

# Osteoradionecrosis

## What is osteoradionecrosis?

Osteoradionecrosis (ORN) is a problem with bone healing that can occur in people who received high doses of radiation, particularly to the jaw. This complication can occur after dental surgery or extraction of teeth. High doses of radiation can decrease the bone's blood supply. If this happens, the bone gets less oxygen than it needs, resulting in the death (necrosis) of bone tissue. The most commonly affected bone is the jawbone (mandible).

## Who is at risk for osteoradionecrosis?

Survivors who received high doses of radiation to the jaw area (40 Gy or 4000 cGy/rads or higher) are at risk for this complication. Radiation fields that often include the jawbone are as follows:

- Cranial (head/brain)
- Nasopharyngeal (area above the roof of the mouth)
- Oropharyngeal (mouth and throat)
- Neck or spine ("cervical" portion)
- Supraclavicular (area above the collarbones)
- Mantle or mini-mantle (neck/underarm/chest areas)

It is important to obtain your medical records so that you know exactly how much radiation you received and where the radiation was directed. For example, survivors exposed to radiation doses of 50 Gy or higher to the jawbone have the highest risk for the development of ORN.

## When does osteoradionecrosis occur?

Although it is uncommon, ORN most often occurs when a survivor undergoes a dental procedure (such as pulling of tooth) or other surgery involving the jawbone.

## What are the symptoms of osteoradionecrosis?

Symptoms of ORN may occur months to years after radiation. Common symptoms include mouth pain, jaw swelling and difficulty opening the mouth fully (trismus).

## How is osteoradionecrosis diagnosed?

ORN can be diagnosed by physical examination and imaging studies (x-ray, CT scan and/or MRI). Sometimes, a surgeon may need to take a sample (biopsy) of the problem area in order to make a definite diagnosis. Radiation therapy records should be reviewed to determine the location and dose of radiation that was given.

## **How is osteoradionecrosis treated?**

Treatment of ORN is mainly through control of uncomfortable symptoms. Salt-water rinses and light scrubbing of affected tissues may be helpful. Antibiotics may help if a wound becomes infected. Hyperbaric oxygen therapy (oxygen delivered in a pressurized chamber) is sometimes used to increase the amount of oxygen given to the affected tissues and improve the chance of healing.

## **Is there anything I can do to prevent osteoradionecrosis?**

People who received radiotherapy involving the jaw should:

- Tell their dentist that they received radiation. The dentist will then be able to get details about the radiation treatment before doing any tooth extractions that could lead to ORN.
- Have regular dental care and take good care of their teeth and gums, since the risk for cavities is higher in people who received large doses of radiation. The dentist may order daily fluoride treatments to reduce the risk of cavities and the need for extracting teeth in the future.

## **Resources:**

### **The Oral Cancer Foundation**

3419 Via Lido #205, Newport Beach, CA 92663  
Phone (949)-646-8000, Fax (949)-496-3331  
Web: [www.oralcancerfoundation.org](http://www.oralcancerfoundation.org)

### **The American College of Oral and Maxillofacial Surgeons**

1710 Route 29, Galway, NY 12074  
Phone (518)-882-6729, Toll Free (800)-522-6676  
Fax (518)-882-6730  
Web: [www.acoms.org](http://www.acoms.org)

### **Works Cited**

Adapted from Children's Oncology Group Long-Term Follow-Up Guidelines for Survivors of Childhood, Adolescent, and Young Adult Cancers  
<http://www.survivorshipguidelines.org/>