Enchondroma

OVERVIEW
You have been diagnosed with an enchondroma, which refers to region in a bone that has an island of cartilage in it. Enchondromas are very common. Most people do not know that they have one, because they are asymptomatic and are usually only discovered as incidental findings when an xray is taken for another reason.

BACKGROUND
Enchondromas are found in patients of all ages. All decades of life are usually affected. The most common locations include the proximal humerus, proximal femur, hand, and distal femur. Patients may have single or multiple enchondromas. If the patient has multiple enchondromas and the lesions tend to occur on the same side with dysplastic changes of the bone, then the diagnosis of Ollier's disease is made. If soft tissue hemangiomas are seen in association with multiple enchondromas, then the diagnosis of Maffucci's syndrome is made.

DIAGNOSIS
Most of the time, enchondromas are asymptomatic. They are discovered when an xray is taken for another reason, such as a shoulder injury. Sometimes a fracture has occurred through the enchondroma. Often, the discovery of the enchondroma may be quite disconcerting as there is concern that this is tumor, however it is well established that an enchondroma is benign.

A review of the patient’s past history, as well as their family’s past history relative to fractures, rheumatologic conditions, bone tumors, endocrine disease, and cancer, is appropriate. Physical examination includes a screening examination for other abnormalities. Further imaging, such as MRI, is not a routine part of the workup, but may be used for unusual or atypical situations.

The radiographic appearance is diagnostic. Enchondromas are central intramedullary lesions. They usually lie adjacent to a cortical surface but do not cause major erosions or cortical bone destruction. In the adult patient, they are usually dormant without active growth. Since they are not growing, the radiographs do not display features of an active lesion: cortical erosion, cortical thickening, periosteal reaction, or cortical bone destruction. The majority of enchondromas are mineralized so that one can make the diagnosis from the plain radiograph. The mineralization pattern is characteristic with stippled or punctate calcifications that look like rings and arcs. The
typical appearance is a lesion with rings and stipples, with no
cortical erosion, thickening, or cortical bone destruction.

**TREATMENT**
As inactive lesions, enchondromas usually require no
treatment other than observation. Enchondromas are almost
always painless. When a patient has an enchondroma and has
pain, there are usually more common reasons to have pain in
that region. For example, if there is a proximal humeral
enchondroma and shoulder pain, the pain is usually secondary
to impingement or rotator cuff tendonitis. If there is a
distal femoral enchondroma and knee pain, which is common
in the middle age to older adult, the knee pain is usually
secondary to patellofemoral pain or osteoarthritis of the
knee. Treatment of these conditions usually leads to good
improvement of symptoms. If there is not another source for the pain, a biopsy of the cartilage
tumor must be performed. When necessary, enchondromas are curettaged and the defect
reconstructed with cancellous bone graft.

**COMPLICATIONS**
Enchondromas can weaken the bone and increase the risk for fracture. A fracture through an
enchondroma typically will heal without difficulty. Treatment of an enchondroma to prevent a
fracture may be indicated if the lesion is large enough and activities such as sports can lead to
stressful loading of the bone. Enchondromas can undergo malignant transformation in less than 1%
of cases. Malignant transformation risk is much higher in Ollier's or Maffucci's
enchondromatosis.

**EXPECTED OUTCOMES**
The overall outcome and prognosis is good. Enchondromas usually require no treatment and do not
cause problems.

**MORE INFORMATION**
Further information can be obtained on the internet. Your local public library can help you explore
these sources if you are interested. Two good sites for expert and peer reviewed information are
the American Academy of Orthopedic Surgeons at [www.aaos.org](http://www.aaos.org) and [www.emedicine.com](http://www.emedicine.com).

**FEEDBACK**
If you have questions or comments, please contact the office or submit them to the web site at
[www.pedortho.com](http://www.pedortho.com).