Case report

A COMPREHENSIVE TREATMENT APPROACH FOR CHRONIC GENERALIZED PERIODONTITIS WITH PLAQUE-INDUCED GINGIVAL ENLARGEMENT- CASE REPORT

ABSTRACT:

Periodontitis is associated with microbial infection which activates host-derived inflammatory mediators resulting in attachment loss of periodontium. Dental plaque is said to be the culprit of this disease as its accumulation can cause microbial shifts and co-aggregations of different microbial species. This favours enhanced pathogenicity and virulence of organisms. Hence, the primary remedies adopted by periodontist is to target this plaque formation and possible control of etiological factors contributing to plaque establishment. This report describes about a case of chronic generalized periodontitis with plaque-induced gingival enlargement that was treated by a sequence of periodontal therapies and comprehensive management.

INTRODUCTION:

Periodontitis is the inflammation of the supporting structures of a tooth that has an underlying complex etiology.[1] The perplexity of the disease is due to contributing factors like genetic susceptibility, plaque deposition, teeth malalignment, iatrogenic factors and systemic factors like hormonal variations or chronic illness.[2] It is always challenging for a clinician to treat periodontitis as this demands proper assessment of risk factors, appropriate treatment planning and its execution and post-therapy maintenance care. [3]

Arresting the disease process and regeneration of the lost structures are the two prime pillars in treating periodontitis. Achieving complete debridement and total elimination of microbial reservoirs has always been a topic of controversy. Several treatment strategies including non-surgical and surgical therapies have been effective in halting the disease progression, however, factors like underlying medical conditions, tooth anomalies or poor patient compliance proves to be a hindrance.[4]

Regeneration has been a subject of curiosity for periodontist. It involves the histological concept of rebuilding the lost structures by biomaterials, growth factors or grafts. Awareness among patients regarding bone graft treatment modality is becoming popular due to its success rate and predictable results.[5,6] However, regeneration is a complex time-consuming procedure that does not always bear fruitful outcome.[7] This case report describes about a patient suffering from chronic generalized periodontitis and inflammatory gingival enlargement who was treated and followed up for three years.

Case report:

A 31-year-old, systemically healthy female with no history of dental treatment reported to the department of Periodontology of our institution with the chief complete of bleeding gums for three months. The bleeding was intermittent that aggravated on brushing or while having food.

On extra-oral examination, no facial asymmetry, TMJ abnormities or palpable lymph nodes were noticed. On intra-oral examination, the gingiva was erythematous, rounded with blunt interdental papilla. Enlarged gingiva was observed in the lower anteriors. Several areas were edematous and purulent discharge oozing out from the gingival sulcus was detected. Generalized loss of stippling and generalized bleeding on probing were also witnessed depicting inflammation. Periodontal charting demonstrated generalized deep periodontal pockets with clinical attachment loss. Grade I mobility was observed in relation to tooth 36. Trauma from occlusion (TFO) with pathological migration was detected w.r.t teeth 13 and 23. **(Fig: 1)**

Both orthopantomogram (OPG) and IOPAR's were advised to the patient which revealed generalized bone loss. **(Fig: 2)** By the above clinical and radiographic evaluation, we diagnosed chronic generalized periodontitis with plaque-induced gingival enlargement with respect to 31, 32, 33, 34, 41, 42 and 43.

Prognosis:

The prognosis of a tooth depends on the age of the patient, smoking history, presence of etiological factors, remaining bone support, the extent of tooth mobility and furcation involvement, accessibility, degree of patient cooperation and the presence of environmental or systemic factors. Based on the above aspects, we concluded that the patient had an overall fair prognosis.

Treatment:

Prior to the therapy, the patient was educated about her periodontal status and the need for periodontal therapy. Also, written informed consent was obtained from the patient. We followed the widely accepted treatment plan protocol- trimeric model for the patient. Indices- Plaque index, Gingival index, Bleeding index, Probing pocket depth and Clinical Attachment Level were recorded. **(Fig: 3, 4, 5, 6)** Initially, phase-I therapy was intended that involved proper oral hygiene instructions and control of etiological factors by both manual and ultrasonic scaling. The patient was recalled for subsequent visits for root planing and curettage. The goal at this stage was to eliminate the infected pocket lining, through removal of subgingival calculus and necrotic tissues. TFO was relieved by occlusal reduction which was repeatedly checked with the help of articulating paper till the desired result was accomplished. Chlorhexidine mouthwash was prescribed for 14 days as a means of chemical plaque control.

Once satisfactory oral hygiene and reduced inflammation were observed, the patient was scheduled for surgery. In every two weeks, flap surgery under local anesthesia was planned for each quadrant. Kirkland flap design was planned for all the quadrants.

After flap reflection in the first quadrant, thorough debridement of the infected granulation tissue was accomplished along with saline irrigation. Horizontal defects were noted w.r.t 13, 14 and 15. Vertical defects were noted between 16, 17 (two-walled) and 17, 18 (one-walled). **(Fig: 7)**Hydroxyapatite bone graft was placed between 16 and 17 and the flaps were sutured. **(Fig: 8,9)** Periodontal pack was placed to protect the surgical site and for patient's comfort.

The same protocol was followed for the second quadrant. Since horizontal defects were noticed in this quadrant, regenerative therapy was not advocated. Only degranulation of infected tissue was achieved followed by flap closure. **(Fig: 10,11)**

In the third quadrant, a deep vertical one-walled defect was associated with the distal root of 36 **(Fig: 12)** and also shallow craters were observed w.r.t 34. A collagen sponge was placed w.r.t 36 **(Fig: 13)** and the flaps were sutured with 3-0 silk. **(Fig: 14)**

Two weeks later, periodontal flap surgery was performed in the fourth quadrant. Following debridement, horizontal defects were noted w.r.t 42, 43, 44, 45, 46, 47 and 48. The defects were non-containable and therefore the flaps were repositioned and sutured. **(Fig: 15,16)**

Post-operative instructions and medications (antibiotics and analgesics) were prescribed to the patients after every surgery. She was recalled after every one-week of surgery for suture removal and to check the surgical site

The patient was kept under supportive periodontal care for three years. As per Merin's classification, the patient was recalled once in every 1-2 months in the first year and after every 3-4 months in the succeeding years. Removal of soft deposits and calculus and reinforcement of oral hygiene was carried out during these visits. Also, indices were taken to evaluate the improvement in oral hygiene.

There was an improvement in all the clinical parameters -plaque index, gingival index and bleeding index. Also reduction in probing pocket depth and a gain in clinical attachment level was seen. **(Fig: 17, 18, 19, 20)** The radiographical analysis also showed improvement after the therapy

Discussion:

The most common cause of tooth loss in the adult population is periodontitis, which can be prevented by treating the condition in the initial stages.[8] Patient selection, risk assessment, tooth anatomy, treatment plan and supportive periodontal therapy should be highlighted during periodontal treatments.[9] For successful therapeutic results, both inflammatory and occlusal factors need to be considered.[10] With the advent of material science in regeneration, favourable clinical improvements of periodontally compromised tooth have become more promising. The most common technique followed for bone regeneration is bone replacement grafts.[11] Techniques involved in this field is ever-changing and efforts are being made to get a more predictable outcome for this globally prevalent disease.

Lack of patient compliance during the maintenance phase can result in disease recurrence.[12] Recent evidence identifies the role of patient education, motivation and supportive treatment in the success of periodontal therapy. It has been strongly proposed that the disease relapse befalls patients who drop out during the periodontal procedure and those who do not adhere to the protocols by clinicians.[13,14] Therefore, maintenance at the personal and professional levels contributes to decreased incidence of tooth loss.[15] This report presents the clinical and radio graphical outcome of periodontal therapies performed in a chronic periodontitis case with moderate to severe clinical attachment loss and bone loss. We focused on the elimination of etiological factors, regeneration and comprehensive periodontal therapy to achieve stable oral health for the patient.

Conclusion:

The patient was diagnosed with chronic generalized periodontitis with plaque-induced gingival enlargement and underwent a complex periodontal therapy with a long-term maintenance program. With appropriate initial periodontal treatment and ongoing maintenance care, the periodontal and oral hygiene status can be maintained.

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LEGENDS OF FIGURES:

1. FIGURE 1: CHRONIC GENERALIZED PERIODONTITIS WITH PLAQUE-INDUCED GINGIVAL ENLARGEMENT
2. FIGURE 2: OPG
3. FIGURE 3: PRE-OPERATIVE PROBING POCKET DEPTH IN 1ST QUADRANT
4. FIGURE 4: PRE-OPERATIVE PROBING POCKET DEPTH IN 2ND QUADRANT
5. FIGURE 5: PRE-OPERATIVE PROBING POCKET DEPTH IN 3RD QUADRANT
6. FIGURE 6: PRE-OPERATIVE PROBING POCKET DEPTH IN 4TH QUADRANT
7. FIGURE 7: VERTICAL DEFECT IN FIRST QUADRANT
8. FIGURE 8: BONE GRAFT PLACED
9. FIGURE 9: SUTURE PLACED IN FIRST QUADRANT
10. FIGURE 10: HORIZONTAL DEFECTS IN SECOND QUADRANT
11. FIGURE 11: SUTURE PLACED IN SECOND QUADRANT
12. FIGURE 12: VERTICAL DEFECT IN THIRD QUADRANT
13. FIGURE 13: COLLAGEN SPONGE PLACED
14. FIGURE 9: SUTURE PLACED IN THIRD QUADRANT
15. FIGURE 15: HORIZONTAL DEFECTS IN FOURTH QUADRANT
16. FIGURE 11: SUTURE PLACED IN FOURTH QUADRANT
17. FIGURE 17: POST-OPERATIVE PROBING POCKET DEPTH IN 1ST QUADRANT
18. FIGURE 18: POST-OPERATIVE PROBING POCKET DEPTH IN 2ND QUADRANT
19. FIGURE 19: POST-OPERATIVE PROBING POCKET DEPTH IN 3RD QUADRANT
20. FIGURE 20: POST-OPERATIVE PROBING POCKET DEPTH IN 4TH QUADRANT

Fig.1

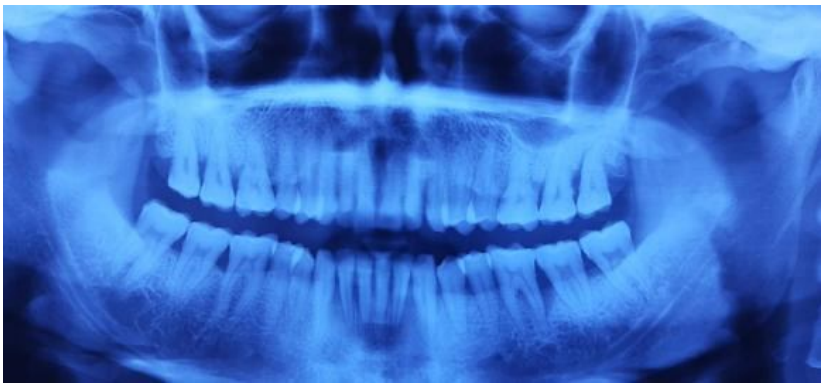

Fig.2

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Fig.15

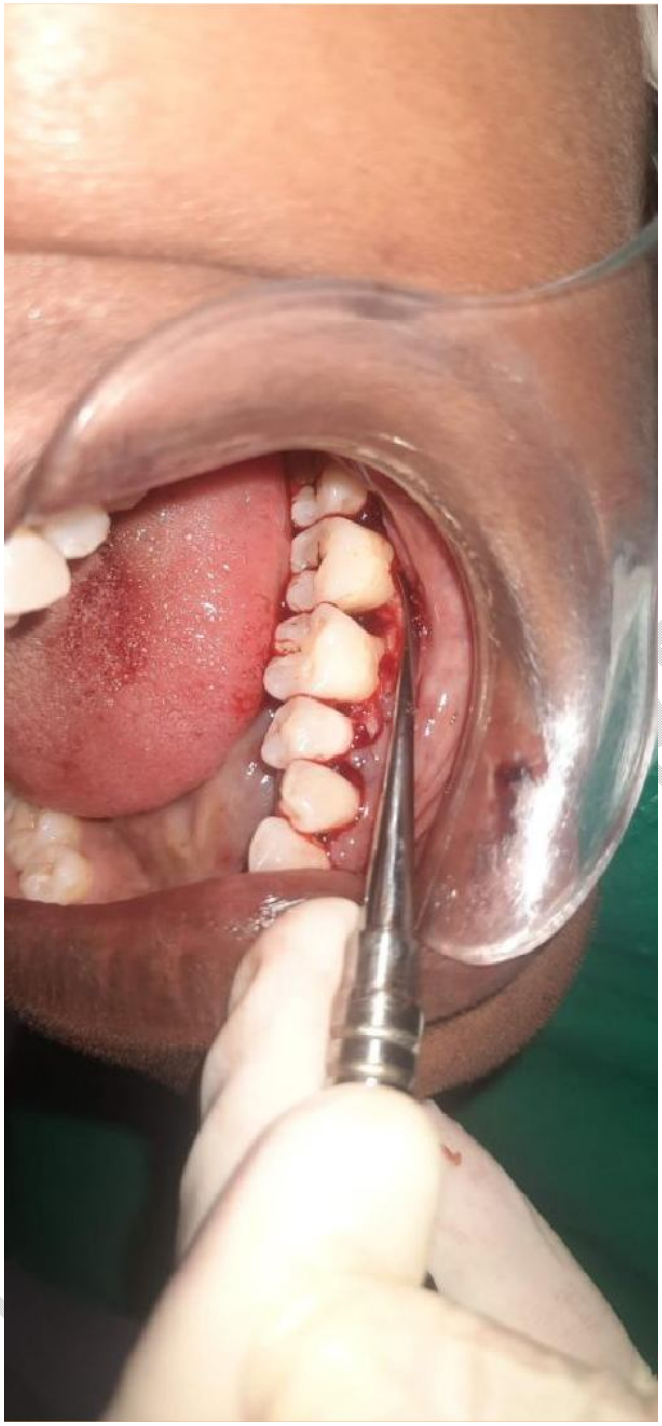

Fig.16

Fig.17

Fig.18

Fig.19

Fig.20