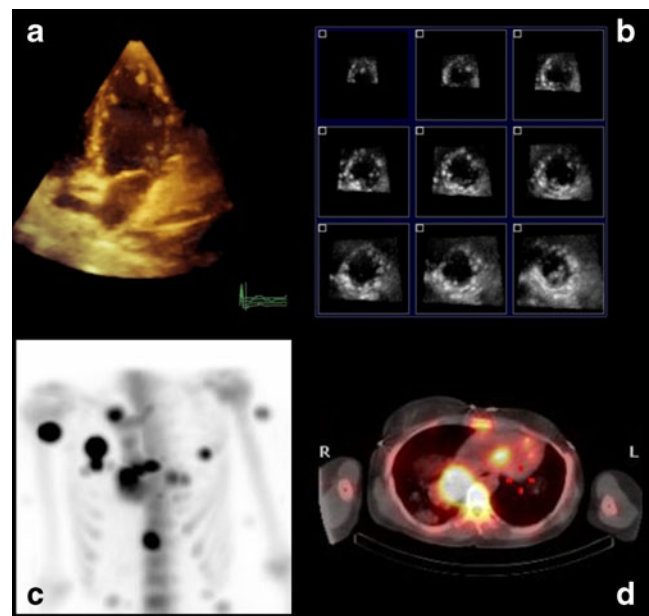


Three-dimensional echocardiography and ^{153}Sm -EDTMP SPECT/CT in extensive cardiac metastases from osteosarcoma

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A 32-year-old woman with a history of osteosarcoma of the left femur was referred for echocardiography prior to chemotherapy. After initial diagnosis at the age of 24 years, the tumour was resected followed by neoadjuvant chemotherapy according to the Cooperative German-Austrian-Swiss Osteosarcoma Study Group's protocol (COSS 96). Eight years later the patient was referred again with pulmonary, subcutaneous and skeletal metastases. Following local resection of skeletal metastases chemotherapy with carboplatin and etoposide demonstrated no effect. Following therapy with interferon α -2b and bisphosphonate the patient was referred for echocardiography with shortness of breath prior to additional chemotherapy. Transthoracic 3D-echocardiography revealed numerous partially calcified nodules in the left ventricular myocardium ranging in size from 1 mm to 1.5 cm (a). Particularly the parallel projection in the short axis view allows detailed analysis of infiltration of myocardial tissue (b). The left ventricular ejection fraction was moderately reduced and diastolic function was severely impaired. After failure of previous chemotherapy and extensive metastases high-dose radionuclide therapy with 27.2 GBq ^{153}Sm -ethylenediaminetetramethylenephosphonate (EDTMP) was applied. Consecutive



whole-body scanning and SPECT/CT demonstrated variable ^{153}Sm -EDTMP uptake in the soft tissue metastases (c) including substantial foci in the myocardium as depicted by SPECT/CT (d). Although cardiac metastasis from osteosarcoma in the left ventricular myocardium is quite rare (25 cases in the literature), improved survival with effective treatment of particularly young patients with extensive metastases in later stages calls for regular screening with echocardiography to rule out cardiac involvement.

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