### DENTAL ABSCESS

(Also known as “periodontal abscess” [acute or chronic; if confined to marginal gingiva or interdental papilla, also known as ‘gingival abscess’; if localized within tissue surrounding the crown of a partially erupted tooth, also known as “pericoronal abscess”; “periapical abscess” [acute or chronic; also known as ‘dentoalveolar abscess’, ‘apical abscess’, ‘endodontic abscess’, and ‘lesion of endodontic origin’ [LEO]]; “tooth abscess”; and “tooth/gum infection”)

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**Is the initiation of non-invasive dental hygiene procedures* contra-indicated?**  
No. However, the dental hygienist should consult with a dentist if in doubt about the safety or appropriateness of a procedure while a dental abscess is present.

- **Is medical consult advised?**  
  Yes. Patient/client should see a dentist for interventional (i.e., drainage +/- incision/debridement +/- tooth extraction) +/- medical (e.g., oral antibiotic) treatment of the abscess.

**Is the initiation of invasive dental hygiene procedures contra-indicated?**  
Possibly. The dental hygienist should consult with a dentist if in doubt about the safety or appropriateness of a procedure while a dental abscess is present.

- **Is medical consult advised?**  
  Yes; see above.
- **Is medical clearance required?**  
  Possibly; see above.
- **Is antibiotic prophylaxis required?**  
  No.
- **Is postponing treatment advised?**  
  Possibly, until the abscess has resolved (possibly via surgical intervention +/- oral antibiotic). The dental hygienist should consult with a dentist if in doubt about the safety or appropriateness of a procedure while a dental abscess is present.

### Oral management implications

- Dental abscesses usually occur due to a combination of poor dental hygiene and consumption of sugary or starchy food and drink.
- A periodontal abscess is the third most common dental emergency. It is characterized by overgrowth of mixed pathogenic bacteria.
- Routinely, the dental hygienist should scale and root plane as completely as possible to remove subgingival deposits. Incomplete scaling and root planing that leaves residual calculus at the base of treated periodontal pockets may contribute to periodontal abscess formation.
- Recognition and treatment of patients/clients with periodontal abscesses (particularly when combined with regular periodontal maintenance) reduces tooth loss.
- A gingival abscess should be incised and drained, and the causative foreign body removed, by a dentist. Warm saltwater rinses are recommended post-procedure. The patient/client should return for postoperative observation in about 24 hours, at which time the swelling and acute tenderness should be greatly reduced.
- An acute periodontal abscess should be drained, either through the pocket opening or through a surgical incision. The tooth/teeth in the affected area should be anaesthetized and scaled. Post-procedure, the patient/client should be instructed to rest, ensure adequate fluid intake, and use warm saltwater rinses to reduce swelling. Over-the-counter analgesics such as ibuprofen or acetaminophen can be used for pain relief. A follow-up appointment should occur in 24–48 hours to re-evaluate the area and plan for follow-up treatment (e.g., periodontal surgery to remove the problem area).
- Repair potential following appropriate treatment of acute periodontal abscesses is very good. Gingival appearance returns to normal within 6–8 weeks, and bone defect repair occurs over about 9 months.
Disease/Medical Condition

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Oral management implications (cont’d)

- With regard to chronic periodontal abscess, the dental hygienist should consider inflammatory exudate associated with the periodontium (which either seeps into the oral cavity without inducement or when digital pressure is applied to the pocket or sinus tract) as being indicative of a possible chronic abscess. Appropriate dental referral and treatment should be arranged.

- The dental hygienist plays an important role in educating the patient/client about the chronic nature and implications of the abscess. Untreated, there is a likelihood of increased bone loss and future acute episodes. Frequent maintenance care (including scaling, root planing, and daily biofilm control) is indicated post-treatment.

- Treatment of a chronic periodontal abscess is similar to treatment of an acute abscess. Additional treatment by the dentist often includes pocket reduction periodontal surgery, but it may also include tooth extraction.

- A periapical abscess is the most common dental emergency. Leaving a periapical abscess untreated can lead to life-threatening conditions, including brain abscess formation, fasciitis of the neck or chest wall, or sepsis. Treatment requires timely tooth extraction or endodontic treatment to remove the tooth pulp and replace it with inert material.

- The dental hygienist should inform patients/clients with untreated periapical abscesses of the risks associated with delaying treatment.

Oral manifestations

- There are two main types of dental abscess:
  - periodontal abscess — where bacteria infect the gums; and
  - periapical abscess — where bacteria infect the pulp inside of the tooth (and which is overall the most common type).

- A periodontal abscess is a localized accumulation of pus within the periodontal tissues, which may be confined to the marginal gingiva (“gingival abscess”) or be a deeper infection associated with periodontal pockets, furcations, and bone loss. It is often associated with pre-existing periodontal disease, but can also occur when a foreign body (e.g., popcorn hull or peanut skin) becomes lodged in a pocket.

- Multiple periodontal abscesses are associated with factors such as compromised systemic health, poorly controlled diabetes mellitus, and systemic antibiotic therapy for conditions not related to oral health.

- A gingival abscess usually occurs in previously disease-free areas of the marginal gingiva or interdental papilla, and it is not associated with deeper pathology. It is often related to the presence of a foreign body, and it manifests as localized erythema, swelling (due to pus), and pain.

- Fulminating gingival abscesses can occur in patients/clients with diabetes mellitus, due to their accentuated response to plaque and tendency to have hyperplastic gingiva.

- An acute periodontal abscess manifests as erythema, pain (often throbbing and radiating), and swelling of the gingiva over limited period of time. It usually occurs on the lateral side of the tooth, and it appears shiny and edematous with a domelike appearance or a distinct point. Pus can sometimes be expressed from periodontal pockets with gentle finger pressure. Tooth mobility may occur, and the patient/client may report that the tooth “feels high” due to slight extrusion resulting from tissue swelling.

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Oral manifestations (cont’d)

- While radiographs may be helpful for locating a pre-existing area of bone loss (thus suggesting the origin of the abscess), the infection moves through the tissue in the direction of least resistance. Thus, the visible oral manifestations may appear some distance from the affected tooth.

- A chronic periodontal abscess is a long-standing infection, which has communication with the oral cavity either through the opening of a periodontal pocket or via a sinus tract (fistula). The chronic abscess is often painless (due to ongoing drainage of pus that reduces swelling), or it may cause dull, intermittent pain. Gingival tissue is reddened and swollen.

- Acute periodontal infection may convert to a chronic abscess if ongoing drainage leads to stabilization.

- A periapical abscess occurs in the tip (apex) of the tooth root, and commonly results from bacterial infection of the pulp secondary to caries, traumatic tooth fracture, or prior dental work. Pulpal infection can spread laterally from an infected tooth to an adjacent tooth, from infected periodontium, or through the lateral canals.

- Periapical lesions that drain through the periodontal ligament can closely resemble periodontal abscesses, because their signs/symptoms are similar.

- An acute periapical abscess occurs when bacteria or their toxic byproducts rapidly enter the periradicular tissues, usually from the tooth pulp chamber. The confined purulent exudate can cause severe pain in the area of the non-vital tooth, which may subside somewhat as the infection spreads towards a surface or space. Manifestations also include intraoral swelling and tissue erythema, and the affected tooth may be slightly extruded from its socket. Manifestations also include intraoral swelling and tissue erythema, and the affected tooth may be slightly extruded from its socket. There may be visible swelling of the face, cheek, or jaw. Sensitivity to hot and cold temperatures, as well as to the pressure of chewing and biting, may occur. The patient/client may be hypersensitive to tooth percussion. There may also be bitter taste in the mouth and breath malodour.

- A chronic periapical abscess is associated with a more gradual inoculation of irritants from the root canal into the periradicular tissues. Pain is lessened from continual or intermittent draining through a sinus tract. Such tracts usually drain into the mouth through a fistula in the bone or through the periodontal ligament (with consequent stream of foul-tasting pus); however, they can also drain through the facial skin.

- Radiographically, a defined radiolucency is seen at the apex of the affected tooth when granulation tissue replaces normal bone.

- Pain is a differentiating feature between periapical and periodontal abscesses. Periapical pain manifests as sharp, severe, intermittent pain that is hard to localize, whereas periodontal pain tends to be more constant, less severe, and localized.

- Combination abscesses (periodontal and periapical) occur because the periodontium is a continuous unit. Infection originating in the periodontal tissues can progress to the pulp via openings at the apex or through the lateral canals, just as infection of the root canal system affecting the tooth apex can spread to the marginal tissues. Combination abscesses manifest characteristics of both periodontal and periapical abscesses.

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Related signs and symptoms

- Dental abscesses are more common in adults than in children. They do not usually develop until the teeth are fully developed.
- A periodontal abscess may be accompanied by cervical lymphadenopathy and systemic signs/symptoms of fever and malaise. In severe cases, space infections of the orofacial regions or diffuse spreading infections (e.g., facial cellulitis) may result.
- In addition to cervical lymphadenopathy, fever, and malaise, a periapical abscess may be associated with other systemic manifestations of infection. These include spread of infection to soft tissue (e.g., facial cellulitis or Ludwig’s angina, which is an infection of the floor of the mouth under the tongue) or the mandible/maxilla (osteomyelitis of the jaw). Infection may also result in sinusitis, cavernous sinus thrombosis, sepsis (blood infection), brain abscess, endocarditis, pneumonia, and potentially death. The risk of spreading infection is amplified in the presence of a weakened immune system.

References and sources of more detailed information

- Mayo Clinic
  [http://www.mayoclinic.org/diseases-conditions/tooth-abscess/basics/definition/con-20035258](http://www.mayoclinic.org/diseases-conditions/tooth-abscess/basics/definition/con-20035258)
- WebMD
- UK National Health System
  [http://www.nhs.uk/conditions/dental-abscess/Pages/Introduction.aspx](http://www.nhs.uk/conditions/dental-abscess/Pages/Introduction.aspx)
- MedlinePlus: US National Library of Medicine, National Institutes of Health
- University of Toronto, Faculty of Dentistry

* Includes oral hygiene instruction, fitting a mouth guard, taking an impression, etc.

** Ontario Regulation 501/07 made under the Dental Hygiene Act, 1991. Invasive dental hygiene procedures are scaling teeth and root planing, including curettage surrounding tissue.

Date: April 12, 2015