

# Orthopedic Center

## Hand and Orthopedic Upper Extremity Program

### Enchondroma

Whether your child or loved one suffers a broken arm, a sports-related injury or the most complex spine condition, the Orthopedic Center at Boston Children's Hospital is committed to providing comprehensive and compassionate care. Established in 1903, we are among the world's most experienced pediatric orthopedic programs, treating a high volume of some of the most complex orthopedic conditions. And with 13 specialty clinics, we are the largest in the country. We are also one of the busiest. Each year, our staff attends to about 100,000 patient visits and conducts about 6,000 surgeries.

The Hand and Orthopedic Upper Extremity Program provides comprehensive care for infants, children and adolescents with a wide range of complex upper limb conditions. Multidisciplinary care involving occupational and physical therapy, splinting, casting and reconstructive surgeries is provided for congenital, neuromuscular, sports-related oncologic, traumatic or post-traumatic conditions.

#### What is an enchondroma?

Enchondromas are benign (non-cancerous) cartilage tumors seen frequently in arms and legs. Often located in the metaphysis of long tubular bones, enchondromas are the most common type of bone tumor in the hand.

#### What causes enchondroma?

The exact cause of an enchondroma is unknown, however, there are two theories. Most believe that enchondromas occur as a result of ectopic growth of the cartilage arising from the growth plate at the ends of the bones. Others believe that enchondromas arise from pockets of embryonic cartilage.

#### What are the symptoms of enchondroma?

While most enchondromas are asymptomatic, some individuals may experience pain in the affected area if any, or a combination of, the following occur:

- the tumor becomes very large,
- the tumor causes weakness of the affected bone, leading to a fracture,
- the tumor causes abnormal growth of the affected area

#### Who is affected?

No clear risk factors are known. Patients of either gender and any racial background can be affected. In general, enchondromas present in adolescence or early adulthood.

#### Conditions associated with enchondromas

An enchondroma may present as a solitary tumor or with multiple areas of involvement. In cases that involve multiple tumors, the following conditions may be diagnosed:

Ollier's disease (a.k.a. enchondromatosis)– Multiple enchondromas in various sites of the body. Less common than cases of single enchondroma.

Maffucci's syndrome– Multiple enchondromas associated with soft tissue hemangiomas (benign tumors made up of blood vessels).

#### How are enchondromas diagnosed and treated?

Enchondromas are diagnosed by your physician after a thorough medical history and physical examination. In addition, the following diagnostic tests may also be performed: x-ray, bone scan, MRI, CT scan.

Treatment is individualized for each patient, taking into consideration the patient's general health, medical history, and extent of the condition. In cases where there is no sign of bone weakness or continued tumor growth, the affected area may be observed with serial physical examinations and radiographs as determined by your treating physician.

In cases where there is pain, fractures, abnormal growth, or multiple tumors, surgery is recommended. Surgical treatment typically involves excising the enchondroma and using bone graft to facilitate healing in the area of the excision.



### Clinical Team

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### Locations

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