

Table 4. Imaging diagnostics. General.

We recommend:

1.	<p>MRI as a method of choice in the detection of neoplastic spreading in the spine The sensitivity of the multi-slice computed tomography examination is significantly lower in detecting metastases to the spine compared to magnetic resonance imaging. For this reason, MRI is the method of choice as the most sensitive tool in the detection of neoplastic spreading in the spine.</p>	B	[17]	III	retrospective
2.	<p>MRI and CT to identify patients at high risk of vertebral fracture and spinal cord compression (SCC). Current clinical consensus favours magnetic resonance imaging and CT imaging modalities for the investigation of SCC and vertebral fracture</p>	B	[18]	III	Systematic review of literature
3.	<p>MRI as a more sensitive imaging study than skeletal scintigraphy in detecting spinal metastases.</p>	B	[19]	II	Prospective
4.	<p>Sagittal T1 weighted and / or T2 weighted axial projections as necessary to detect vertebral metastases, epidural tumor mass and the degree of compression of the spinal cord.</p>	B/C	[20]	II/III	Randomized prospective study
5.	<p>Imaging diagnostics of the spine in patients with prostate cancer even in the absence of neurological deficits A significant proportion of patients with metastatic may harbour overt or occult spinal cord compression in the absence of functional neurologic deficits</p>	B/C	[21, 22]	II/III	Prospective and retrospective study
6.	<p>The T2-weighted images as crucial when grading spinal canal compromise with the use of Epidural Spinal Cord Compression scale (ESCC) The T2-weighted images are superior indicators of epidural spinal cord compression compared with T1-weighted images with and without gadolinium The ESCC scale provides a valid and reliable instrument that may be used to describe the degree of ESCC based on T2-weighted MR images.</p>	C	[23]	V	Validation study
7.	<p>Spinal Instability Neoplastic Score (SINS) for assessment of spinal instability due to neoplastic disease</p>	C	[24]	III	Validation study

	SINS demonstrates near-perfect inter- and intraobserver reliability in determining three clinically relevant categories of stability. The sensitivity and specificity of SINS for potentially unstable or unstable lesions are high				
8.	That radiology reports include Spinal Instability Neoplastic Score (SINS) in patients with neoplastic disease of the spine Among radiation oncologists SINS is a highly reliable, reproducible, and valid assessment tool to address a key question in tumor related spinal disease: Is the spine ‘stable’ or is there ‘current or possible instability’ that warrants surgical assessment?	I	[25]	V	Multicenter validation study

Table 5. Imaging Diagnostics. Primary benign tumors.

We recommend:

1.	To take a closer look at signal intensity measurements on T1 with and without fat suppression to differentiate spinal hemangiomas from metastases	B	[26]	III	Retrospective
2.	MRI as study with a key role in the diagnosis of benign tumors of the spine. In some cases of benign tumors, MR imaging enables a reliable diagnosis (eg, stem hemangioma, osteoma, lipoma. Some tumors may not require contrasting examination due to their characteristic image but in case of doubt, the examination should be supplemented with contrast, computed tomography, possibly scintigraphy, or even PET	B	[27]	III	Retrospective
3.	To take into account the tumor size, preoperative alkaline phosphatase (ALP) and CT images for distinguishing aggressive osteoblastoma from conventional osteoblastoma	B	[28]	III	Retrospective

Table 6. Sarcomas. General diagnostic requirements.

1.	That medical centers that perform diagnostic and therapeutic procedures on spine sarcomas should have the following organizational possibilities:	C	[1]	V	Expert opinion
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	<ol style="list-style-type: none"> 1. Staff: oncological surgery specialist / orthopedist and neurosurgeon with experience in en block spine surgery / pediatric surgeon with experience in the treatment of bone sarcomas - on site, clinical oncology specialist - on site, radiotherapy specialist - on site, physiotherapist - on site , psycho-oncologist - at the location. 2. Intensive Care Unit - on site 3. Radiology laboratory (24/7 access) - USG, CT, MRI in a location with the possibility of performing an intraoperative X-ray examination 4. Histopathology laboratory with the possibility of performing an intraoperative examination pathology at the location 5. Conducting a multidisciplinary consultation (oncologist / orthopedic surgeon, radiotherapist, clinical oncologist-chemotherapist, pathologist, radiologist) at the center. 6. Possibility of carrying out adjuvant treatment (chemotherapy, radiotherapy with the possibility of IMRT and stereotaxic techniques) at the location or under an agreement with external center. Coordination of systemic treatment and radiotherapy must be ensured. 7. Possibility to perform cytogenetic and molecular diagnostics – in location or on the basis of an agreement with an external center 8. It has been assumed that in Polish conditions, it is recommended that patients with bone sarcomas be treated only in specialized reference centers or in units with extensive experience in treating patients with this cancer, where at least 20-25 patients with bone sarcomas are treated annually. 				
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Table 7. Biopsy

We recommend:

1.	planning a spine biopsy should be based on at least two out of following three imaging studies: CT, NMR, PET.	B	[29]	II	Systematic review of the literature
2.	that the biopsy be performed in at a center where definite Enneking appropriate surgical treatment can be performed if a primary tumor is suspected	B	[30]	II	Systematic review of the literature
3.	a percutaneous over open biopsy of neoplastic lesions of the spine. Percutaneous biopsy is safer than open biopsy and equally effective	A	[31]	I	Retrospective
4.	that a diameter of the collected bone cylinder on the percutaneous biopsy of the vertebral lesion be greater than 2mm This size ensures the preservation of the bone architecture crucial for histological diagnosis. The diagnostic value of percutaneous vertebral biopsy is very high	B	[32, 33]	II/III	Retrospective, prospective
5.	performing percutaneous biopsy under the control of a CT scan or ideally under navigation CT allows for more accurate and safer biopsy compared to C-arm navigated biopsy	B	[33]	III	retrospective
6.	a percutaneous biopsy especially for lesions in the anterior column of the spine.	B	[33]	III	retrospective
7.	that biopsy be performed in a center with full surgical and pathomorphological facilities. The accuracy of the biopsy is influenced by the experience of the surgeon performing the procedure and the pathologist assessing the bone tissue, therefore the biopsy should be performed in a center with full surgical and pathomorphological facilities. Errors, complications, and changes in the course and outcome are two to twelve times greater when the biopsy is done in a referring institution instead of in a treatment center	B	[33, 34]	III	retrospective

Table 8. Sarcomas. General requirements of histological diagnostics

We recommend:

1.	that the pathomorphological examination report should be based on the classification of the World Health Organization. In the differential diagnosis of small cell neoplasms	B	[35, 36]	II	Systematic review
2.	that the differential diagnosis be performed in centers with access to immunohistochemical and cytogenetic tests. Differentiaon histological diagnosis is necessary to assess the characteristic translocations	B	[35, 36]	II	Systematic review