



Osteonecrosis of the Jaw (ONJ)

What is ONJ?

Osteonecrosis of the jaw (ONJ) is a condition in which one or more parts of the jawbones become dead (necrotic) and exposed in the mouth. These fragments of bone poke through the gums and may easily be mistaken for broken teeth. Both the upper (maxilla) and lower (mandible) jaw can be affected. This condition may develop for no obvious reason or may follow a dental extraction in which the socket fails to heal. Many patients experience no symptoms at all, although symptoms may develop later. In some cases, the exposed bone is infected by oral bacteria, which may result in pain and swelling of the surrounding gums. Sharp fragments of bone may cause painful tongue sores. Large areas of necrotic bone are sometimes associated with loose or painful teeth that may require extraction. At times, numbness or sharp pain may develop if necrotic bone damages a nerve within the jawbones; this is referred to as neuropathic pain. Osteonecrosis of the jaw does not cause cancer or progress to cancer.

What causes ONJ?

ONJ most often develops after either treatment with bone strengthening medications or radiation therapy to the head and neck that involved the jawbones. A tooth infection (from a dead or dying tooth) or gum disease may increase your risk for ONJ. Less common causes of ONJ include infections and trauma. Occasionally, ONJ occurs spontaneously without any obvious cause.

Medication-related ONJ

Osteonecrosis of the jaw may develop during or after treatment with bone strengthening medications including bisphosphonates and denosumab. These therapies are designed to slow bone loss, thereby strengthening the bones, making this class of medications very effective in the treatment of osteoporosis as well as cancers of the bone such as multiple myeloma and advanced solid cancers that have spread to the bone.

Bisphosphonates may be taken either intravenously (IV) or orally as a pill. The most commonly prescribed agents include pamidronate (Aredia™), alendronate (Fosamax™), ibandronate (Boniva™), risedronate (Actonel™), and zoledronic acid (Zometa™ or Reclast™). Alendronate is the most common oral bisphosphonate and has a very low risk for causing ONJ. IV bisphosphonates are administered much more frequently for the cancer patient (once a month for the first two years) compared to osteoporosis patients (once a year only). Since it is the total amount of bisphosphonates received over time that is related to risk of ONJ, cancer patients face a much greater risk. Denosumab (Prolia™, Xgeva™) is an IV medication that is approved for treatment of osteoporosis and cancer patients with bone disease, and is also associated with ONJ. Most recent studies suggest that even in cancer patients, less than 5% of all patients who are treated with bisphosphonates or denosumab will develop ONJ. Other medications used in cancer treatment that slow blood vessel growth have in rare cases been associated with development of ONJ.

Osteoradionecrosis (ORN)

Cancers of the head and neck are often treated with radiation therapy. Side effects of this treatment may include reduced blood flow to the jaws and poor healing capacity, particularly at radiation doses of 60 Grays or more. This form of ONJ is referred to as osteoradionecrosis (ORN) but is otherwise essentially the same as medication-related ONJ with respect to its clinical features and management.



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How do we know it is ONJ?

An oral health care specialist can typically make this diagnosis after a taking a thorough medical history and performing a careful examination. The diagnosis of ONJ is based on the presence of exposed bone in the mouth although some cases show up only as oral “pimples” (gumboils or sinus tracks) without exposed bone. Most cases of ONJ are not painful and patients frequently describe a feeling of roughness of the gums in the area of exposed bone. If the gums (soft tissue) around the exposed bone become infected, you may notice pain or an odd taste. Rarely, severe cases may be associated with skin infections, fractures of the jaw, or intense pain. Your doctor may take x-rays or order a CT scan to assess how much of your jaw is affected.

How do we treat ONJ?

The goal of treatment is to reduce or eliminate any symptoms. Your doctor will evaluate your mouth carefully for any loose pieces of bone because removing these may help the healing process. If you have no symptoms, your doctor may not suggest any additional treatment besides periodic follow-up. If your gums are infected, your doctor will likely prescribe chlorhexidine (Peridex™), an antibacterial mouthrinse to be swished in your mouth and spat out twice a day. You also may be prescribed an antibiotic such as amoxicillin/clavulanate (Augmentin™) or clindamycin (Cleocin™). Loose teeth in the area may need extraction. In some cases, surgery may be recommended to correct the problem. Neuropathic pain symptoms can be managed with medications that reduce nerve activity, such as clonazepam (Klonopin™), gabapentin (Neurontin™) and carbamazepine (Tegretol™).

Patients with ONJ caused by radiation may be treated with hyperbaric oxygen and antibiotics as well as surgery.

What can I expect?

Although not all patients will achieve complete healing, treatment will help most patients with ONJ live pain-free or have minimal symptoms. Your doctor may evaluate you every few months to monitor your progress. Because bisphosphonates stay in the bones for years and the side effects of radiation may be life-long, patients who have or have had ONJ in the past may be at an increased risk of developing new areas of ONJ in the future especially if the bone is damaged from surgery. Therefore, the benefits and risks of gum surgery, root canal surgery, implant placement or tooth extractions must be carefully considered if you have or have had ONJ, or have been on bisphosphonate or denosumab. Other treatment options, such as root canal treatment, bridges or partial dentures instead of implants, should be considered.

If you have a tooth with a large cavity, your doctor will carefully consider the specifics of your situation and may, in some cases, still recommend extraction while prescribing antibiotics to minimize the chances of your developing ONJ. Some doctors may recommend that you discontinue your bone strengthening medication for a few weeks or months before oral/dental surgery, although it is unclear if this truly is effective in reducing the risk. Some patients who were treated with radiation may be prescribed hyperbaric oxygen before extraction while others may be given antibiotics only; however, neither intervention has been shown to effectively reduce the risk of developing ONJ. You should discuss the risks and benefits of these treatments with your doctors.

You should continue to see your dentist routinely every six months to be sure that any cavities or areas of early infection are taken care of right away.

