDICAL HOSPITAL BANTHRA, SHAHJAHANPUR (U.P) – A REVIEW

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**ABSTRACT** Aggressive periodontitis, as the name implies is a type of periodontitis where there is rapid destruction of periodontal ligament and alveolar bone which occurs in otherwise systemically healthy individuals generally of a younger age group but patients may be older. Aggressive periodontitis is a low-prevalence, multifactorial disease, of rapid progression and with no systemic compromise. It presents immunological alterations, a strong genetic influence, familial aggregation and early onset. It can be localized or generalized. It is not clear whether it is an independent periodontal disease, or if it is the phenotypic expression of chronic periodontitis in susceptible patients. Its diagnostic protocol includes a dental medical history, a clinical periodontal examination and a radiological examination. Treatment usually includes improving oral hygiene, dental scaling and root planing, as well as systemic and local antibiotic therapy. The aim of this paper is to review diagnostic and therapeutic protocols, and to propose a treatment flowchart based on the latest scientific evidence.

**KEYWORDS** :Diagnosis Therapy, Aggressive periodontitis, Generalized Aggressive periodontitis

### INTRODUCTION

Periodontitis is defined as "an inflammatory disease of the supporting tissues of the teeth caused by specific microorganisms or groups of specific microorganisms, resulting in progressive destruction of the periodontal ligament and alveolar bone with pocket formation, recession, or both.<sup>1</sup> Aggressive periodontitis was formerly known as juvenile periodontitis. Aggressive periodontitis (AgP) is a particularly severe form of rapidly destructive inflammatory periodontal disease characterized by loss of periodontal attachment and bone, leading to early tooth loss.<sup>2</sup> Aggressive periodontitis usually appears early in life, this shows etiological agents are capable of producing disease with in fairly short time. AP can appear at any age, its correct diagnosis require exclusion of systemic disease that can severely deteriorate host defenses and lead to premature loss of teeth.<sup>3</sup> The sites most commonly affected show insertion loss mostly in the area of first molars and incisors.<sup>4</sup> Aggressive periodontitis displays a strong genetic influence and shows familial and racial aggregation.<sup>5</sup> Periodontal inflammation increases the hydrostatic and hydrodynamic forces surrounding veins and tissues, resulting in dental displacement and malposition of teeth which can be seen as excursion or labial displacement of incisors leading to compromised esthetics of patient. Symptoms like tooth mobility, pathologic migration of central incisors, increased tooth sensitivity, pain during mastication, periodontal abscesses are commonly seen. These symptoms have physical, psychological and esthetical impact on the patients.<sup>5</sup> In past the prognosis of periodontal compromise teeth was considered very bad, so usually the treatment was more concentrated on tooth extraction. Currently mechanical therapies with or without surgery, controlling plaque and local or systemic antimicrobial agents implementation have improved the prognosis of periodontally compromised teeth.<sup>6</sup> The case report describes a case of aggressive periodontitis treated in a conservative manner by combining periodontal therapy and antimicrobial treatment in a 35 year old male/female patient to maintain dental integrity and to restore aesthetic and functional condition.

The following is the history of the terms coined by several authors.<sup>7</sup>

### RESULTS

**1. Definition.** Aggressive periodontitis is a type of periodontal disease with rapid insertion and alveolar bone loss, which is characterized by familial aggregation and affecting healthy individuals, except periodontitis.<sup>8</sup> It usually affects young people, but it can appear at any age, although this is less frequent.<sup>(6,9)</sup>

**2. Terminology and classification** In 1999, the American Academy of Periodontology (AAP) Workshop coined the term "aggressive periodontitis", and the disease was classified as "localized and generalized"<sup>(8,9)</sup>

### Clinical forms

**1 Localized aggressive periodontitis** It begins at peripubertal age. It is mainly located in the first molars/incisors, with interproximal attachment loss in at least two permanent teeth, one of which is a first

molar, and which affects no more than two other teeth, apart from the first molars and incisors. It can also present atypical patterns, such as affecting other teeth instead of those mentioned.

**2 Generalized aggressive periodontitis** It usually affects people under 30, but they may be older. There is an interproximal attachment loss which affects at least three permanent teeth additional to the first molars and incisors. Attached gingiva tissue loss is episodic.

### CLASSIFICATIONS OF JUVENILE PERIODONTITIS:

#### Glickman (1928):

- I : those periodontitis which occur in healthy individuals.
- II : periodontitis which occur in patients with other systemic syndromes.

#### Miller (1948):

- Class I : involves 1<sup>st</sup> molar and central incisor.
- Class II : involves class I and canine and 2<sup>nd</sup> premolar.
- Class III: combined.

#### Hormand and Frandstein (1979): (according to radiograph)

- Class I : bone destruction in relation to 1<sup>st</sup> molar and central incisors.
- Class II : Class I and few other teeth (less than 14)
- Class III: Generalized bone destruction.

#### Lindhe (1983):

- Class I : Localized juvenile periodontitis
- Class II: Generalized juvenile periodontitis.

#### World workshop (1989):

Early onset periodontitis.

- prepubertal
- pubertal - Localized J.P.
- Generalized J.P.

#### Nair (1990):

- Type I – involves 1<sup>st</sup> molar and central incisors
- Type II – involves 1<sup>st</sup> molar, central incisors and few other teeth (less than 14)
- Type III – generalized but is worse around 1<sup>st</sup> molar and central incisors
- Type IV – Generalized destruction.

#### World Workshop (1999):

- Aggressive periodontitis \* Localized
- Generalized.

### RADIOGRAPHIC FINDINGS

Vertical loss of alveolar bone around the first molars and incisors in otherwise healthy teenagers is a diagnostic sign of classic juvenile periodontitis Radiographic findings include an "arc-shaped loss of alveolar bone extending from the distal surface of the second premolar to the mesial surface of the second molar". (Miller SC, 1948)

There is evidence that the bone loss is not the result of any development

or congenital absence or defect. Alveolar bone in patients in this age group develops normally with tooth eruption, and only subsequently does it undergo resorptive changes. Loss of alveolar bone tends to become generalized as the disease progresses but remains less pronounced in the premolar areas. Alveolar bone loss is often bilaterally symmetrical; however, this is not universal.

#### MICROBIOLOGICAL FINDINGS:

Studies of the microbial flora in GJP is limited to a small number of case reports. In general, these reports (Tanner et al, 1979, Slots 1982; Wilson et al, 1985) show *Bacterioides gingivalis* and *A.A* as prominent organisms. This is consistent with the finding of *A. actinomycetemcomitans* in some cases of GJP, since GJP is likely to result from rapidly advancing bone loss in juveniles, and *A.A* appears to be associated with rapid bone loss.

Much more work is needed, however to determine which microorganisms are responsible for periodontitis in adolescents and young adults including the 'rapidly aggressive periodontitis', (Crawford et al, 1975), Lavine et al (1979), Smith et al (1980), Page and Schroeder (1982) and Loe (1987). Microbiological studies may lead to subdivision of the non LJP types of juvenile periodontitis into several distinct entities, each associated with different periodontopathogen. *P. gingivalis*, *T. denticola* and *P. intermedia* in descending order of importance, were significantly associated with the generalized form of J.P. (Abbandar et al, 1997).

#### DIAGNOSIS ON AGGRESSIVE PERIODONTITIS PATIENT

A 48 year old female patient was reported to Department of dentistry, Varun Arjun Medical Hospital Banthra, shahjahanpur come with complaint of loosening of teeth in her upper/lower right back teeth region since 1 year. Her medical history appeared non-contributory and she has no history of taking any medication referred no allergies and had no history of episodic illness or orofacial trauma. There is no history of tobacco chewing or cigarette smoking or any other deleterious habit associated.

**CLINICAL ORAL EXAMINATION** revealed a full permanent dentition, with only missing maxillary left 2<sup>nd</sup> and 3<sup>rd</sup> molar and right mandibular 2<sup>nd</sup> molar, heavy plaques and calculus ((Grade ++)) accumulation, severe gingival inflammation gingival recession in maxillary right 2nd molar, attrition in maxillary and mandibular anteriors from right side canine to left side canine, furcation involvement in maxillary right second molar (Based on Glickman classification). There was bleeding on probing in mandibular and maxillary anteriors. Periodontal pockets measured between 5-7 mm for all posterior teeth in maxillary and mandibular arch. Halitosis present, one degree mobility was seen in maxillary right first and second premolar and maxillary left second premolar and first molar and mandibular right first molar and left third molar, second degree mobility was seen in maxillary right first and second molar and mandibular right third molar (based on Modified Miller Index of tooth mobility). There was no evidence of caries. The panoramic X-ray revealed severe generalized horizontal bone resorption (Fig. 3). The patient was referred for a complete medical evaluation to rule out any underlying systemic disease. Her complete blood count was within normal limits, including blood sugar (random) and creatinine levels, coagulation factors, alkaline phosphatase levels. Neutrophils and Lymphocytes were slightly elevated while there was marked rise in basophil was seen. Based on clinical examination history taken and radiological examination final diagnosis was made as chronic generalized aggressive periodontitis. Due to severe bone loss, following teeth were extracted: 16, 17, 18 and 48. All the extractions were done under local anesthesia with 1:80,000 adrenaline. For the remaining teeth, scaling, root planning and surgical intervention was planned.

#### TREATMENT ON GEN. AGGRESSIVE PERIODONTITIS

Treatment consisted of through training in techniques of plaque control scaling and root planning and administration of tetracycline 250 mg every six hours for 3 weeks. The response to treatment was not good, and mobility could not be controlled. So were extracted. Following the completion of this phase of treatment, the patient was placed on recall, but he failed to reappear. He was not seen again until approximately 4 months later, at which time it was noted that he had ceased tooth brushing and disease was again active. Oral hygiene was poor and mobility was present. Hemorrhage had occurred from the granulation like tissue. Soft tissue specimen adjacent to the teeth sent

for histopathological examination with the provisional diagnosis of Aggressive periodontitis. Microscopic description was Chronic, extensive inflammatory condition with numerous plasma cells, covered by nonkeratinizing squamos, hyperplastic, and pseudoepithelial hyperplasia. Flap curettage was done around all remaining teeth. 250 mg tetracycline 4 times daily for 2 weeks administered again. Chlorhexidene therapy (0.5 OZ rinse twice a day) was also given. Patient was recalled after 4 weeks, 3 months and 4 months for review and follow-up. In every visit pocket depth was measured using periodontal probe. Biofilm, plaque was removed and oral hygiene instructions were reinforced each time patients were seen. Her last follow-up orthopantomogram revealed good periodontal health with no bone loss. Last follow-up clinical examination also showed reduction in pocket depth from 5-7 mm to 2-3 mm. Patient overall periodontal health was satisfactory with no halitosis. For her regular follow-up was planned in every three months.



FIG 1: PREOPERATIVE FRONT VIEW OF PATIENT



FIG 2 RIGHT SIDE VIEW



FIG 3 LEFT SIDE VIEW



FIG 4 PREOPERATIVE VIEW (OPG)

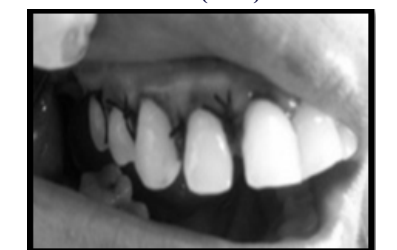


FIG 5 FLAP SURGERY AND SUTURING



**FIG 6 POSTOPERATIVE VIEW OPG**

### DISCUSSION:

This review paper describes the treatment approach to Aggressive periodontitis to help the patient in betterment of her oral condition. The most debilitating feature of the patient was mobility of her teeth due to bone loss. In this patient no bone loss was seen in follow up visits after completion of treatment. The primary feature of aggressive periodontitis include history of rapid attachment and bone loss with familial aggregation.<sup>10</sup> Aggressive periodontitis can exist in two forms - Either localized or generalized. It is very important to diagnosis and differentiates between localized and generalized form of aggressive periodontitis. Localized periodontitis patients usually have interproximal attachment loss on either on atleast two permanent first molars and incisors, with attachment loss on no more than two teeth other than first molars and incisors. Generalized aggressive periodontitis patients exhibit generalized interproximal attachment loss including at least three that are not first molars and incisors.<sup>11</sup> Aggressive periodontitis is seen mostly in circumpubertal age. Successful treatment of aggressive periodontitis depends on early diagnosis, directing therapy against the infecting microorganisms and providing an environment for healing that is free of infection.<sup>12</sup> Chronic periodontitis is mostly seen in children and youth. Extent of destruction is related to the presence of local factors such as plaque, biofilm and microorganisms. Its progression is usually slow or moderate but its rate of progression can be modified by systemic conditions such as diabetes, smoking and stress.<sup>13</sup> Treatment of Aggressive periodontitis include combination of surgical or non-surgical root debridement in conjunction with antimicrobial (antibiotic) therapy. Generalized aggressive periodontitis does not always respond well to conventional mechanical therapy or to antibiotics commonly used to treat periodontitis.

### CONCLUSION:

Aggressive periodontitis are rare pathologies, mainly found in patients of African ethnicity or African descent. Early onset, family aggregation and rapid progression are usually their main characteristics. Consensus have been established on the forms of the disease: localized and generalized. Immunological, genetic and microbiological factors are strongly associated, and seem to determine the two presentation forms. The concept of exclusivity of the periodontal pathogen *Aggregatibacter actinomycetemcomitans* in aggressive periodontitis has been partially depreciated. Controversies have also arisen about the classification of aggressive periodontitis as a clinical entity independent from chronic periodontitis, because they share a common genetic basis, which would explain the phenotypic expression of the same disease. The diagnostic and therapeutic protocol does not differ much from that of other periodontal diseases; however special attention should be paid to family history, systemic condition, early diagnosis, specialized management by a periodontist, plaque control and frequent monitoring of periodontal pockets.

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