

Subacute iatrogenic periodontal injury: Report of a case

Martin J. Davis, B.A., D.D.S.
Neal Hammer, B.S., D.D.S.

The understanding of incipient periodontal pathology in children and adolescents is achieving deserved recognition and discussion.^{1,2} Similarly, the treatment of "acute" dental and related periodontal trauma is widely understood.³ The diagnosis and treatment of subacute periodontal injury has been only meagerly documented in clinical literature.

The determining factors in the response to both acute and subacute oral trauma in children are the systemic healing potential, and any local compromising factors. Goldman and Cohen² state that the age of the patient and the duration of the insult directly influence the recovery. With respect to osseous trauma, the equilibrium of bony resorption and deposition as well as the availability of calcium from bodily storehouses are age dependent. Younger persons have decidedly better capacity for repair.

Acute trauma to the periodontal complex produces pathologic changes such as necrosis of the adjacent alveolar bone, resorption of bone, and tooth mobility. Without further trauma, repair usually occurs.⁴ Sicher⁵ reported that mechanically disengaging the fibers of the periodontal ligament resulted in reattachment by formation of osteoid along the bony surface. These principles of healing are similarly applicable in cases of subacute periodontal trauma.

Report of a case

A 14-year-old black male reported to the pedodontic clinic with the chief complaint of pain in the maxillary right quadrant. The medical history was within normal limits.

Extraoral and intraoral examinations were negative except for the maxillary right first molar. A buccal tube soldered to the occlusal edge of an orthodontic band barely protruded from the gingival sulcus (Fig. 1). The first molar had a clinical mobility of +3 and moderate sensitivity to percussion. Pulp vitality tests

were normal, and the tooth was not pathologically sensitive to hot or cold. Periodontal probing yielded circumferential pocket depths from 9 to a maximum of 12 mm on the direct distal.

Radiographs demonstrated an intact orthodontic band and associated widespread circumferential infra-bony defect with the most extensive osseous defect on the distal (Fig. 2).

Interviews with the patient and the parent revealed that orthodontic treatment had been initiated in a private practice 15 months prior to presenting in the clinic. A problem of patient adjustment to wearing full-banded orthodontic appliances resulted in the termination of treatment by the patient; approximately 2 months ago he removed the appliance and "all" bands and refused to return to the orthodontist.

When discomfort began in the involved area, two individual private practitioners were consulted. No diagnosis of the etiology of the discomfort was offered during these consultations. The patient then came to the clinic.

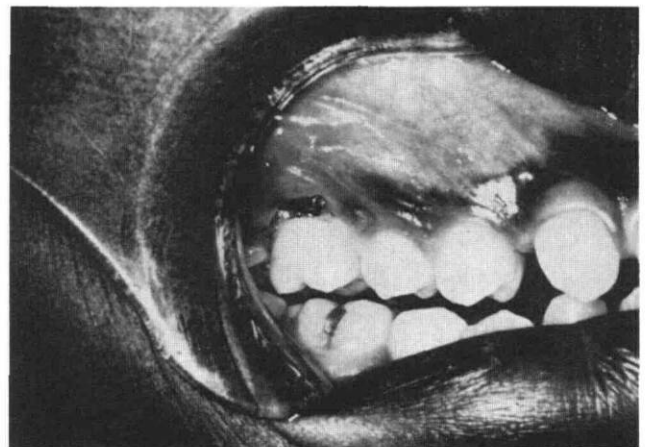


Fig. 1.

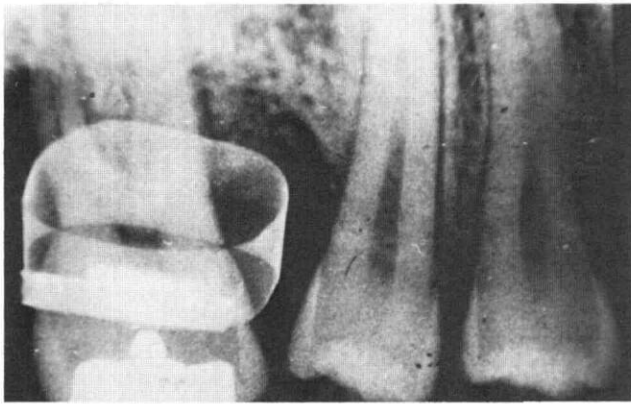


Fig. 2.

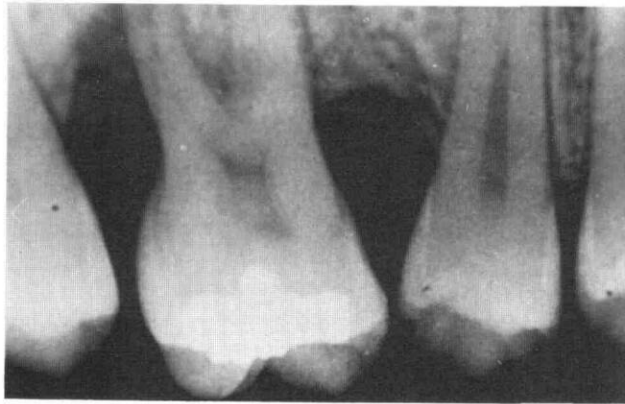


Fig. 3.

Treatment at the initial visit consisted of removing the band occlusally using periodontal curettes. A surgical flap approach with sectioning of the band would have been necessitated if the band could not have been removed toward the occlusal. Subsequent soft tissue curettage of the defect at this same visit removed extensive amounts of poorly organized blood clot and granulation tissue from the defect. Additionally, the occlusion was adjusted based on the presence of mobility and fremitus to decrease subsequent secondary occlusal trauma. Careful prophylaxis was performed and careful home care instructions given. A perio pack was placed.

At subsequent visits at postoperative intervals of 3 days, 1 week, 2 weeks, and monthly thereafter, prophylaxis and gentle degranulation of the defect were performed. Careful oral hygiene was emphasized to the patient and parent; cooperation was only fair. Radiographic follow-up 3 and 6 months later indicated significant deposition of supporting bone (Figs. 3 and 4). The tooth was clinically asymptomatic; it responded positively to electrical pulp testing. The mobility had decreased to +1. One-year follow-up (Fig. 5) demonstrated a vital tooth, no significant clinical mo-

bility, extensive reduction of periodontal pocket depths (the greatest being 4 mm on direct distal), and bony architecture which was approaching normal.

Discussion and summary

In order to establish the optimal treatment plan for this patient, several individual consultations regarding the presenting lesion were requested. Separate consultations with four periodontists produced a range of treatment modes characterized by a relatively more radical approach. Hemisection of the tooth was recommended by two of the consultants. All consultations deemed endodontics a highly probable necessity. The overall prognosis was generally termed "fair."

A critical factor involved in this case was the healing potential of a young, healthy individual. With this consideration, the treatment of choice can be more conservative in nature. Primary therapy in this case emphasized the elimination of traumatizing elements, debriding the area to produce a genuinely acute lesion, and allowing repair to proceed under optimal local conditions. Thereby the more radical measures could be reserved until more obviously mandated.



Fig. 4.



Fig. 5.

Several precautionary precepts derive from this case. The need for well-fitted orthodontic bands is obvious, as is the need to emphasize to the patient the essential nature of treatment continuity. The practitioner must communicate to the patient and to the parent their responsibilities in treatment. The extent of periodontal damage might have been negated or appreciably lessened if the patient had maintained contact with the original practitioner.

The necessity for careful clinical examination including adequate radiographs is reaffirmed by the fact that two previously consulted practitioners did not note the presence of the displaced band.

From the therapeutic standpoint in young individuals the periodontal repair potential in instances of subacute trauma is excellent. A conservative treat-

ment regime may yield satisfactory results. The more radical approaches to treatment remain available should the initial conservative measures prove inadequate.

References

1. McDonald, R. E.: *Dentistry for the Child and Adolescent*, St. Louis: C. V. Mosby Co., 1974.
2. Goldman, H. M., and Cohen, D. W.: *Periodontal Therapy*, St. Louis: C. V. Mosby Co., 1973.
3. Andreason, J. O.: *Traumatic Injuries of the Teeth*, St. Louis: C. V. Mosby Co., 1972.
4. Sicher, H., and Bhaskar, S. N.: *Orban's Oral Histology and Embryology*, St. Louis: C. V. Mosby Co., 1972.
5. Sicher, H.: "Changing Concepts of the Supporting Dental Structures," *Oral Surg*, 12:31-35, 1959.

Dr. Martin J. Davis is Director of the Division of Pedodontics at Columbia University School of Dental and Oral Surgery where he received his training in pedodontics and was a United Cerebral Palsy Fellow. He is also presently serving as New York State Secretary for ASDC and is chairman for the Table Clinics Section of the Annual Academy meeting in New York this year. He is on the staffs of Columbia Presbyterian and Blythedale Children's Hospital and is Director of Dental Services for Abbot House in Irvington, New York. Requests for reprints should be addressed to Dr. M. J. Davis, Director, Division of Pedodontics, Columbia University School of Dental and Oral Surgery, 630 W. 168th St., New York, New York 10032.



Dr. Neal B. Hammer is clinical assistant professor in the Division of Pedodontics at Columbia where he received his postdoctoral training. He has a private practice in Freehold, New Jersey, and is a staff member of the Freehold Area Hospital.