

## osteomyelitis

### Focal sclerosing osteomyelitis (condensing osteitis)

Localized areas of bone sclerosis associated with the apices of teeth with pulpitis (from large carious lesions or deep coronal restorations) or pulpal necrosis are termed condensing osteitis.

#### Clinical features:

This secondary sclerosis of bone is seen most frequently in children and young adults. The classic alteration consists of a localized, usually uniform zone of increased radiodensity adjacent to the apex of a tooth that exhibits a thickened periodontal ligament space or an apical inflammatory lesion. Clinical expansion should not be present. Most cases occur in the premolar and molar areas of the mandible, and the dental pulp of the involved tooth demonstrates pulpitis or necrosis.

#### Radiographical features:

The lesion does not exhibit a radiolucent border, as is seen in cases of focal cemento-osseous dysplasia, although an adjacent radiolucent inflammatory lesion may be present. In addition, the radiopacity is not separated from the apex as would be seen in idiopathic osteosclerosis.



### Treatment and prognosis:

Treatment of the patient with condensing osteitis consists of resolution of the odontogenic focus of infection. After extraction or appropriate endodontic therapy of the involved tooth, approximately 85% of cases of condensing osteitis will regress, either partially or totally. Typically, resolution of the lesion is associated with normalization of the associated periodontal membrane. If the lesion persists and the periodontal membrane remains wide, then reevaluation of the endodontic therapy should be considered. *A residual area of condensing osteitis that remains after resolution of the inflammatory focus is termed a bone scar.*



Bony scar

### Diffuse sclerosing osteomyelitis:

Diffuse sclerosing osteomyelitis is an ill-defined, highly controversial, evolving area of dental medicine. This diagnosis encompasses a group of presentations that are characterized by pain, inflammation, and varying degrees of gnathic periosteal hyperplasia, sclerosis, and lucency. On occasion, diffuse sclerosing osteomyelitis can be confused with florid cemento-osseous dysplasia or Paget's disease of bone.

### Clinical and radiographical features:

Diffuse sclerosing osteomyelitis is similar to the localized variant (condensing osteitis), however, the disorder is also very different. It arises almost exclusively in adulthood, does not exhibit a sex predominance, and primarily occurs in the mandible. An increased radiodensity develops around sites of chronic infection (e.g., periodontitis, pericoronitis, apical inflammatory disease) in a manner very similar to the increased radiodensity that may be seen surrounding areas of chronic suppurative osteomyelitis. Typically, the altered area is restricted to a single site but may be multifocal or extend to fill an entire quadrant. Pain and swelling are not typical.



Diffuse sclerosing osteomyelitis. Diffuse area of increased radiodensity of the right body of the mandible in the tooth-bearing area.

### Treatment and prognosis:

Diffuse sclerosing osteomyelitis is treated best through resolution of the adjacent foci of chronic infection. After resolution of the infection, the sclerosis remodels in some patients but remains in others. The persistent sclerotic bone is hypovascular, does not exhibit typical remodeling, and is very sensitive to inflammation.

### Alveolar osteitis (dry socket; fibrinolytic alveolitis)

After extraction of a tooth, a blood clot is formed at the site, with eventual organization of the clot by granulation tissue, gradual replacement by coarse fibrillar bone, and, finally, replacement by mature bone. Destruction of the initial clot prevents appropriate healing and causes the clinical condition known as **alveolar osteitis**.

Researches have shown that the clot is lost secondary to transformation of plasminogen to plasmin, with subsequent lysis of fibrin and formation of kinins (these are potent pain mediators).

**Local trauma, estrogens, and bacterial pyrogens are known to stimulate fibrinolysis.** This knowledge correlates well with the increased frequency of alveolar osteitis in association with deeply impacted mandibular third molars, poor oral hygiene, inexperienced surgeons, traumatic extractions, oral contraceptive use, and presurgical infections. Inadequate irrigation at surgery and the use of tobacco products have been related to the development of the problem. the prevalence of alveolar osteitis is increased in smokers.

### Clinical features:

The frequency of alveolar osteitis is higher in the mandible and the posterior areas. The prevalence is between 1% and 3% of all extractions, but it increases to 25% to 30% for impacted mandibular third molars. The frequency appears to be decreased when impacted

teeth are removed prophylactically rather than for therapeutic reasons after development of chronic inflammation of pericoronal tissues. The overall prevalence is highest between 20 and 40 years of age (when the majority of teeth are extracted). The affected extraction site is filled initially with a dirty gray clot that is lost and leaves a bare bony socket (dry socket). The detection of the bare socket may be hindered by partial retention of the clot or by overlying inflamed tissue that covers the site. The diagnosis is confirmed by probing of the socket, which reveals exposed and extremely sensitive bone. Typically, pain, foul odor, and (less frequently) swelling and lymphadenopathy develop 3 to 4 days after extraction of the tooth. On occasion, the pain radiates from the socket to the ipsilateral ear, temporal region, or eye. Rarely, trismus also may be noted.

### Treatment:

1. radiograph should be taken of the affected area to rule out the possibility of a retained root tip or a foreign body.
2. The socket is irrigated with warm saline, followed by thorough clinical inspection of the socket for any unexpected pathoses.
3. Curettage of the socket is not recommended, because this typically increases the associated pain.
4. Potent oral analgesics should be prescribed
5. The patient should be instructed to keep the socket clean via home irrigation with a chlorhexidine or saline solution.
6. Antibiotic may be indicated.