Osteonecrosi dei mascellari (ONJ):
Prevenzione, Diagnosi, Trattamento “Update 2009”

ONJ anche se l’osso non è esposto?

Prof. Michele D. Mignogna, MD, DDS

FEDERICO II UNIVERSITY OF NAPLES, ITALY  -  DEPARTMENT OF
ODONTOSTOMATOLOGICAL AND MAXILLOFACIAL SCIENCES
ORAL MEDICINE UNIT

mignogna@unina.it
DEFINITION: 3 characteristics have to be present:

1. Previous treatment with biphosphonates
2. No history of radiation therapy to the jaws
3. Exposed necrotic bone that has persisted for greater than 8 weeks

(6 weeks for the Australian Dental Association and Bone Society)

STAGING:

1. Exposed and necrotic bone in asymptomatic patients with no evidence of infection
2. Exposed and necrotic bone in patients with pain and clinical evidence of infection
3. Exposed and necrotic bone in patients with pain and clinical evidence of infection and one or more of the following:
   • Exposed and necrotic bone extending beyond the alveolar bone (ie, inferior border and ramus in mandible, maxillary sinus and zygoma in maxilla)
   • Pathologic fracture
   • Extraoral fistula
   • Oral antral/nasal communication
   • Osteolysis extending to the inferior border of mandible or sinus floor
Bisphosphonate-associated osteonecrosis of the jaw: report of a task force of the American Society for Bone and Mineral Research.

• Pain
• Swelling
• Ulceration
• Suppuration
• Loosening of teeth
• Paresthesia

...could herald early disease and over time may become associated with exposure of bone..
Staging bisphosphonate-related osteonecrosis of the jaw should include early stages of disease.

..6 stages: stages 1 to 3 were patients do not have necrotic exposed bone but may exhibit other signs such as pain, edema, erythema, and significant radiographic findings by radioisotope scans, CT, RMN. Stages 4 to 6 have exposed bone of less than 2 cm. (stage 4) or greater than 4 cm. (stage 5,6) with increasing pain and severity of radiographic findings.
Staging bisphosphonate-related osteonecrosis of the jaw should include early stages of disease.


Staging based on the development of osteonecrosis in other bones (eg, hip and femoral head) where the process begins in the medullary compartment (evident on RMN only)

LIMITATIONS:
1. Nonspecific broad criteria in stage 1-3
2. Imaging expensive with unspecific findings
3. 30 to 40% of ONJ patients do not fit into any of the 6 stages
**DEFINITION OF ONJ:** 3 characteristics have to be present:

1. Previous treatment with biphosphonates
2. No history of radiation therapy to the jaws
3. Exposed necrotic bone that has persisted for greater than 8 weeks

(6 weeks for the Australian Dental Association and Bone Society)

---

*Sinus tracts--an early sign of bisphosphonate-associated osteonecrosis of the jaws?*


*Nonexposed bisphosphonate-related osteonecrosis of the jaws: another clinical variant?*

Sinus tracts--an early sign of bisphosphonate-associated osteonecrosis of the jaws?

Mawardi H, Treister N, Richardson P, Anderson K, Munshi N, Faiella RA, Woo SB.

Department of Oral Medicine, Infection and Immunity, Harvard School of Dental Medicine, Boston, MA, USA. hmawardi@partners.org

PURPOSE: Bisphosphonate-associated osteonecrosis of the jaw (BONJ) is defined as the presence of exposed bone for at least 8 weeks in patients with exposure to bisphosphonates and no history of radiotherapy to the jaw. We report 5 patients with a history of bisphosphonate use, sinus tracts or deep periodontal pockets and radiographic findings typical for BONJ but with no evidence of exposed necrotic bone at the first evaluation visit. PATIENTS AND METHODS: The mean age was 70 years (range 66-77) and all were males. Patients had multiple myeloma (2), multiple myeloma and prostate cancer (1), monoclonal gammopathy of unknown significance (1) and osteoporosis (1). Three cases involved the mandible and 2 the maxilla. Four patients were on intravenous pamidronate and/or zoledronic acid and 1, alendronate. All cases except 1 (with deep periodontal pockets) presented with intraoral draining sinus tracts. RESULTS: Radiographic findings included persistence of extraction socket (2), mottled radio-opacity and radiolucency (1), presence of sequestrum (1) and no significant findings (1). Subsequently, 4 patients developed exposed bone and 1 patient had necrotic bone removed from the jaws. CONCLUSION: We report 5 patients with a history of bisphosphonate therapy where 4 patients had persistent sinus tracts and a fifth, severe bone loss. Four patients had radiographic findings typical for BONJ, and all subsequently developed exposed bone.

Pain
Swelling
Paresthesia
Fistula
Loosening of teeth
Dry socket

Alveolar bone loss
Bone resorption
Changes in trabeculae
Thickening lamina dura
Alveolar canal narrowing

Oral bisphosphonates as a cause of bisphosphonate-related osteonecrosis of the jaws: clinical findings, assessment of risks, and preventive strategies.
Assael LA.

- Pain:
- Odontalgia, Bone, Sinus and Neuropathic pain
- Swelling
- Paresthesia/Dysesthesia
- Periapical/periodontal Fistula
- Looseing of teeth
- Postextraction persistent Dry socket (for more than 6 weeks)

Oral bisphosphonates as a cause of bisphosphonate-related osteonecrosis of the jaws: clinical findings, assessment of risks, and preventive strategies.
Assael LA.

• Alveolar bone loss
• Bone resorption
• Changes in trabecular pattern: dense woven bone and persistence of unremodeled bone in extraction sockets
• Thickening/obscuring of periodontal ligament with thickening of lamina dura
• Decreased size of the periodontal ligament space
• Inferior alveolar canal narrowing
Bisphosphonate-associated ONJ: Stage 0
Patients with no clinical evidence of necrotic bone, but who present with nonspecific symptoms or clinical and radiographic findings

• Pain:
  • Odontalgia, Bone, Sinus and Neuropathic pain
  • Swelling
  • Paresthesia/Dysesthesia
  • Periapical/periodontal Fistula
  • Loosening of teeth
  • Postextraction persistent Dry socket (for more than 6 weeks)

• Alveolar bone loss
• Bone resorption
• Changes in trabecular pattern: dense woven bone and persistence of unremodeled bone in extraction sockets
• Thickening/obscuring of periodontal ligament with thickening of lamina dura
• Decreased size of the periodontal ligament space
• Inferior alveolar canal narrowing
These nonspecific findings which characterized stage 0, can occur in patients with a history of stage 1, 2 or 3 disease who have healed and have no clinical evidence of exposed bone.
STAGE $0_{ss}\/sa$

SS: Suspicious symptomatic (on therapy)
SA: Suspicious asymptomatic (off therapy)

...exposure of bone in the oral cavity represents at the end-stage a process of altered and dysfunctional bone turnover that started many months prior.