

# Surgical Pathology and Oncology Research

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## General characteristics of benign bone tumors

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The majority of primary bone tumors are benign tumors, and the etiology is unknown. Benign bone tumors range from coincidental lesions that do not cause any symptoms and do not require treatment, to lesions with aggressive behavior that can cause deformity and pathological fractures and require surgical treatment. Most benign tumors can only be diagnosed with direct radiographs.

Despite today's advanced imaging techniques, history, and physical examination always have priority in patients with tumors. Briefly, the order in the diagnostic algorithm should be clinical evaluation, radiology, and histopathology (biopsy).

Unlike other tumors, the age and location characteristics of bone tumors are quite stable. And orthopedic surgeons, pathologists, radiologists, and oncologists should evaluate the cases together.

The most reliable indicator to determine whether these lesions are benign or malignant is the zone of transition

between the lesion and the adjacent normal bone. The geographic pattern has a narrow transition zone, and most benign tumors and some slow-growing malignant tumors have this pattern. A wide transition zone is seen especially in malignant tumors, but it can also be seen in osteomyelitis and some benign tumors. Moth-eaten and permeative patterns are seen in malignant tumors.

Lesions that are asymptomatic, radiologically benign, and do not damage the mechanical integrity of the bone should only be followed. A biopsy should be performed on a lesion that is painless, without significant growth, but a clear differential diagnosis cannot be made. Lesions that are clinically indistinguishable and show radiologically aggressive criteria should be biopsied.

The most popular and useful staging system for orthopedic surgeons is the Enneking staging system. In this system, benign bone tumors are classified into three groups: latent, active, and aggressive.

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