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Beyond Ideal Treatment: Individualized Periodontal Management for Tooth Retention in Advanced Periodontitis:- A Report of Two Cases

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ABSTRACT

Periodontal treatment in advanced disease requires balancing clinical objectives with patient preferences, particularly when patients decline extraction of severely compromised teeth. This report describes individualized, patient-centred periodontal management in two female patients in their mid-30s presenting with gingival bleeding and difficulty in mastication for 5–6 months. Clinical examination revealed halitosis, periodontal probing depths of 7–8 mm, tooth mobility, and approximately 50–70% horizontal alveolar bone loss. Both patients expressed a strong preference for retaining their natural dentition. Accordingly, mobile mandibular anterior teeth were splinted, followed by quadrant-wise periodontal surgery and scheduled supportive periodontal follow-up at 1, 3, 6, and 12 months. At one year, both patients demonstrated resolution of presenting symptoms, reduction in probing depths to ≤4 mm, improved masticatory comfort, and better patient-reported quality of life. These cases highlight the potential benefits of individualized periodontal care emphasizing tooth retention and patient participation in treatment decisions.

Keyword: Alveolar bone loss**,** Chronic periodontitis**,** Periodontal attachment loss**,** Periodontal pocket**,** Tooth mobility

INTRODUCTION

Periodontitis is a chronic, multifactorial biofilm associated inflammatory disease characterised by progressive destruction of the tooth supporting structures, including the periodontal ligament and alveolar bone. The disease manifests clinically through periodontal pocket formation, clinical; attachment loss, gingival inflammation and in advances stages tooth mobility and eventually tooth loss. Apart from its biological perspective it may considerably affect oral function, appearance, psychological well-being and oral health related quality of life.[1,2]

Advanced periodontal disease, particularly Stage III and Stage IV periodontitis, is frequently associated with extensive attachment loss, deep periodontal pockets, substantial alveolar bone destruction, increased tooth mobility, and functional impairment. [2] In such situations, comprehensive treatment planning may involve periodontal surgery, occlusal rehabilitation, splinting, and, where necessary, extraction of teeth with an unfavourable or hopeless prognosis followed by prosthetic replacement. However, the decision to retain or extract a periodontally compromised tooth should not depend exclusively on the extent of radiographic bone loss or a single clinical parameter. Instead, the overall prognosis must consider residual periodontal support, tooth mobility, furcation involvement, endodontic status, patient related risk factors, and the possibility of maintaining periodontal stability following treatment. [2,3]

Contemporary periodontal management increasingly emphasizes a patient-centred approach in which clinical decisions are made through shared decision-making between the clinician and the patient. The European Federation of Periodontology (EFP) clinical practice guidelines recommend individualized tailored treatment planning based on clinical findings, available evidence, patient preferences, and treatment-related considerations. [3]

The present report describes two female patients in their mid-30s presenting with advanced periodontal destruction, substantial horizontal alveolar bone loss, deep periodontal pockets, and mobile mandibular anterior teeth. Despite the compromised periodontal condition, both patients expressed a strong desire to retain their natural dentition. Accordingly, an individualized treatment approach incorporating stabilization of mobile teeth and quadrant-wise periodontal surgery was adopted.

The objective of this report is to highlight the clinical relevance of individualized, need-based periodontal treatment in patients with advanced periodontal disease, emphasizing tooth retention, functional improvement, and patient preferences as important considerations in treatment planning.

CASE PRESENTATION

Case 1

A female patient in her mid-30s reported to the outpatient department of Periodontics at Postgraduate institute of dental sciences, Rohtak with the chief complaints of bleeding gums and difficulty in chewing food for approximately 5–6 months. The patient was particularly concerned about the mobility of her lower anterior teeth and expressed a strong desire to preserve her natural dentition.

Patient was systemically healthy with not relevant medical history, Clinical examination revealed generalised gingival inflammation, halitosis, periodontal pocket formation, and increased tooth mobility. Periodontal probing demonstrated deep pockets measuring up to 7–8 mm. Mobility was particularly evident in the mandibular anterior region, which concerned the patient for her aesthetics. Radiographic examination demonstrated extensive horizontal alveolar bone loss, involving approximately 50–70% of the supporting bone height. These findings indicated advanced periodontal destruction with substantially compromised periodontal support.

The patient was informed about the severity of periodontal destruction, available treatment alternatives, and the potential limitations of retaining teeth with reduced periodontal support. Although extraction and subsequent prosthetic rehabilitation were discussed as possible treatment options for teeth considered non-maintainable, the patient expressed a clear preference for retaining her natural teeth wherever clinically feasible.

Considering the patient's preference and the potential for periodontal stabilization, a personalized treatment plan was formulated with the primary objectives of controlling periodontal inflammation, reducing probing pocket depths, stabilizing mobile teeth, and improving masticatory function.

Case 2

A second female patient, also in her mid-30s, presented to the Department of Periodontics with complaints of gingival bleeding and difficulty during mastication for approximately 5–6 months. There was non-contributory medical history. Clinical examination revealed halitosis, periodontal pocket formation, and mobility of the mandibular anterior teeth. Periodontal probing depths reached approximately 7–8 mm, indicating the presence of advanced periodontal pockets. Radiographic examination demonstrated generalized horizontal alveolar bone loss involving approximately 50–70% of the alveolar supporting structures.

The combination of substantial periodontal support loss, deep pockets, and tooth mobility suggested an advanced periodontal condition requiring comprehensive treatment. Similar to the first case, the patient expressed reluctance toward extraction of the mobile teeth and preferred a treatment approach directed toward preserving her natural dentition.

The treatment objectives included reduction of periodontal inflammation, stabilization of the mobile mandibular anterior teeth, reduction of residual periodontal pockets, and restoration of comfortable mastication.



Fig A- case 1: A1) preoperative clinical picture of case 1; A2) After scaling and root planning; A3)IOPA with respect to lower anterior; A4) Splinting with respect to lower anterior; A5) follow up after 12 months



Fig. B- Case 2: B1) preoperative clinical picture of case 2; B2) After scaling and root planning; B3) IOPA with respect to lower anterior; B4) Splinting with respect to lower anterior: B5) Follow up after 12 months

PERIODONTAL DIAGNOSIS AND TREATMENT PLANNING

Both patients demonstrated clinical and radiographic features consistent with stage III grade B periodontitis. The presence of probing pocket depths of 7–8 mm, extensive horizontal bone loss, tooth mobility, and masticatory difficulties indicated substantial periodontal destruction and increased complexity of treatment. [2]

Treatment strategy was designed to achieve periodontal stability and functional improvement without compromising the principles of periodontal infection control.

THERAPEUTIC INTERVENTION

Initial periodontal therapy

The initial phase of treatment included full mouth scaling and root planing for controlling periodontal inflammation and establishing conditions favourable for subsequent surgical intervention. Oral hygiene instructions and plaque-control measures formed essential components of the treatment protocol. Patients recalled after 1 week for subgingival root instrumentation. The patients were informed about the importance of maintaining adequate oral hygiene, attending regular follow-up appointments, and complying with supportive periodontal care. After 6 weeks the inflammation subsided considerably but there was persistent deep residual pockets that were positive on bleeding on probing. Both cases were scheduled for surgical intervention in the form of quadrant wise open flap debridement after 2 weeks of completion of phase I of the therapy.

Stabilization of mobile mandibular anterior teeth

In both cases, mobility of the mandibular anterior teeth represented a major functional concern. The reduced periodontal support contributed to instability during mastication and influenced the patients' perception of their dental condition. To address these concerns, the mobile mandibular anterior teeth were splinted as part of the individualized periodontal treatment strategy. Vitality of the teeth were also checked with electric pulp testing and cold test and the teeth were vital.

The primary purpose of splinting was to provide mechanical stabilization, improve functional comfort, and facilitate retention of the affected teeth during periodontal therapy. Wire-composite splint from #22-27 one week prior to the surgery. The patients were advised regarding appropriate cleaning around the splinted teeth and the importance of monitoring the splint for plaque accumulation, fracture, or debonding.

Surgical periodontal therapy

Quadrant-wise periodontal surgery in the form of open flap debridement was performed in both patients. The surgical intervention was intended to facilitate adequate access to diseased root surfaces, remove residual inflammatory deposits, and manage persistent periodontal pockets. A quadrant-wise approach permitted systematic treatment of the affected dentition while allowing postoperative healing and patient comfort. After administering local anaesthesia Kirkland flap is reflected in the posterior region and papilla preservation flap is reflected in the area where there is interdental space is more that 2mm. thorough debridement is performed using Gracey curette and irrigation was done using normal saline. Patients were provided with postoperative instructions and advised to maintain regular periodontal follow-ups.

Supportive periodontal care

Both patients were reviewed at 1, 3, 6, and 12 months following treatment. Oral hygiene measures were reinforced during follow-up visits, and the patients were encouraged to continue regular periodontal maintenance and scaling was performed whenever required. The importance of long-term supportive periodontal care was emphasized, particularly because extensive pre-existing alveolar bone loss could increase susceptibility to future periodontal breakdown.

CLINICAL OUTCOMES AND FOLLOW-UP

Both patients demonstrated favourable clinical responses following periodontal treatment.At the one-year follow-up, the presenting complaints of gingival bleeding and difficulty during mastication had substantially improved. The patients reported improved comfort during chewing and greater satisfaction with their ability to retain their natural teeth.

Periodontal probing demonstrated a reduction in pocket depths to ≤4 mm at the 12-month evaluation. Clinical improvement was also accompanied by resolution of the acute presenting symptoms and improved functional comfort. The mandibular anterior teeth were retained during the reported follow-up period, consistent with the patients' principal treatment preference.

The clinical findings at one year suggest that individualized periodontal management achieved meaningful improvements in periodontal health and function despite the advanced nature of the initial periodontal destruction. However, the observed improvements should be interpreted in the context of the limited sample size, the absence of a comparison group, and the relatively short follow-up period for assessing long-term tooth survival.

DISCUSSION

The management of advanced periodontitis is particularly challenging in patients presenting with extensive periodontal destruction, tooth mobility, and functional impairment. Although treatment planning is guided by disease severity and tooth prognosis, patient preferences and functional expectations are equally important in selecting an appropriate therapeutic approach.

The present two-case report highlights the importance of individualized, patient-centred periodontal therapy in young patients with severely compromised periodontal support who preferred retention of their natural dentition. Tonetti et al. [2] emphasized the importance of disease severity and complexity in periodontal treatment planning, while Sanz et al. [3] recommended a stepwise approach incorporating nonsurgical therapy, surgical intervention when indicated, and supportive periodontal care. Similarly, Herrera et al. [4] highlighted the need for individualized treatment strategies in Stage IV periodontitis to achieve periodontal stability and restore function.

In the present cases, despite extensive horizontal bone loss and tooth mobility, a tooth-preserving approach was adopted considering the patients' preferences. Mandibular anterior teeth were stabilized using fixed wire-composite splints extending from canine to canine (#22–27), followed by quadrant-wise periodontal surgery. Splinting was performed to improve functional stability and masticatory comfort; however, it served as an adjunct rather than a substitute for periodontal therapy.

At the 12-month follow-up, probing pocket depths decreased from approximately 7–8 mm to ≤4 mm, accompanied by improvement in presenting symptoms and masticatory comfort. These findings are consistent with the treatment objectives outlined by Sanz et al. [3], who identified pocket closure (≤4 mm without bleeding on probing) as an important endpoint of periodontal therapy. However, the observed reduction in probing depth should not be interpreted as periodontal regeneration.

Beyond clinical improvements, both patients reported enhanced chewing comfort and satisfaction with tooth retention. Shanbhag et al. [5] and Botelho et al. [6] reported improvements in oral health-related quality of life following periodontal treatment, while Del' Agnese et al. [7] highlighted the negative impact of periodontitis severity on patient well-being. These findings support the importance of considering patient-reported outcomes alongside conventional periodontal parameters. The present report suggests that tooth preservation may be a clinically acceptable option in carefully selected patients with advanced periodontal destruction. However, the small sample size, absence of a comparison group, limited quantitative outcome measures, and 12-month follow-up restrict the generalizability of these findings. Long-term supportive periodontal care remains essential for maintaining periodontal stability and tooth retention.

CONCLUSION

The present two-case report emphasizes the importance of individualized, patient-centred periodontal therapy in patients with advanced periodontitis. Despite extensive periodontal destruction and tooth mobility, a tooth-preserving

approach incorporating periodontal splinting and surgical therapy resulted in reduced probing depths, improved masticatory comfort, and retention of the natural dentition at 12 months. These findings highlight that periodontal treatment success should encompass not only clinical improvement but also functional rehabilitation and patient satisfaction.

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