



# Clinical Implications of Bone Sarcomas

# 14

Ioannis D. Papanastassiou  
and Nikolaos S. Demertzis

## 14.1 Diagnosis

First study should be a plain X-ray of the affected area, followed by CT or MRI. Pulmonary lesions are detected with CT, whereas skeletal foci are detected with bone scan. It is possible that we are currently not staging patients optimally and some metastatic lesions are being misdiagnosed and perhaps other modalities such as total body MRI should be employed.  $^{18}\text{F}$ -FDG PET/CT is a useful imaging modality for diagnosis and staging especially in high-grade tumors. It is also more sensitive to bone scanning in Ewing's sarcomas of the bones. PET is also necessary to distinguish viable residual tumor from necrosis following treatment [1].

## 14.2 Staging

For bone sarcomas, the most widely used classification systems are the Musculoskeletal Tumor Society system developed by Enneking in the 1980s and the American Joint Cancer Committee (AJCC) system. They have different scope, since AJCC is related to prognosis and includes some

parameters (i.e., size) not encountered in Enneking's classification, which on the other hand is related to the surgical approach.

## 14.3 Surveillance

According to NCCN guidelines, patients should be monitored every 3 months for the first 2 years, every 4 months in the third year, every 6 months for the fourth and fifth years, and on an annual basis thereafter. Clinical exam, chest imaging (X-ray or CT), and imaging of the primary site (X-ray, MRI, or CT), as well as skeleton screening (bone scan or PET), may be performed in regular intervals. Especially for CS, late recurrences (even after 10 years) are more common, so patients should be advised and followed up accordingly.

## Reference

1. Bastiannet E, Groen H, Jager PL et al (2004) The value of PET/CT scan in the detection grading and response to therapy of soft tissue and bone sarcomas: a systematic review and meta-analysis. *Cancer Treat Rev* 30:83–101

I. D. Papanastassiou (✉) · N. S. Demertzis  
General Oncological Hospital Kifisias,  
Athens, Greece