THE UNIVERSITY OF TEXAS MD Anderson Cancer Center
Making Cancer History®

Spinal Cord Compression Management in Cancer Patients

Disclaimer: *This algorithm has been developed for MD Anderson using a multidisciplinary approach considering circumstances particular to MD Anderson's specific patient population, services and structure, and clinical information. This is not intended to replace the independent medical or professional judgment of physicians or other health care providers in the context of individual clinical circumstances to determine a patient's care. This algorithm should not be used to treat pregnant women.*

PATIENT PRESENTATION

Suspected spinal cord compression in adult patient age 18 or older *(severe pain or abnormal findings on exam or neurologic complaints or incidental finding on imaging- not intended for traumatic injuries. If in Acute Cancer Care Center, triage patient as emergent.)*

Pain and/or neurological symptoms with progression within 48 hours[1]?

TREATMENT

Yes

Emergent treatment as follows:

- Dexamethasone[2] 10 mg IV STAT followed by 16 mg PO daily in divided doses
  - Usually given in 2 to 4 divided doses
  - Taper over 2 weeks
- Obtain STAT MRI cervical thoracic lumbar spine with and without contrast (to be reviewed by Radiologist while patient is in MRI to evaluate for additional axial region of interest imaging if needed)
- Implement bed rest
- If cervical spine lesions suspected, place patient in Philadelphia Collar
- Baseline neurological exam followed by serial neurological exams after steroid treatment
- Initiate mechanical prophylaxis options for venous thromboembolism
- Initiate discussion with primary team to determine patient's prognosis, systemic disease progression and therapeutic options
- Initiate a Goal Concordant Care (GCC) conversation[3] with the patient, or if clinically indicated, with the Patient Representative, and the Primary Oncologist/Primary Team/ Attending Physician. The Advance Care Planning (ACP) note should be used to document GCC discussion.

No

- Consider dexamethasone[2] 10 mg IV followed by 16 mg PO daily in divided doses (taper over 2 weeks)
- Obtain MRI cervical thoracic lumbar spine with and without contrast (to be reviewed by Radiologist while patient is in MRI to evaluate for additional axial region of interest imaging if needed)

Imaging supports spinal cord compression[4]?

Yes → See Page 2

No

- Further work-up by attending physician
- Notify Neurosurgery if suspected spinal instability

[1] Consider use of Frankel Classification or ASIA Impairment Scale to assist with patient's current status (see Appendix A)
[2] Use of steroids in undiagnosed lymphomas is not recommended
[3] Refer to the GCC home page (for internal use only)
[4] Consider use of Epidural Spinal Cord Compression (ESCC) Scale for cord compression assessment (see Appendix B)

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FURTHER TREATMENT

Imaging supports spinal cord compression[1]

- Initiate a Goal Concordant Care (GCC) conversation[2] with the patient, or if clinically indicated, with the Patient Representative, and the Primary Oncologist/Primary Team/ Attending Physician. The Advance Care Planning (ACP) note should be used to document GCC discussion.
- Attending physician initiates discussions to determine appropriate treatment (considering spine stability, the extent of disease, performance status, and prognosis) with the following:
  - Patient
  - Primary physician regarding prognosis
  - If neurologically intact – admit patient for further evaluation by primary service. Consult Radiation Oncology and Neurosurgery.
- STAT emergent consults if:
  - Neurological deficits - Neurosurgery and Radiation Oncology
  - Suspected spinal instability - Neurosurgery
- If unclear whether signs and symptoms correlate with MRI - consider Neurology consult
- Consider Pain Management and/or Palliative/Supportive Care consult if clinically indicated
- Consider Infectious Disease consult if clinically indicated

→ Tissue diagnosis if clinically indicated → Disease sensitive to systemic therapy?

Yes → Primary team to treat with systemic therapy[3]

No → Surgery appropriate?

Yes → Surgery

No → Radiation therapy appropriate[4]?

Yes → Radiation therapy

No →

- Palliative Care for symptom control
- Consider Physical Medicine and Rehabilitation consult for neurogenic bladder and bladder management
- Consider PT/OT consult for mobility as clinically indicated

Surgery, Radiation therapy →

- Post-treatment follow up
- Re-evaluate symptoms and determine further treatment

PT = physical therapy; OT = occupational therapy

[1] Consider use of Epidural Spinal Cord Compression (ESCC) Scale for cord compression assessment (see Appendix B)

[2] Refer to the GCC home page (for internal use only)

[3] If patient is already receiving chemotherapy, the oncologist will advise on whether treatment should be continued/discontinued/delayed

[4] Consider radiosensitivity of tumor

Spinal Cord Compression Management in Cancer Patients

APPENDIX A: Frankel Classification

Grade	Status	Sensory Function Below Level of Compression	Motor Function Below Level of Compression
A	Paraplegia	No sensation	Complete paralysis (no function)
B	Sensory function only	Some sensation	Complete paralysis (no function)
C	Non-ambulatory	-	Some motor function, but of no practical use to the patient
D	Ambulatory	-	Some motor function, but of no practical use to the patient
E	No neurologic signs or symptoms	Normal	Normal

ASIA Impairment Scale (AIS)

A = Complete. No sensory or motor function is preserved in the sacral segments S4-5.

B = Sensory Incomplete. Sensory but not motor function is preserved below the neurological level and includes the sacral segments S4-5 (light touch or pin prick at S4-5 or deep anal pressure) AND no motor function is preserved more than three levels below the motor level on either side of the body.

C = Motor Incomplete. Motor function is preserved at the most caudal sacral segments for voluntary anal contraction (VAC) OR the patient meets the criteria for sensory incomplete status (sensory function preserved at the most caudal sacral segments S4-5 by LT, PP or DAP), and has some sparing of motor function more than three levels below the ipsilateral motor level on either side of the body. (This includes key or non-key muscle functions to determine motor incomplete status.) For AIS C – less than half of key muscle functions below the single NLI have a muscle grade ≥ 3.

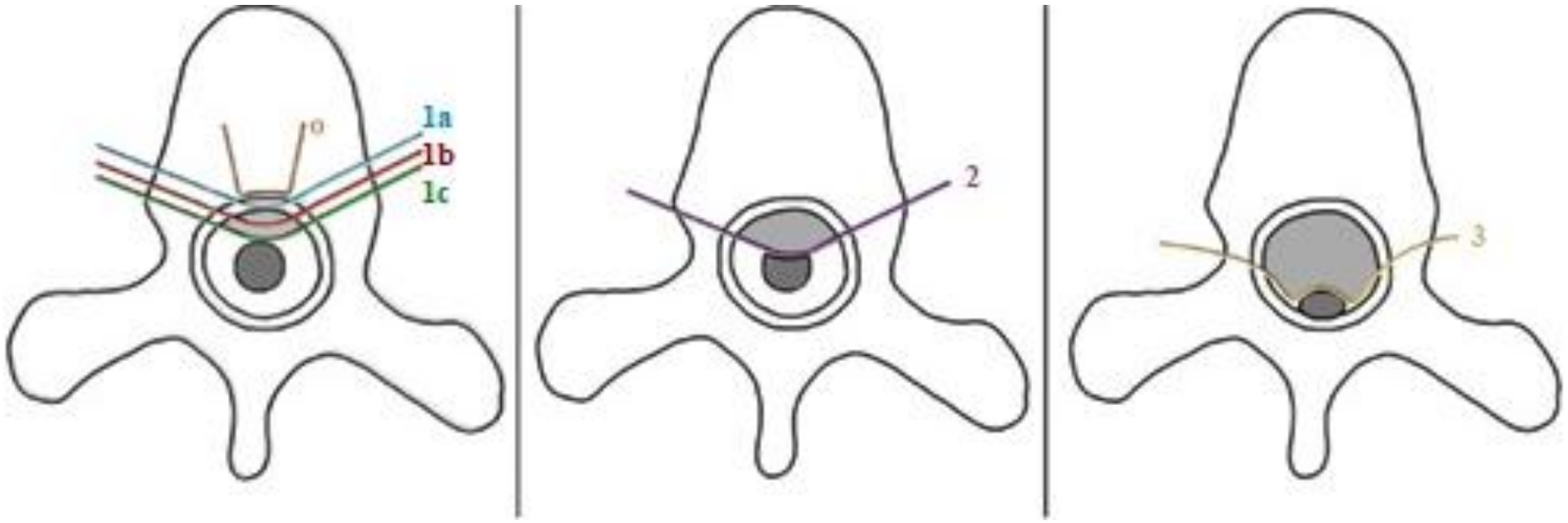
D = Motor Incomplete. Motor incomplete status as defined above, with at least half (half or more) of key muscle functions below the single NLI having a muscle grade ≥ 3.

E = Normal. If sensation and motor function as tested with the ISNCSCI are graded as normal in all segments, and the patient had prior deficits, then the AIS grade is E. Someone without an initial SCI does not receive an AIS grade.

Using ND (not determinable): To document the sensory, motor and NLI levels, the ASIA Impairment Scale grade, and/or the zone of partial preservation (ZPP) when they are unable to be determined based on the examination results.

From American Spinal Injury Association. (2019) *International Standards for Neurological Classification of SCI (ISNCSCI) Worksheet.* Retrieved from https://asia-spinalinjury.org/wp-content/uploads/2019/10/ASIA-ISCOS-Worksheet_10.2019_PRINT-Page-1-2.pdf. Adapted with permission.

APPENDIX B: Epidural Spinal Cord Compression (ESCC) Scale



Schematic representation of the 6-point ESCC grading scale.

Grade 0	Bone-only disease
Grade 1a	Epidural impingement, without deformation of thecal sac
Grade 1b	Deformation of thecal sac, without spinal cord abutment
Grade 1c	Deformation of thecal sac, with spinal cord abutment, without cord compression
Grade 2	Spinal cord compression, with cerebral spinal fluid (CSF) visible around the cord
Grade 3	Spinal cord compression, no CSF visible around the cord

From "Reliability analysis of the epidural spinal cord compression scale," by M. H. Bilsky, I. Laufel, D. R. Fourney, M. Groff, M. H. Schmidt, P. P. Varga, … T. R. Kuklo, (2010), *Journal of Neurosurgery: Spine, 13*, p. 325. *Copyright 2010* by American Association of Neurological Surgeons. Adapted with permission.

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