

**Table 27. METASTASES.**

<b>SCORING SYSTEMS AND DIAGNOSTICS</b>					
<b>We recommend:</b>					
<b>1.</b>	<b>that the final decision regarding the treatment of a patient with spinal metastases be made on the basis of the outcome of the prognostic scales and individual assessment in each case.</b> All widespread scoring systems to estimate both overall survival and tumor-specific survival for patients undergoing surgical treatment for metastatic spine disease have similar efficacy. There is no clear evidence of the superiority of either of them	B/C	[110, 111]	III	Literature review, retrospective
<b>2.</b>	<b>the use of Spinal Instability Neoplastic Score (SINS) for assessment of spinal instability in neoplastic involvement of the spine.</b> SINS gives reliable indications for spinal instability surgery in metastatic disease of the spine	B	[112]	III	retrospective
<b>3.</b>	<b>the use of the National Outcomes Measurement System (NOMS) to facilitate decision-making and can optimize patient care</b>	C	[113]	V	Expert opinion
<b>4.</b>	<b>performing complete radiological diagnostics (skull radiographs, computed tomography of the chest, abdomen and pelvis), panel of oncological and hematological markers before performing bone biopsy in patients with suspected metastatic lesion of unknown starting point.</b>	B	[114]	III	retrospective

**METASTASES. USE OF STEROIDS IN SPINAL CORD COMPRESSION****We recommend:**

<b>1.</b>	<b>short term salvage use of steroids in metastatic spinal cord compression (MSCC) before surgery in rapidly worsening or with severe neurological deficits cases.</b> The optimal dose of steroids is unknown, with one small trial demonstrating no significant difference in efficacy of higher-dose dexamethasone over lower doses. High-dose regimens may hold a higher risk of steroid-related adverse effects and thus one should consider as to whether or not the risks outweigh the benefits of high-dose dexamethasone regimens	A/B	[115, 116]	II	Randomized control study, literature review
<b>2.</b>	<b>not to use chronic steroid therapy is not recommended to improve neurological function and reduce pain.</b>	B	[117]	II	literature review

**METASTASES. SURGICAL TREATMENT.****We recommend:**

<b>1.</b>	<b>to perform the least invasive procedures with the use of minimally invasive techniques sufficient to provide patients with pain reduction, decompression of nerve structures and restoration of stability.</b>	B	[118-120]	III	retrospective
<b>2.</b>	<b>to perform minimally invasive fixation or augmentation of the vertebral body in the event of a pathological fracture associated with radiotherapy.</b>	B	[121]	III	retrospective

3.	<b>en bloc resection only for carefully selected metastatic lesions such as hormone-secreting tumors and solitary radioresistant tumors but must be considered in the context of the patient's systemic disease status and the morbidity of surgery.</b> Total en-block resection may have narrow indications in carefully selected cases of type 3, 4, and 5 lesions; and relative indications for type 1, 2, and 6 lesions according to Tomita's surgical classification of spinal tumor.	B	[122, 123, 124]	III	Literature review, retrospective
4.	<b>cement augmentation of pathologically fractured vertebral body in the course of hematological neoplasms.</b>	B	[125, 126]	III	Literature review
5.	<b>to decompress the spinal cord in case of increasing neurological deficits within 48 hours.</b>	B	[127]	III	retrospective
6.	<b>cautious qualification of patients for surgical treatment with complete paralysis and dysfunction of the sphincters.</b>	B	[128]	III	retrospective
7.	<b>composite instrumentation of the spine.</b> In contrast to metal implants composite implants eliminate artifacts and therefore allow for precise planning radiotherapy and make it more effective.	B	[129-135]	III	retrospective
8.	<b>not to use bone grafting in patients who have undergone resection of metastatic tumors.</b>	B	[136]	III	retrospective
9.	<b>performing preoperative embolization of highly vascularized tumors (kidney cancer, thyroid cancer, pheochromocytoma).</b>	B	[137]	III	retrospective
<b>LECZENIE RADIOTERAPEUTYCZNE – NOWOTWORY PRZERZUTOWE</b> We recommend:					

1.	<p><b>radiosurgery when available rather than classic radiotherapy for radiation therapy of spinal metastases whether stand-alone or in combination with surgery</b></p> <p>Radiosurgery is safe and does not increase the risk of complications in relation to palliative radiotherapy. Radiosurgery has a longer analgesic effect than conventional palliative radiotherapy</p>	A	[138, 142, 143, 144, 145, 146]	I	Randomized control study
2.	<p><b>stand-alone radiosurgery as a method of choice in the case of diagnosing up to 3 metastatic lesions of the spine without signs of instability and neurological deficits in patients with a survival prognosis of &gt; 3 months.</b></p> <p>Radiosurgery of several metastatic lesions prolongs the survival of patients in relation to palliative treatment</p>	B	[139]	II	Systematic review of Level II and III studies
	A	[140]	I	Randomized control study	
3.	<p><b>re-radiosurgery as a treatment option in the event of local recurrence after radiosurgery or palliative radiotherapy in patients disqualified from surgery.</b></p> <p>Radiosurgery has a very good therapeutic effect, understood as stopping the growth of the treated focus, both when used alone and in combination with surgical treatment</p>	B	[141]	II	Systematic review of Level III studies, case series
4.	<p><b>radiotherapy of the spine as a treatment option in patients with spine metastases when radiosurgery is not available or a patient is disqualified from radiosurgery and/or surgical decompression and leaving the regiment of EBRT to a decision of radiotherapist.</b></p>	B	[147]	II	Systematic review of Level II and III studies

	A single dose of 10Gy is not associated with a greater risk of loss of mobility than the 20Gy regimen in 5 fractions in the group of patients not qualified for decompression	A	[148]	I	Randomized control study
5.	<p><b>combining surgical decompression/separation surgery with radiosurgery or classic radiotherapy (EBRT) when the former is not available</b></p> <p>Radiotherapy in combination with surgical decompression improves local control in patients treated for compression of the spine. Radiosurgery allows for less invasive surgical procedures and improves the quality of life of patients with spinal cord compression.</p> <p>Radiosurgery is a safer therapeutic option than conventional radiotherapy in regard to post-operative wound healing.</p> <p>The operation performed after radiosurgery is not associated with more frequent complications Performing the procedure in short time after radiosurgery (less than 7 days) is safe and does not increase the rate of complications Radiosurgery can increase the safety of the subsequent surgery by reducing tumor bleeding</p>	B	[149, 150, 151, 152, 153, 154, 155]	I/II	<p>Randomized control study, Systematic reviews, Systematic review of Level II and III studies, Prospective</p> <p>Systematic review of level III studies,</p> <p>Retrospective comparative study, Expert opinion Prospective study Large retrospective study Prospective study</p>
6.	<b>that conventional radiotherapy should be used optimally, min. 2 weeks after the surgery due to the need to heal the wound.</b>	C	[156, 157, 158]	III	Systematic review of level III studies
			[159, 160, 153]	III	Systematic review of level III studies

	Using this method too early may result in the necessity to remove the implants due to inflammation. Radiosurgery can shorten this time.				
7.	<p><b>the use of carbon instrumentation in the case of operations before radiosurgery.</b></p> <p>The use of carbon implants enables the precise and more effective application of radiation treatment techniques and the planning of radiosurgery.</p>	C	[161]	III	Case series