

A CASE REPORT

RETAINING PERIODONTALLY "HOPELESS" TEETH

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Treating advanced periodontal disease sometimes means removing "hopeless" teeth, that is, those that would not respond to conventional treatment. Most believe these teeth should be removed during the first phase of treatment because retaining them would adversely affect the adjacent teeth.

According to Becker and co-workers,¹ a tooth could be characterized as hopeless if two or more of the following characteristics were present:

- loss of more than 75 percent of supporting bone;
- pocket depths \geq to 8 millimeters;
- Class III furcation involvement;
- hypermobility.

Becker and co-workers studied 95 patients treated for periodontal disease and followed them for three to 11 years (mean 6½ years). Among the 102 teeth first characterized as hopeless, 20 were present at the second examination.

CASE REPORT

A 37-year-old male reported "infected gums." Medical history was non-contributory, and the patient was not allergic to any medication. Extraoral examination revealed normal facial features without

A B S T R A C T

A case of advanced periodontitis with many hopeless teeth, treated and maintained for 8½ years, is presented. This case suggests a successful departure from traditional treatment.

asymmetry. Intraoral examination showed normal floor of mouth, palatal and buccal mucosa. Gingival tissues were highly inflamed and bled easily on probing. Suppuration was seen at the maxillary left first molar and the mandibular left central incisor and right lateral incisor.

Pocket probing depths made with a Williams Probe (Hu-Friedy Co.) ranged from 2 mm to 10 mm. Grade II to III furcation involvement was noted at the maxillary molars. Mobility ranged from about zero to one in the posterior regions and up to grade three mobility in the anterior region as measured by the Ramfjord and Ash mobility index.²

Full-mouth radiographs consisted of 16 periapical films using the parallel extension cone technique described by Updegrave.³ Examination of radiographs revealed generalized advanced bone loss (> 50

percent) as described by Lindhe and Nyman,⁴ with several areas showing > 80 percent bone loss. Horizontal and angular bone loss was noted. Using Becker's criteria, 10 teeth were characterized as hopeless.

Although the patient was made aware of the severity of his periodontal disease and the need for treatment, he declined any extractions. Therapy included home care instruction, scaling and root planing using Columbia Series curettes (4R/4L, 2R/2L and 13/14, Hu-Friedy Co.) and Cavitron Model 76 ultrasonic scalers (TFI10 Flo-thru tip, Dentsply). The mandibular incisors were shortened and temporarily splinted with acid-etch Concise composite (3M Co.) and stainless steel mesh wire (American Orthodontics). No other occlusal therapy was done and healing was uneventful.

Using Wright's technique,⁵ reverse bevel flap surgery was performed in the upper and lower arches to give better access for root debridement. Surgery involved buccal and lingual flaps, scaling and planing the exposed roots and osteoplasty to ease flap closure. No ostectomy was done; the maxillary incisors were treated with root planing alone. Healing from the surgery was uneventful.



Figure 1. Pre-treatment photograph.



Figure 2. Photograph taken after 8 1/2 years of treatment.

After this phase of treatment was completed, the patient received professional tooth cleanings and polishings every two to three months, alternating between the general practitioner and the periodontist. During the 8 1/2 years of maintenance, periodic photographs, radiographs and clinical probing measurements were taken and all teeth were retained.

DISCUSSION

DeVore and co-workers⁶ studied the effect of hopeless teeth on adjacent teeth. Seventeen patients with a total of 17 hopeless teeth were treated and followed for about 3 1/2 years. The authors found that retaining hopeless teeth did not cause further loss of crestal bone at the adjacent teeth.⁷

Heins and co-workers⁸ used radiographic tracings to evaluate changes in crestal bone height in angular defects, comparing deep-side to shallow-side bone height. Fifty-one mandibular posterior sites were treated and followed for two to 30 years (mean 11.8 years). The authors found that shallow-side defects and advanced deep-side defects remained unchanged or

demonstrated crestal regrowth of bone after treatment. They concluded that the deep side of a proximal angular defect does not pose a threat to the bone height of an adjacent shallow side.

Machtei and co-workers^{9,10} studied teeth adjacent to 145 untreated hopeless teeth, which were defined as > 50 percent loss of alveolar bone height. Eighty-two hopeless teeth were retained and 63 were extracted. The bone height of the adjacent teeth was measured. The average follow-up period was 4.1 years. Average bone loss of teeth adjacent to retained untreated hopeless teeth was 3.12 percent of root length compared to only 0.23 percent of root length of teeth adjacent to extracted hopeless teeth. The authors concluded that hopeless teeth without periodontal treatment jeopardize adjacent teeth.

Sternig¹¹ reported a case of advanced periodontitis with several hopeless teeth. Treatment involved root planing, temporary splinting with wire and acrylic and maintenance therapy every five to six months for eight years. Among the 29 teeth originally present, only two teeth were lost.

McGuire¹² reported on 39 patients treated and observed for five years. Among the 14 teeth initially labeled as hopeless, six were present at the completion of the study.

Lindhe and co-workers¹³ monitored the rate of progression of periodontal disease without therapy in 64 subjects for six years. The group was examined at baseline, at three years and at six years. During the six-year interval, 11.6 percent of the examined sites showed significant attachment loss (> 2 mm), 0.2 percent showed a > 2 mm attachment "gain" and the others showed insignificant changes in either loss or gain or no change.

Curiously, Lindhe and co-workers¹³ found that 50 percent of sites that showed no measurable changes during the first three years showed loss in the next three years. And of those sites that showed some level of attachment loss in the first three years, two-thirds of those showed no loss during the next three years. Therefore, diseased sites may be less likely to show further attachment loss.

Clinical parameters have been thought to predict future

periodontal disease activity. Haffajee and co-workers¹⁴ examined 3,414 untreated sites in 22 subjects. Repeated attachment level measurements were recorded every two months for one year. The following clinical parameters were analyzed to see if their presence would indicate attachment loss (sensitivity) while their absence would indicate no further attachment loss (specificity): gingival redness; plaque, suppuration; bleeding on probing; pocket depth; attachment level; presence of molars; presence of interproximal surfaces.

No parameters could predict future disease activity or inactivity. This study suggests that retention of teeth with a hopeless prognosis may be justified.

Many of the molars reported in this case had moderate to advanced furcation involvement. Treating these teeth often includes root resection presumably to improve their prognosis. Langer and co-workers¹⁵ studied molars treated by root resection for 10 years and found a 38 percent loss rate. Causes of loss included recurrent decay and endodontic or restorative failure in addition to progressive periodontal disease.

Ross and Thompson¹⁶ studied 387 maxillary molars with furcation involvement treated without root resections ranging from five to 20 years. The loss rate was 12 percent. The results of these studies imply that conservative therapy of furcated teeth may help delay their loss. None of the molars in this case received root resection.

Teeth with advanced periodontal disease often exhibit

hypermobility. Proper treatment often requires splinting to prevent spontaneous extraction.^{17,18} The method presented in this report was described by Rosenberg¹⁹ and consists of orthodontic mesh wire adapted to teeth with composite.

Frequent maintenance therapy is important to prevent plaque reinfection after periodontal surgery. Lindhe and Nyman²⁰ studied 61 patients who received periodontal therapy for advanced periodontal disease (more than 50 percent bone loss) and who were maintained every three to six months for 14 years. Each patient received oral hygiene instructions, scaling, root planing and surgical therapy. The results demonstrated that even in cases of severely advanced periodontal disease, a condition of "periodontal health" could be achieved.

CONCLUSION

Case reports alone do not justify a radical departure from traditional methods of diagnosis and treatment, as Moskow²¹ observes, but they may still show the need to re-examine commonly held concepts. ■

The opinions expressed or implied are strictly those of the author and do not necessarily reflect the opinion or official policies of the American Dental Association.



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1. Becker W, Berg L, Becker BE. The long term evaluation of periodontal treatment and maintenance in 95 patients. *Int J Periodontics Restorative Dent* 1984;2:55.

2. Ramfjord SP, Ash MM. *Periodontology and periodontics*. Philadelphia: Saunders; 1979:273-4.

3. Updegrave WJ. The paralleling extension-cone technique in intraoral dental radiography. *Oral Surg Oral Med Oral Pathol* 1951;4:1250.

4. Lindhe J, Nyman S. The effect of plaque control and surgical pocket elimination on the establishment and maintenance of periodontal health. A longitudinal study of periodontal therapy of advanced disease. *J Clin Periodontol* 1975;2:67.

5. Wright WH. The scalloped reverse bevel incision in mucogingival surgery. *Odontologisk Tidskrift* 1965;73:515.

6. DeVore CH, Beck FM, Horton JE. Retained "hopeless" teeth, effects on the proximal periodontium of adjacent teeth. *J Periodontol* 1988;59:647.

7. Wojcik MS, DeVore CH, Beck FM, Horton JE. Retained "hopeless" teeth: Lack of effect periodontally-treated teeth have on the proximal periodontium of adjacent teeth 8 years later. *J Periodontol* 1992;63:663-6.

8. Heins P, Martigan M, Low S, Chace R. Relative stability of deep- versus shallow-side bone levels in angular proximal infrabony defects. *J Clin Periodontol* 1989;16:59.

9. Machtei E, Zubrey Y, Soskolne A. Alveolar bone height changes adjacent to periodontally "hopeless" teeth (IADR abstract no. 1902) *J Dent Res* 1988;67.

10. Machtei EE, Zubrey Y, Yehuda AB, Soskolne WA. Proximal bone loss adjacent to periodontally "hopeless" teeth with and without extraction. *J Periodontol* 1989;60:512-5.

11. Sternig M. Advanced periodontitis treated non-surgically: An 8-year follow up. *Periodont Case Rep* 1985;7:1.

12. McGuire MK. Prognosis versus actual outcome: A long-term survey of 100 treated periodontal patients under maintenance care. *J Periodontol* 1991;62:51-8.

13. Lindhe J, Haffajee AD, Socransky SS. Progression of periodontal disease in adult subjects in the absence of periodontal therapy. *J Clin Periodontol* 1983;10:433.

14. Haffajee AD, Socransky SS, Goodson JM. Clinical parameters as predictors of destructive periodontal disease activity. *J Clin Periodontol* 1983;10:257.

15. Langer B, Stein SD, Wayenberg B. An evaluation of root resections, a ten-year study. *J Periodontol* 1981;52:719.

16. Ross IF, Thompson RH. A long term study of root retention in the treatment of maxillary molars with furcation involvement. *J Periodontol* 1978;49:238.

17. Nyman S, Lindhe J. Prosthetic rehabilitation of patients with advanced periodontal disease. *J Clin Periodontol* 1976;3:135.

18. Zander HA, Polson AM. Present status of occlusion and occlusal therapy in periodontics. *J Periodontol* 1977;48:540.

19. Rosenberg S. A new method for stabilization of periodontally involved teeth. *J Periodontol* 1980;51:469.

20. Lindhe J, Nyman S. Long-term maintenance of patients treated for advanced periodontal disease. *J Clin Periodontol* 1984;11:504.

21. Moskow BS. Longevity: A critical factor in evaluating the effectiveness of periodontal therapy. *J Clin Periodontol* 1987;14:237.