ABSTRACTS

Aggressive periodontitis generally affects systemically healthy individuals and can be universally distinguished from chronic periodontitis by the rapid rate of disease progression, the nature and composition of the associated subgingival micro flora, age of onset, alterations in the host’s immune response and a familial aggregation of diseased individuals. The disease is frequently associated with Aggregatibacter actinomycetemcomitans and neutrophil function abnormalities. The goals of periodontal therapy for treatment of this disease are to alter or eliminate the microbial etiology and contributing risk factors for periodontitis, thereby arresting the progression of disease and preserving the dentition in comfort, function, and appropriate esthetics and to prevent the recurrence of disease. 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.

KEY WORDS: Aggressive Periodontitis, Tetracycline-fiber Insertion, Treatment, Periodontal Flap Surgery.
the lost attachment apparatus. In addition, regeneration of the periodontal attachment apparatus, where indicated, may be attempted. Due to the complexity of the aggressive periodontal diseases with regard to systemic factors, immune defects, and the microbial flora, control of disease may not be possible in all instances. Investigations were within normal limits.

This case report demonstrates various measures for treatment of generalized aggressive periodontitis.

**CLINICAL PRESENTATION**

A 21-year-old female patient presented to the Department of Periodontology and Oral Implantology, Sri Guru Ram Das Institute of Dental Sciences and Research, Amritsar with the complaint of bleeding from gums while brushing and bad breath for last 8-9 months (Fig 1). Patient also complained of spacing in upper front teeth for past 6-7 months.

There was no history of dental treatment. Patient was systemically healthy and medical history did not reveal any relevant findings. Family history revealed that patients mother 45-year old had similar complaints of bleeding and migration of teeth. There were no abnormalities detected in extra-oral examination and full complement of teeth were present (Fig 2).

A full-mouth periodontal examination revealed deep generalized periodontal pockets of 5-7mm in 1st, 2nd and 4th quadrant. In 3rd quadrant pocket depth was 4.5-5mm. Intra-oral examination revealed normal color of gingiva. Gingival margins were rounded with mobility in relation to lower anterior teeth. Proximal contacts were lost due to pathologic migration of upper anterior teeth.

OPG (Fig 3) and IOPAs revealed periodontal bone loss predominantly first and fourth quadrant. Routine blood investigations were within normal limits.

**CASE MANAGEMENT**

Supra-gingival scaling was performed, and the patient was given oral hygiene instructions. Anti-plaque toothpaste alongwith Chlorhexidine mouthwash was given for 2-3 weeks. After 3 weeks there was reduction in inflammation but there was no improvement in bleeding while brushing with no significant reduction in probing pocket depth.

Sub-gingival scaling and root planing (curettage) alongwith irrigation was performed using povidine-iodine in 3rd quadrant. Patient was given oral hygiene instructions and was put on maintainence therapy. Evaluation after 3 weeks showed reduction in probing depth after four weeks.

In 2nd quadrant Local drug delivery of Tetracycline-fibre was performed in pockets with probing depth of 5-5.5 mm from sites 21 to 27. Evaluation after six weeks revealed complete absence of bleeding on probing and reduction in probing pocket depth which was significant. The patient was put on maintainence therapy with anti-microbial mouth rinses.

Flap-surgery was performed sextant wise in first and fourth quadrant at intervals of 2 weeks. To prevent shrinkage of
papilla in anterior region and due to esthetic concerns Papilla-preservation flap was performed in relation to 11 and 12. Post-operatively there was highly significant reduction in probing pocket depths with improved gingival condition.

Patient was put on maintenance therapy for oral hygiene measures and was recalled after every 2 weeks for evaluation of gingival and periodontal conditions.

DISCUSSION

Clinical diagnosis is the primary method by which aggressive periodontitis is recognized but may be supplemented with microbiological and family segregation analysis. Ideally a genetic diagnostic test has so far been elusive and it may be that a halotype or group of polymorphisms may be what genetically predisposes to aggressive periodontitis. Because of the rare, yet potentially serious, consequences of early onset forms of periodontitis, early recognition and diagnosis is very important.

This case represents successful treatment and long-term management of a patient diagnosed with GAgP. The various treatment modalities used in this case have been based on the clinical parameters which had been evaluated (Probing pocket depth, attachment loss GI, PI).

**Phase I therapy** is the first step in periodontal therapy, and its goal is to significantly decrease or eliminate the microbial load, as well as factors that contribute to periodontal disease. These include, but are not limited to, supra- and subgingival instrumentation to remove calculus, treatment of food impaction areas, and restoration of caries lesions. It may or may not include periodontal surgery. Tanner A.C. et al selected patients with moderate to advanced progressing periodontal destruction and generalized gingival inflammation. Dark-field and cultural microbiological samples were taken from both shallow and deep levels within progressing periodontal pockets and inactive control sites in the same individual. Using cluster analysis and multiple linear regression, sites associated with recent bone loss were characterized by higher proportions of B. gingivalis, "fusiform" Bacteroides, and small spirochetes, than inactive sites. Inactive pockets contained similar species to progressive disease sites, but in lower proportions.

In this case sub-gingival scaling and root planing performed in the third quadrant resulted in significant improvement in pocket depth and attachment gain after four weeks. Bouziane et al looked at clinical and radiographic outcomes of patients with GAP who were treated with nonsurgical therapy at intervals of three months, six months and five years post-treatment. The authors concluded this therapy resulted in termination of disease progression, resolution of inflammation, decreased pocket depths and other favorable clinical outcomes.

Topical application of antimicrobial agents and local drug delivery is also a treatment option especially if there are localized areas of exudation and deep pockets not responding adequately to mechanical and systemic antibiotic therapy. Local drug delivery delivers the drugs at high concentrations at the site of infection when compared to systemic antibiotic therapy.

Adjunctive use of LDD agents like tetracycline fibers has been tried in aggressive periodontitis with superior clinical outcomes. The decision to use local anti-infective adjunctive therapy remains a matter of individual clinical judgment, the phase of treatment, and the patient's status and preferences. Use of TCF as an adjunct to scaling and root planing showed greater improvement in clinical results in this case (Fig 5, 6). Sakellari D et al evaluated the effects of tetracycline fibres (TCF) as an adjunct to scaling in the treatment of generalised aggressive periodontitis and to compare the effects with mechanical treatment only. Tetracycline fibres were applied in 5 pockets located in the same half mouth. Analysis of clinical findings showed that mechanical instrumentation in combination with TCF application led to a greater improvement in clinical parameters than scaling and root planing only. Microbial analysis showed a statistically significant greater reduction in the percentages of detection for B. forsythus, P. nigrescens and A. naeslundii geno-species II in pockets where tetracycline fibres were applied. The study suggested that the adjunctive use of TCF improves the clinical response of scaling and root planing in aggressive periodontitis patients.

J. Lindhe et al investigated to assess the effect of tetracycline, locally administered via hollow fiber devices, on the micro flora of periodontal pockets in humans and on various clinical parameters describing periodontitis. Five patients with advanced periodontal disease were used in the study. Each patient had at least four pairs of contra-lateral teeth where approximately located pockets could be probed to 6 mm or more. The experiments showed that it is possible by the use of tetracycline-filled hollow fiber devices to markedly change the composition of the subgingival flora of initially diseased periodontal sites. Locally delivered tetracycline proved effective in reducing or eliminating clinical symptoms of periodontal pathology.

Unsal et al have done studies on treating aggressive periodontitis using local antimicrobials. The studies concluded that the adjunct effect of local antimicrobial is not clear and do not seem to improve on the adjunct effect of systemic antibiotics. Therefore, it seems reasonable that the decision to use this type of treatment modality should be made on an individual basis rather than be evidence-based.

Surgical therapy essentially consists of open...
debridement either alone or as a combination with resective or regenerative procedures. The main aim of a ?ap procedure is to get access and visibility to root and furcation areas so that a thorough instrumentation and debridement can be performed.

In this case Flap-surgery was performed sextant wise in first and fourth quadrant at intervals of two weeks and it showed the paramount reduction in clinical parameters better than the other two treatment modalities (Fig 6,7). Dodson et al demonstrated the regenerative potential of a severe, localized osseous defect around a mandibular incisor in a healthy 19-yr-old black man diagnosed with localized aggressive periodontitis. Using open-flap debridement, root surface conditioning and allogenic bone-graft reconstituted with sterile saline and tetracycline fibres the probing depth reduced from 9 to 12 down to 1 to 3 mm.

Chrißtersson, Lindhe et al have done extensive research on access surgery alone or in combination with antibiotics in treating aggressive periodontitis and concluded that access surgery in combination with systemic antibiotics was effective than access surgery alone. Flap techniques like modi?ed Widman ?ap, modi?ed ?ap operation/Kirkland ?ap (sulcular incision ?ap) achieve this aim without eliminating the pockets. A resective ?ap procedure like un-displaced ?ap will eliminate the pockets as well but compromise the esthetics and function of the dentition by root exposure and resultant hypersensitivity and hence is not preferred usually when compared to modi?ed Widman ?ap or sulcular incision ?ap.

The maintenance therapy starts soon after the phase I therapy or nonsurgical therapy and should be continued throughout the lifetime of the patient. Or in other words, "maintenance therapy never ends" for a GAgP patient. In order to maintain the optimal results got by surgery and to prevent the recurrence of the disease, a lifelong maintenance therapy is mandatory because of the strong genetic susceptibility of the individual to the disease(Fig 8).

CONCLUSION

Aggressive periodontitis affects a small, but significant, percentage of the population. Because of the rapidly progressing and aggressive nature of the disease process these patients require early diagnosis and treatment in order to prevent further tissue damage and tooth loss.

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.

REFERENCES