

Aggressive Periodontitis: Experience in a Nigerian Teaching Hospital

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ABSTRACT

Objective: Aggressive periodontitis is a disease entity that can be classified as Stages III & IV and Grade C chronic periodontitis based on the 2017 classification of the American Association of Periodontology for periodontal diseases. It is a class of chronic periodontal disease that features clinically severe periodontal tissue destruction. The diagnosis of aggressive periodontitis in this environment is delayed because of some influencing factors such as lack of dental awareness, patients' poor attitude towards this disease entity and their low socio-economic status. The objective of this case series is to highlight the factors that influence the time of presentation and severity of periodontal tissue destruction of Stages III & IV and Grade C chronic periodontitis (aggressive periodontitis) in this environment.

Cases Description: We present the summary of the history, clinical features and radiological findings of four (4) cases of early and delayed presentation of aggressive periodontitis patients aged 19-27 years and factors that influenced their time of presentation. Severe periodontal tissue destruction was a common feature in these four cases with eventual tooth/teeth loss in delayed presenters. They were all treated using standard periodontal debridement with normal saline and 0.2% chlorhexidine gluconate, scaling, root planing and systemic antibiotics therapy. The patients provided informed consents, ethical approval was obtained from the institutional ethical committee and the study was conducted in accordance with the Helsinki declaration of 1975 as revised in 2000.

Results: The factors that influenced the time of presentation included dental awareness through dental education, missing and mobile teeth, fear of further loss of teeth in the future, replacement of missing teeth, social marginalization, believe in some traditional 'taboos' and socio-economic status.

Conclusion: There is a need for aggressive dental education/enlightenment of the people in this environment especially on periodontal disease.

Clinical Significance: Dental awareness through dental education generally influenced time of presentation which prevents severe destruction of the periodontium.

Keywords: Stages III & IV, Grade C Chronic (Aggressive) Periodontitis, Experience

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INTRODUCTION

Periodontitis is reported to be the major cause of tooth loss in adults who may be at risk of edentulism and masticatory dysfunction, which will eventually affect their nutrition, quality of life and self-

confidence.¹ The 2017 periodontal disease classification,^{2,3} has defined periodontitis on the basis of staging and grading just like it is for cancer. The stages are I-IV, where I is initial periodontitis, II is moderate periodontitis, and III or IV is severe

periodontitis with potential for loss of dentition.^{2,3} The grades are based on evidence or risk of rapid progression and anticipated response to treatment.^{2,3} These include grade A: slow rate of progression, grade B: moderate rate of progression and grade C: rapid rate of progression.^{2,3}

The clinical diagnosis of aggressive periodontitis (AgP) is achieved using case history, clinical examination and radiograph evaluation⁴. This diagnostic approach measures past disease history and may not reliably measure current disease activity or accurately predict future tissue loss, which is often made years after the onset of the disease.⁴ The importance of timing in interception of a disease condition was shown in a study by Kaner et al.⁵ which reported that the administration of amoxicillin and metronidazole immediately after initial scaling and root planing (SRP) provided more periodontal pocket (PD) reduction and relative clinical attachment level (CAL) gain in initially deep sites than late administration at surgical periodontal therapy (SPT). Several demographic and clinical characteristics are reportedly⁶ associated with pre-hospital delay as a large proportion of patients continue to exhibit prolonged delay in seeking medical care after the onset of acute clinical symptoms and remain in need of targeted educational efforts to reduce extent of delay. Socio-economic factors alone are found not to be sufficient to explain the effect of race on breast

cancer stages but socio-economic variable in conjunction with cultural beliefs and attitudes could largely account for the observed effect.⁷

Cognitive and emotional responses are also found to affect patient's decisions to seek treatment.⁸ Patient appraisal of the seriousness of the symptom is related to delay, while severity, nature and knowledge of the symptoms are reported not to be related.⁸ Girardi et al.⁹ reported that it is an important public health goal to ensure timely access to care for persons with HIV and that unemployment was positively associated with delayed presentation and increasing age with late testing. Groome et al.¹⁰ reported that while oral cavity cancers can be detected early, many are still diagnosed with advanced disease. The authors¹⁰ assessed risk factors for advanced stage disease in a population-based study and they found social marginalization as one of the risk factors for late stage diagnosis of tongue and floor of the mouth cancer and co-morbid illnesses. This study aimed to describe their periodontal clinical condition and timing of presentation, adherence to recall maintenance therapy, treatment outcome and review of treatment modalities.

CASE DESCRIPTIONS

CASE 1

A 19-year-old female undergraduate student who presented with mobile teeth of 1 month duration. No



tooth had been lost but there was gingival inflammation, gingival recession and protrusion of 11, 12, 21, 22. The degree of mobility of 11, 12, 21, 22, 31, 32, 41, 42 were Miller grade II while tooth 46 was grade I. Radiographs showed marked alveolar bone radiolucency around 11, 12, 21, 22, 31, 32, 41, 42 and distal to 46.

She was classified as an early presenter because she presented within a month of her symptom and she has not lost any tooth. Her parents were small

business owners; thus, she was classified as belonging to the lower middle class. She came for routine dental consultation following dental awareness through dental education although she was not aware of the severity of her underlying dental problem because she hasn't lost any tooth at presentation.

She adhered strictly to the recall visit and maintenance therapy for 6 months, leading to the preservation of the dentition

CASE 2



A 22-year-old male road side mechanic who presented with missing and 10 months history of mobile teeth, requesting for the replacement of the lost teeth which dropped off. He also feared that he will probably lose the remaining mobile teeth over a period of time which added to his reason for presentation since he never had any dental education or knowledge before this time of presentation.

Clinical examination showed missing 32, 41 and pathologically migrated 32. Almost all the teeth

present were mobile while 11 and 21 were supra-erupted. Radiographs showed gross alveolar bone loss of some of the teeth present.

This patient was classified as a delayed presenter because he had lost a few teeth pre-treatment, and he has a currently mobile teeth of at least 10 months duration. He was classified into the working-class category as he is a roadside mechanic.

He presented regularly for recall and maintenance visits for six-months with no further loss of dentition.

CASE 3



A 27-year-old female trader with quite a number of missing and pathologically migrated teeth of over 14 months duration. All the teeth present were mobile and Miller degree of mobility ranged between I and III.

Radiographs showed severe alveolar bone loss around the teeth present including the molar teeth and perio-endo lesions of some of the teeth.

This patient is a delayed presenter because she had lost several teeth, and has been nursing the current

symptoms for over 1 year. She also appeared to have been socially marginalized, with an obvious lack of knowledge of possible solution to the problem, believe in some traditional 'taboos. She was classified into the working-class social strata.

She required endodontic treatment (root canal therapy) after which the recall visits and maintenance was carried out for 6 months.

CASE 4





Case 4 is a 24-year-old female petty trader with most of the teeth mobile, pathologically migrated, periodontal abscesses in relation to some of the teeth and some missing teeth of 8 months duration. She had no known underlying systemic illness.

Radiographs showed severe alveolar bone loss around the teeth present and perio-endo lesions on some of the teeth.

This patient is a delayed presenter because she has several missing teeth and she waited almost 8 months before presenting in the dental centre. She belongs to the working class, and perhaps presented late because of some traditional 'taboos' and her low socioeconomic status.

TREATMENT PROTOCOLS

At the first appointment, the aim and details of the study were explained to the patients and informed consents were obtained from them before recruitment to be a part of this case series. The exclusion criteria were no underlying systemic condition and not on any routine medication in the last six months and the inclusion criteria were at least six mobile teeth and alveolar bone destruction.

All the four subjects in this study were given initial periodontal therapy of scaling, root planing (SRP) and debridement with normal saline and 0.2% Chlorhexidine gluconate in conjunction with systemic administration of antibiotics (Caps Amoxicillin 500mg 3x daily and Tabs Metronidazole 400mg 3x daily both for one week).

Surgical periodontal therapy was done on the teeth that were indicated for it and all the patients were placed on recall maintenance therapy of one week, one month, three months and six months.

RESULTS

At the recall appointments, the probing pocket depths and degree of teeth mobility in the four

patients were observed to reduce progressively at each recall maintenance appointments which was even more appreciably seen at the six months review visit. This combination of intensive periodontal treatment and antibiotic regimen reduced the progression of periodontal disease and prevented further tooth loss. The endodontically restored teeth were retained and the acrylic dentures that were delivered were well tolerated by the subjects which improved their psychological disposition.

DISCUSSION

Non-Surgical root debridement in conjunction with systemic administration of antibiotics may successfully improve and maintain periodontal health in the mixed dentition.¹¹ Mechanical periodontal treatment with adjunctive tetracycline usage is reported to give a favorable response in aggressive periodontitis.¹² In spite of the differences between aggressive periodontitis and chronic periodontitis, the treatment modalities of both conditions are found to be similar.¹³ It is however suggested that while using systemic antibiotics as adjunctive therapy, it should be administered with or just after mechanical debridement.¹³ Both Simplified Papilla Preservation Flap (SPPF) with or without Guided Tissue Regeneration (GTR) were also reported to be effective in the treatment of intrabony defects in aggressive periodontitis.¹⁴ Adjunctive administration of antibiotics immediately following mechanical periodontal therapy resulted in better prognosis in the overall periodontal clinical parameters and lowered levels of GCF (Gingival Crevicular Fluid) inflammatory mediators in the early course of treatment when compared with delayed administration.¹⁵ Baltacioglu et al¹⁶ reported that full-mouth scaling and root planning (FSRP) alone or FSRP combined with systemic antibiotics gave significant clinical prognosis which reduced the need

for periodontal surgery in the treatment of generalized AgP. Ahuja et al¹⁷ in their report could not conclude on the benefits of antibiotics as adjunctive treatment in the management of AgP. Both guided tissue regeneration (GTR) and access flap (AF) surgeries were found to be effective in the treatment of intrabony defects on AgP patients.¹⁸ Compliance with periodontal maintenance therapy for 40 years in an aggressive periodontitis patient treated with traditional periodontal therapies was reported to be successful.¹⁹ Anwar Sadat et al²⁰ reported that because of the unpredictable treatment response of AgP, the new hope for successful AgP treatment are tissue engineering, regenerative therapy and genetics technologies. It is reported that based on the successful healing response of AgP after nonsurgical periodontal therapy and adjunctive use of azithromycin (AZT), it is suggested that AZT may be active against bacteria in dental biofilms based on its adjunctive use with nonsurgical periodontal therapy successful treatment of AgP.²¹ The use of both doxycycline or metronidazole with amoxicillin is reported to significantly improve the clinical and immunological parameters in AgP but significantly lower for the doxycycline group.²² They suggested that the choice should be based on compliance, allergies & potential side effects.²² Periodontal care involved comprehensive treatment plan and proper therapy which otherwise will result in rapid disease progression with eventual tooth loss.²³ Comprehensive diagnosis, patient information, accurate periodontal treatment using referral, nonsurgical, surgical and antimicrobial/antibiotic therapies are suggested as the comprehensive treatment plan.²³ In comparing the relative effectiveness of non-surgical periodontal therapy in aggressive and chronic periodontitis, it is reported that periodontal pathologic pockets reduced more significantly in chronic periodontitis than aggressive periodontitis.²⁴

CONCLUSION

Dental awareness through dental education, social marginalization, mobile and missing teeth, lack of knowledge of possible solution to the dental problem, believe in some traditional 'taboos' and socio-economic status played a role in the timing of hospital presentation by these group of patients. From these clinical case series presentations, the early presenters had minimal periodontal tissue

destruction while the delayed presenters had severe periodontal tissue destructions.

There is a need for aggressive dental education/enlightenment of the peoples in this environment especially on periodontal disease and further study with a larger number of subjects is necessary for a more robust outcome.

CLINICAL SIGNIFICANCE

This study showed the importance of early hospital presentation and the need for aggressive dental education awareness in order to prevent pre-treatment periodontal destruction and enhancement of treatment response which improves prognosis both clinically and psychologically.

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