

# Bone and soft tissue pathology, the importance of the systematic approach

The clinical and imaging staging procedure is completed by bone and soft tissue tumor specimens, and anatomic pathologic evaluation, together with immunohistochemistry and molecular biology, are used to confirm the diagnosis and histological grade of the bone and soft tissue sarcoma.

The ideal place to perform a biopsy on a patient with sarcoma is a referral facility with experience in treating these tumors. According to the need, a series of conventional radiographs, computed tomography of the afflicted region and the chest, abdomen, and pelvis, MRI, bone scintigraphy, and PET scan should be performed before the biopsy. When assessing the tumor vascularization, the CT scan or MRI angiographic component is crucial.

Imaging-guided (CT scan or MRI) or incisional biopsy techniques must be used to acquire tumor tissue. Planning the biopsy site properly will ensure that the entire tumor and the incision are removed together when the final surgical resection is done.

The biological behavior of the tumor is predicted by the histological subtype and grade, the factor that has the biggest influence on the likelihood of metastasis and overall survival. The pattern of tumor cell proliferation, mitotic activity, and metastatic potential are correlated with the histologic grade.

From a histological perspective based on cellular atypia, quantity of mitoses, level of tumor necrosis, and level of vascularization, sarcomas are categorized as high grade or low grade. Low-grade tumors often have less biological activity, little potential for metastasis, require less invasive surgical intervention, and they are not susceptible to adjuvant chemotherapy or radiation, which are frequently unsuccessful because of decreased cell proliferation. On the other hand, high-grade lesions frequently need severe local and systemic therapies because of their biologically aggressive character.

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