Small Cell Lung Cancer (SCLC)

**INITIAL EVALUATION**

- Pathology consistent with SCLC
- History and physical
- Chest x-ray
- Laboratory studies to include hematological and full chemistry panels
- FDG PET/CT or CT chest and abdomen with IV contrast (preferred PET/CT if limited staging)
- MRI brain with IV contrast (preferred) or CT head with IV contrast
- Lifestyle risk assessment

**STAGE**

- Extensive Stage, see Page 3
- Limited Stage
- Bone marrow aspiration and biopsy if abnormal CBC
- Any test positive?

**FURTHER ASSESSMENT**

- Pulmonary function tests
- Solitary pulmonary nodule without lymphadenopathy?
  - Yes: Is patient potentially operable?
    - Yes: Pulmonary function tests, if clinically indicated
    - No: Performance status (PS)
  - No: Inoperable

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

Operable
- Mediastinoscopy or EBUS
  - PS 0-2
  - PS 3-4, due to SCLC
  - PS 3-4, due to other medical condition

**TREATMENT**

Negative
- Resection
  - Lymph nodes and margins negative
  - Adjuvant platinum **and** etoposide for 4 cycles

Positive
- Lymph nodes and/or margins positive
  - Chemotherapy **and** radiation therapy
    - Chemotherapy or
      - Supportive care
      - Radiation therapy
  - Prophylactic cranial irradiation (PCI) of 25 Gy in 10 daily fractions
  - Surveillance, see Page 4

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EBUS = endobronchial ultrasound

1 Consider EBUS for patients treated with radiation therapy also
2 Start radiation therapy within the first 2 cycles of chemotherapy

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STAGE

Further Workup

Bone scan or plain bone films if symptoms present that might require immediate radiation therapy

Are symptomatic brain metastasis or cord compression present?

Yes

Extensive Stage

Radiation therapy and steroids, then platinum and etoposide for 4-6 cycles

No

Platinum and etoposide for 4-6 cycles

Partial or complete response?

Yes

Consider:
- PCI of 25 Gy in 10 fractions or
- Serial brain imaging with IV contrast (see frequency on Page 4)
- Chest radiation therapy of 45 Gy in 15 fractions

No

Stable disease

Progressive disease

Consider:
- Palliative radiation therapy if indicated for brain, chest, or bone involvement or
- Clinical trials, immunotherapy, or chemotherapy

TREATMENT

Surveillance, see Page 4

1 Extensive stage: disease beyond ipsilateral hemithorax or malignant pleural effusion or obvious metastatic disease

2 MRI brain preferred over CT as it is more sensitive in identifying brain metastases

3 For selected patients with residual thoracic disease and low-bulk extrathoracic metastatic disease that has responded to systemic therapy
Small Cell Lung Cancer (SCLC)

**SURVEILLANCE**

- History and physical
- Imaging of involved sites every 2-3 months for 2 years, then every 6 months for 3 years, then yearly
- If PCI not given, then MRI brain\(^1\) with IV contrast recommended with other surveillance imaging as above

**TIME OF LAPSE**

- Greater than 6 months from completion of treatment
- Less than or equal to 6 months from completion of treatment

**SALVAGE/PALLIATION**

- **Yes**
  - Clinical trial (preferred)
  - Reinduction therapy with platinum and etoposide or other chemotherapy or immunotherapy
  - Palliative symptom management including localized radiation therapy

- **No**
  - Continue surveillance

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\(^1\) MRI brain preferred over CT as it is more sensitive in identifying brain metastases

Note: Consider Clinical Trials as treatment options for eligible 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.
First-line therapy

- Acceptable regimens for limited stage disease (maximum of 4-6 cycles) include:
  - Cisplatin 60 mg/m² IV on Day 1 and etoposide 120 mg/m² IV on Days 1, 2, 3
  - Cisplatin 80 mg/m² IV on Day 1 and etoposide 100 mg/m² IV on Days 1, 2, 3
  - Carboplatin AUC 5-6 IV on Day 1 and etoposide 100 mg/m² IV on Days 1, 2, 3
  - During systemic therapy plus radiation therapy, cisplatin/etoposide is recommended (category 1)
    - The use of myeloid growth factors is not recommended during concurrent systemic therapy plus radiation therapy (category 1 or not using GM-CSF)
  - Acceptable regimens for extensive stage disease (maximum of 4-6 cycles) include:
    - Carboplatin AUC 5-6 IV on Day 1 and etoposide 100 mg/m² IV on Days 1, 2, 3
    - Cisplatin 75 mg/m² IV on Day 1 and etoposide 100 mg/m² IV on Days 1, 2, 3
    - Cisplatin 80 mg/m² IV on Day 1 and etoposide 80 mg/m² IV on Days 1, 2, 3
    - Cisplatin 25 mg/m² IV on Day 1, 2, 3 and etoposide 100 mg/m² IV on Days 1, 2, 3

Second-line therapy

- Clinical trial (preferred)
- If relapse occurs less than or equal to 6 months and performance status 0-2:
  - Topotecan PO or IV
  - Irinotecan
  - Paclitaxel
  - Docetaxel
  - Temozolomide PO
  - Nivolumab plus ipilimumab
  - Vinorelbine
  - Etoposide PO
  - Gemcitabine
- If relapse occurs greater than 6 months after completion of first-line therapy: original regimen
- Consider dose reduction or growth factor support for patients with performance status of 2 or age greater than or equal to 70 years

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

PRINCIPLES OF SYSTEMIC THERAPY
Radiation therapy for Limited Stage disease

- Radiation therapy should be given 1.5 Gy twice a day (with at least 6 hours between fractions) to a total dose of 45 Gy. In circumstances where twice daily fractionation is not feasible, an acceptable alternate schedule is 1.8 – 2.0 Gy/day to a dose of 60 – 70 Gy.
- Radiation therapy should be administered concurrently with chemotherapy, ideally beginning during cycle 1 of chemotherapy.
- Radiation therapy should be delivered to original tumor volume unless there is marked risk of radiation pneumonitis; decrease field as tumor shrinks.
- Appropriate schedule for prophylactic cranial irradiation (PCI) is 25 Gy in 10 fractions.
- In patients receiving radiation therapy or chemoradiation with curative intent, treatment interruptions or dose reductions for temporary and manageable toxicities, such as esophagitis and myelosuppression, should be avoided. Careful patient monitoring and aggressive supportive care are preferable to treatment breaks in potentially curable patients. Patients should be evaluated at least once per every 5 fractions to monitor weight changes and toxicity.
- 45 Gy in 30 fractions over 3 weeks would not be recommended with concurrent chemotherapy on Day 1, if the DVH shows V20 more than 35% of target lesion. If the GTV is too large to meet dose volume constraints, give one cycle of chemotherapy or go daily fraction of radiation and cone down of the GTV after re-simulation after 2-3 weeks treatment. This will apply for patients who have FEV1 or DLCO less than 30% of predicted value.
- Elective nodal radiation therapy is not recommended.

**PRINCIPLES OF RADIATION THERAPY**

DVH = dose volume histogram
GTV = gross tumor volume
SUGGESTED READINGS


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This practice algorithm is based on majority expert opinion of the Thoracic Oncology Center Faculty at the University of Texas MD Anderson Cancer Center. It was developed using a multidisciplinary approach that included input from the following:

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