Solid Tumor Leptomeningeal Metastases

Note: Consider Clinical Trials as treatment options for eligible patients.

PRESENTATION

Signs and symptoms or neuro-axis imaging suggestive of leptomeningeal disease (LMD)

EVALUATION

- Physical exam with comprehensive neurologic evaluation[1]
- MRI brain and MRI cervical/thoracic/lumbar spine with and without contrast
- Cerebrospinal fluid (CSF) exam[2] for the following:
  - Cell count with differential, with pathologist review as applicable
  - Glucose
  - Protein
  - Cytopathology (10-12 mL)
  - Flow cytometry for lymphoma or hematologic malignancies
  - Opening pressure
- If indicated, consider:
  - Gram stain and culture
  - Cryptococcal antigen
  - Calcofluor white smear
  - Viral PCR (HSV, CMV, EBV)
  - Fungal and viral cultures
- Lifestyle risk assessment[3]
- Discuss Goal Concordant Care (GCC) with patient or if clinically indicated, with Patient Representative[4]

DIAGNOSIS

- CSF cytopathology positive for malignant cells

and/or

- Radiographic imaging consistent with LMD and supportive neurologic signs/symptoms

and/or

- Suggestive CSF[5] findings with supportive neurologic findings in a patient with a known malignancy

RISK STATUS

Poor Risk[6]:

- Low Karnofsky performance status (KPS)[7]
- Major neurologic deficits
- Extensive systemic disease without reasonable treatment options
- Encephalopathy

Good Risk:

- High Karnofsky performance status (KPS)[8]
- No major neurologic deficits
- Minimal systemic disease
- Reasonable treatment options available for systemic disease (if applicable)

TREATMENT/ EVALUATION

Consider fractionated external beam radiation therapy to symptomatic sites **and/or** best supportive care

See Page 2

[1] Mental status, cranial nerves, motor, sensory and cerebellar exam

[2] Use caution for lumbar punctures in patients who are anticoagulated, thrombocytopenic, or who have a bulky intracranial mass (refer to Peri-Procedure Management of Anticoagulants and Adult Lumbar Puncture algorithms)

[3] See Physical Activity, Nutrition, and Tobacco Cessation Treatment algorithms; ongoing reassessment of lifestyle risks should be a part of routine clinical practice

[4] GCC should be initiated by the Primary Oncologist. If Primary Oncologist is unavailable, Primary Team/Attending Physician to initiate GCC discussion and notify Primary Oncologist. Patients, or if clinically indicated, the Patient Representative should be informed of therapeutic and/or palliative options. GCC discussion should be consistent, timely, and re-evaluated as clinically indicated. The Advance Care Planning (ACP) note should be used to document GCC discussion. Refer to GCC home page (for internal use only).

[5] In the appropriate clinical setting, CSF suggestive of LMD in the absence of positive cytology includes increased opening pressure, high WBC and/or low glucose and/or high protein. If CSF is not positive for tumor cells, up to three lumbar punctures may be of clinical value.

[6] Poor risk patients that are highly sensitive to chemotherapy or targeted therapy may be treated

[7] Refer to the Karnofsky Performance Status Scale (see Appendix A) – Score < 60 is considered a poor risk factor

[8] Refer to the Karnofsky Performance Status Scale (see Appendix A) – Score ≥ 60 is considered a good risk factor

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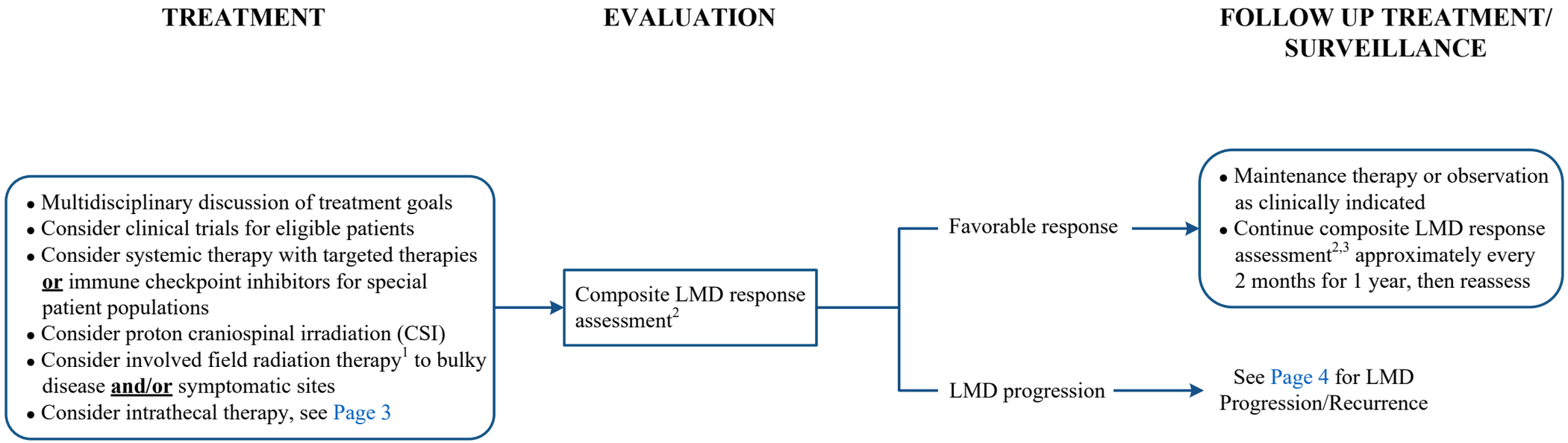
Solid Tumor Leptomeningeal Metastases

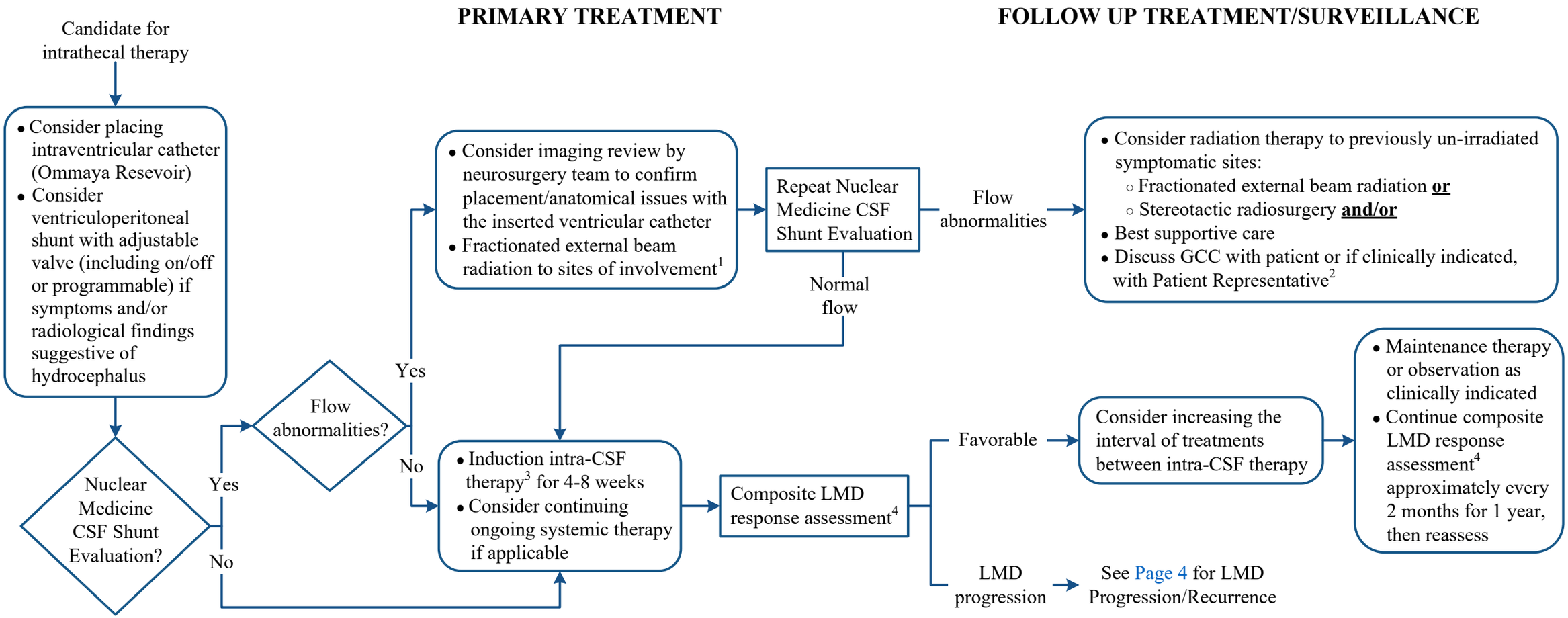
Note: Consider Clinical Trials as treatment options for eligible patients.



[1] Typically whole brain radiation therapy (WBRT) and/or partial spine field recommended
[2] LMD treatment response is assessed using a composite of clinical evaluation, neuro-axis imaging, and CSF analysis
[3] Consider deferring CSF assessment in patients not on intrathecal therapy

Solid Tumor Leptomeningeal Metastases

Note: Consider Clinical Trials as treatment options for eligible patients.



[1] Usually whole brain radiation therapy (WBRT) and/or partial spine field recommended
[2] GCC should be initiated by the Primary Oncologist. If Primary Oncologist is unavailable, Primary Team/Attending Physician to initiate GCC discussion and notify Primary Oncologist. Patients, or if clinically indicated, the Patient Representative should be informed of therapeutic and/or palliative options. GCC discussion should be consistent, timely, and re-evaluated as clinically indicated. The Advance Care Planning (ACP) note should be used to document GCC discussion. Refer to GCC home page (for internal use only).
[3] Induction intra-CSF chemotherapy can start after radiation
[4] LMD treatment response is assessed using a composite of clinical evaluation, neuro-axis imaging, and CSF analysis

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Solid Tumor Leptomeningeal Metastases

Note: Consider Clinical Trials as treatment options for eligible patients.

LMD PROGRESSION/RECURRENCE

- If on intrathecal therapy, consider increasing the frequency of current dosing or consider switching intrathecal therapy **or**
- Consider intrathecal therapy **or**
- Consider systemic therapy **and/or**
- Radiation to symptomatic sites **or**
- Best supportive care
- Discuss GCC with patient or if clinically indicated, with Patient Representative[1]

→ Repeat composite LMD response assessment[2]

→ Favorable response →
- Maintenance therapy[2] or observation as clinically indicated
- Continue composite LMD response assessment[2,3] approximately every 2 months for 1 year, then reassess

→ LMD progression →
- If on intrathecal therapy, consider increasing the frequency of current dosing or consider switching intrathecal therapy **or**
- Consider intrathecal therapy **or**
- Consider systemic therapy **and/or**
- Radiation to symptomatic sites **or**
- Best supportive care
- Discuss GCC with patient or if clinically indicated, with Patient Representative[1]

[1] GCC should be initiated by the Primary Oncologist. If Primary Oncologist is unavailable, Primary Team/Attending Physician to initiate GCC discussion and notify Primary Oncologist. Patients, or if clinically indicated, the Patient Representative should be informed of therapeutic and/or palliative options. GCC discussion should be consistent, timely, and re-evaluated as clinically indicated. The Advance Care Planning (ACP) note should be used to document GCC discussion. Refer to GCC home page (for internal use only).

[2] LMD treatment response is assessed using a composite of clinical evaluation, neuro-axis imaging, and CSF analysis

[3] Consider deferring CSF assessment in patients not on intrathecal therapy

APPENDIX A: Karnofsky Performance Status Scale Definitions

Able to carry on normal activity and to work; no special care needed	100	Normal; no complaints; no evidence of disease
	90	Able to carry on normal activity; minor signs or symptoms of disease
	80	Normal activity with effort; some signs of disease
Unable to work; able to live at home and care for most personal needs; varying amount of assistance needed	70	Cares for self; unable to carry on normal activity or to do active work
	60	Requires occasional assistance, but is able to care for most of his personal needs
	50	Requires considerable assistance and frequent medical care
Unable to care for self; requires equivalent of institutional or hospital care; disease may be progressing rapidly	40	Disabled; requires special care and assistance
	30	Severely disabled; hospital admission is indicated although death not imminent
	20	Very sick; hospital admission necessary; active supportive treatment necessary
	10	Moribund; fatal processes progressing rapidly
	0	Dead

SUGGESTED READINGS

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MD Anderson Institutional Policy #CLN1202 - Advance Care Planning Policy
Advance Care Planning (ACP) Conversation Workflow (ATT1925)

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DEVELOPMENT CREDITS

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