

Clinical Features

MANAGEMENT OF THE PERIODONTAL ABSCESS

Eugene Kryshchalskyj, DDS, Dip Perio, MSc, FRCD(C)
Toronto

This feature is based upon a Table
Clinic presented in Toronto.

A periodontal abscess is a localized purulent inflammation in the periodontal tissues.¹ It represents a focus or foci of increased periodontal destruction which, if left untreated, will result in tooth loss and spread of infection to adjacent tissues, particularly in the acute form.

The symptoms of an acute periodontal abscess include:

- 1) throbbing, radiating pain
- 2) tenderness of the gingiva to palpation, and pus formation
- 3) sensitivity of the tooth to percussion
- 4) increased tooth hypermobility
- 5) systemic effects, in some instances.

The latter usually consist of a combination of lymphadenitis, fever, chills and malaise. Only under these circumstances are antibiotics necessary.

A chronic abscess (Fig. 1) can be asymptomatic and characterized by:

- 1) a dull aching pain
- 2) slight elevation of the tooth
- 3) a fistula communication through the sulcus or gingival mucosa.

The chronic abscess often undergoes acute exacerbations characteristic of an acute abscess as above.

Etiology

The periodontal abscess is usually caused by an acute inflammation within a pre-existing chronic periodontitis. Occasionally, calculus build-up, food impaction or localized traumatic episodes can stimulate the process. The morphogenic and bacteriologic properties of the lesion are incompletely understood; however, important factors in the pathogenesis include a shift in the subgingival microflora and decreased host resistance. In fact, if a patient presents with multiple periodontal abscesses, investigations are indicated to rule out systemic problems such as blood dyscrasias (agranulocytosis, cyclic neutropenia, etc.) or hormone imbalance (including diabetes).

Bacteriology and Antimicrobial Considerations

Complex interactions are known to exist between the host and certain bacteria within the pathogenesis of periodontal diseases. In general, the bacteria associated with periodontal health are predominantly gram-positive, aerobic, saccharolytic and non-motile. Rapidly progressive periodontal lesions are predominantly caused by asaccharolytic, gram-negative, anaerobic, motile organisms.^{2,3} These organisms appear to be involved in the propagation of most pyogenic infections of the head and

neck region, especially in the oral cavity.^{4,5} Utilizing anaerobic techniques to sample the apical extent of periodontal abscesses, Newman and Sims⁶ found the bacteria to be gram-negative (66.2 per cent) and anaerobic (65.6 per cent). Also, it is definite that microbial penetration of soft tissues occurs in the acute stage of the periodontal abscess.⁷

The penicillins are effective against most of these bacterial groups and are the drug of choice when antibiotic therapy is indicated.⁸⁻¹⁰ Penicillin is effective against many gram-negative organisms associated with the periodontal abscess,¹⁰ and in view of its special value in serious infections, it should be selected on the basis of clearly established need against penicillin-sensitive organisms. Ideally, culture and sensitivity tests should be performed in all cases. Other useful antibiotics include metronidazole (selective for anaerobes and diffuses into abscess cavities), and clindamycin (effective against most anaerobic, gram-positive organisms and several gram-negative organisms). Metronidazole does have an "antabuse" effect and patients should be cautioned against consuming alcohol. Patients receiving clindamycin should be repeatedly checked for the possible development of pseudomembranous colitis. Erythromycin may only be marginally effective.

tive in the suppression or elimination of periodontopathic microorganisms,^{9,10} and spiramycin itself exerts a minimal influence on gram-negative organisms.⁹ The tetracyclines are better used for the more chronic forms of periodontitis.^{9,10}

Diagnosis

The diagnosis requires a correlation of the patient's history, clinical and radiographic examination. Periodontal probing reveals communication of the lesion with the gingival margin. A purulent discharge may be prominent (Fig. 1) and the radiographic projection of the region will usually demon-

strate significant alveolar bone loss (Figs. 1b and 2b). Care is required to identify any endodontic involvement with the associated teeth, as can occur with combined, periodontic-endodontic lesions. A gutta-percha cone radiograph will reveal whether the bone loss extends to the root apex. If so, then definite management of the lesion would include root canal therapy.

Treatment Sequence

I. Immediate Emergency Treatment

1) Incision and drainage: When the periodontal abscess demonstrates a fluctuation or clinical pointing appearance, an incision

into the area to drain the purulent contents should be performed. If the abscess situation is more diffuse, then vigorous curettage would provide a greater benefit. The incision can be instituted through a sulcular access with a curette or scalpel blade, once adequate local anesthesia is achieved. Care should be taken not to infiltrate into the lesion, in which case spread of infection can occur.

2) Lightly adjust the occlusion on the tooth if it is extruded, in order to minimize strong contacts in centric relation and lateral excursions. These contacts or interferences will delay healing and prolong discomfort.

3) Antibiotic therapy (only if systemic symptoms are apparent). Penicillin-V 600 mg followed by 300 mg q.i.d. for 7-10 days. Alternative antibiotic: Metronidazole is effective in the treatment of acute pericoronitis (a different form of periodontal abscess) in a dose of 250 mg t.i.d. If used, the patient should be advised against alcohol consumption with this drug, due to the "antabuse" side effect.

4) Arrange for a bacterial culture and sensitivity test (swab or aspirate) in severe cases, to ensure that the appropriate antibiotic has been chosen.

5) Advise the patient to rinse with warm salt water every two hours and to return in two days to check the healing. If a "T" drain was placed at the initial appointment, it may

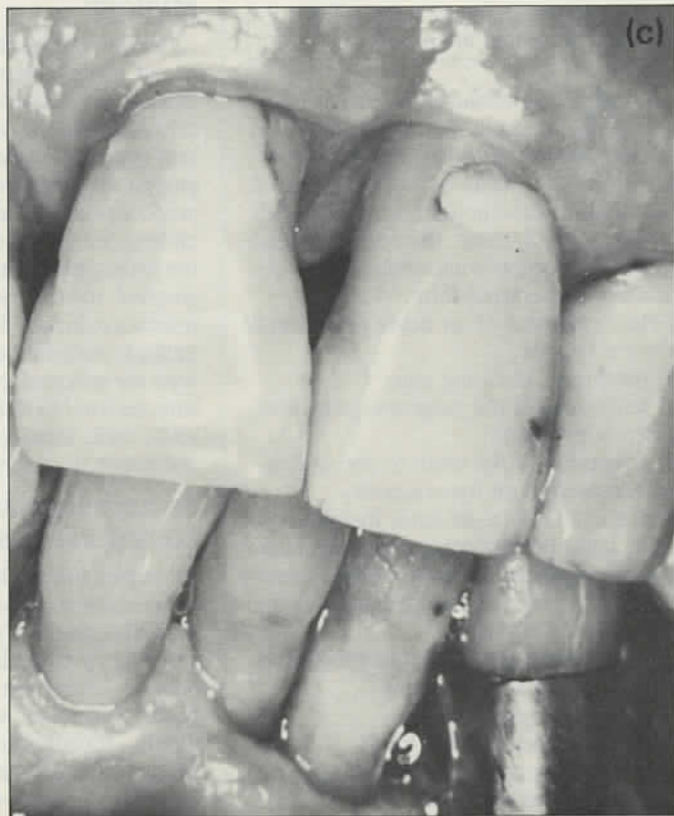
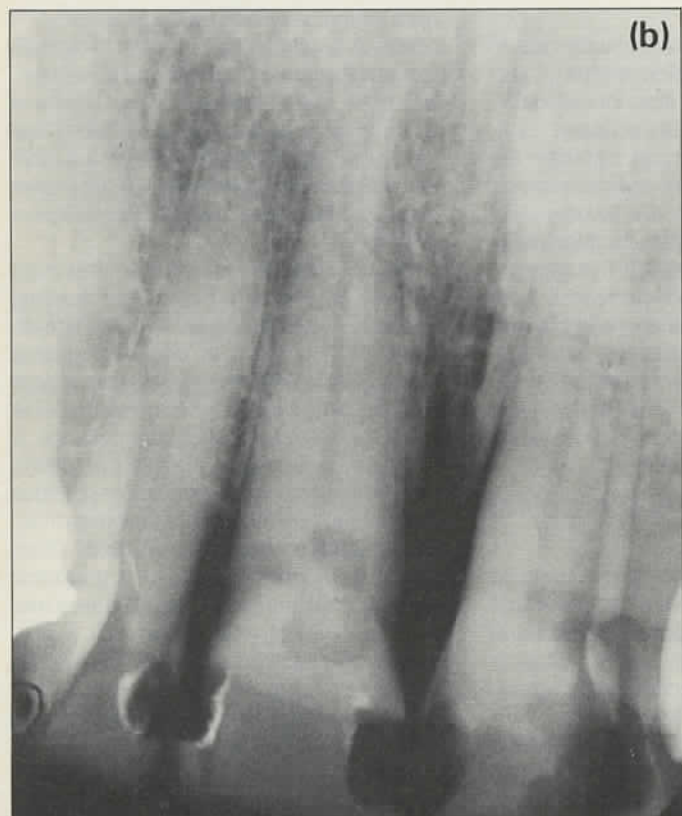
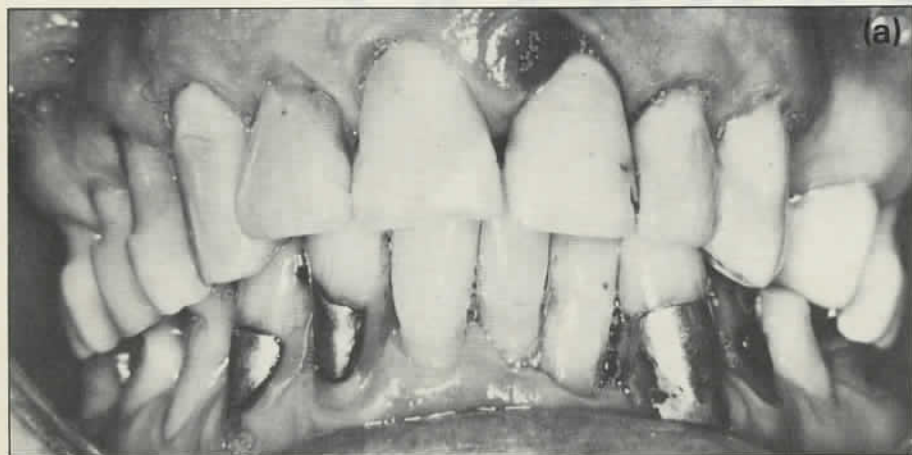


Fig. 1. The chronic periodontal abscess: 1(a) pretreatment appearance, 1(b) radiographic appearance, and 1(c) one month after curettage therapy.

now be removed. Significant improvement should be noted by this time. Unfortunately, we cannot depend on mouthrinses alone to completely irrigate the abscessed area subgingivally, since this method of delivery of antibacterial substances does not penetrate effectively into the gingival pocket.¹¹

II. Long-term Treatment Considerations

Once the lesion is controlled, a decision should be reached whether to extract the tooth (if it carries a hopeless prognosis) or to proceed with definitive surgical therapy. Definitive therapy would eliminate the periodontal pockets or treat furcation involvements in order to remove the niche into which bacteria can recolonize and recreate an abscess in the future. The teeth requiring definitive therapy must carry a favourable prognosis as dictated by tooth mobility, manageable osseous defects, adequate remaining bone, treatable furcation involvement, etc. At this time, the acute situation should be under control.

CASE EXAMPLES

Case 1

Figures 1a, 1b and 1c demonstrate a chronic periodontal abscess situation. The patient had repeated episodes of swelling in the interdental papilla between the central incisors. No antibiotic therapy was given as there were no associated systemic symptoms. Under local anesthesia, the granulation tissue was curetted completely from within the lesion and a dressing was placed in a manner that also permitted drainage. Incision and drainage was not performed as there was no fluctuation or focal point of infection. The dressing was removed in one week and healing was complete within one month of treatment (Fig. 1c). The radiograph demonstrated marked interproximal bone loss, but the mobility of the two central incisors improved significantly after the lesion resolved. The oral hygiene regimen included interdental proxybrushing to facilitate healing. When a chronic abscess is more advanced, some clinicians advocate immediate definitive therapy including a flap approach,¹² especially in the post-prophylaxis periodontal abscess situation.

Case 2

This patient had symptoms of fever, chills and large swollen submandibular lymph nodes on the right side. Intraorally, a large abscess was noted, primarily around teeth 46 and 47 (Figs. 2a, 2b). Radiographically, tooth 48 also presented with a periodontic-endodontic communication. Immediate emergency treatment was instituted, including drainage, occlusal adjustment and antimicrobial therapy (penicillin). The



Fig. 2. A severe acute periodontal abscess with systemic symptoms. 2(a) demonstrating buccal swelling encroaching upon the fascial planes; 2(b) pre-surgical radiograph of region after tooth 48 was removed, and occlusion stabilized with intracoronal splinting. Advanced periodontal pocketing and furcation involvement were prominent; however, the acute symptoms had resolved at this stage; 2(c) two-month postsurgical view, demonstrating complete resolution of the abscess condition and restoration of a healthy periodontium.

patient was examined every 2-3 days. Significant resolution of the abscess occurred in one week, at which time the hopeless tooth 48 was extracted. Three weeks later, definitive periodontal therapy was provided for the remaining molars in order to treat the furcation involvement associated with teeth 46 and 47, superimposed on advanced periodontal pocketing and subgingival bleeding. This consisted of intracoronal periodontal splinting of tooth 46 to stabilize the occlusion in the quadrant and flap surgery. Two months later, after periodontal surgery, the area was completely free from infection (Fig. 2c) and carried an excellent periodontal prognosis.

Summary

The acute periodontal abscess requires immediate attention in order to control the spread of infection to adjacent tissues. The earlier immediate emergency treatment is instituted, the better the prognosis for the associated teeth. In some situations, definitive periodontal therapy may be required as a future consideration; however, acute infection control takes priority initially. When systemic symptoms are present, then

— and only then — should antibiotics be prescribed. Once treatment is initiated, the patient should be monitored periodically until the systemic symptoms (if any) subside. If an antibiotic is required, the drug of choice is penicillin, unless culture and sensitivity tests point to use of a different antibiotic.

Dr. Kryshchalskyj is a clinical instructor in the Department of Periodontics, University of Toronto, 124 Edward St., Toronto, Ont. M5G 1G6. He also maintains a private practice in Toronto.

Reprint requests to Dr. Kryshchalskyj.

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