

# LUNG CANCER CASES

Case #1

Case #2

Case #3

# Lung Cancer Case 1

A 65-year-old man presents with a six-week history of cough, progressive SOB and a 20-pound weight loss. He has a 50-pack year smoking history and his family doctor orders a chest x-ray and blood work.

The chest x-ray shows a left lower lobe mass. His physical is normal. He is otherwise healthy, and takes no regular medication.

1. How would you further investigate this man, in order to get a pathological diagnosis?
2. What additional tests are required to properly stage this patient?

His blood work, which consisted of a CBC, electrolytes, urea, creatinine, liver function tests, LDH, are all normal. The CT scan of his chest and upper abdomen shows a 3 cm mass in the left lower lobe and enlarged mediastinal lymph nodes confined to the left hemithorax. The liver and adrenal glands are normal on CT scan. Bone scan is negative and MRI head does not reveal any metastases. His bronchoscopy with washings revealed small cell carcinoma.

3. Does he require a mediastinoscopy?
4. Assuming his disease is confined to the chest, what stage is this man's small cell lung cancer?
5. How does staging for small cell lung cancer differ from non-small cell lung cancer?
6. With respect to staging in small cell lung cancer, how would stage be affected if the patient had contralateral supraclavicular nodes?
7. What is considered the present standard of care for limited stage disease?
8. What percentage of limited stage lung cancer is cured by treatment?
9. What prognostic factors predict for an improved outcome?
10. How and when is the radiation delivered?
11. Does the patient require any assessment of his lung function prior to initiating thoracic radiation?
12. What is the role of Prophylactic Cranial Irradiation and when is it administered? What are some of the short and long term side effects of this therapy?
13. Is there a role for surgery in limited stage disease?

This patient receives six cycles of etoposide and cisplatin chemotherapy and has a complete response on chest x-ray and CT scan of the thorax and abdomen.

14. Is this unusual?
15. Does he require any further therapy at this time?
16. How would you follow him in the clinic post-chemotherapy? Does he require any ongoing investigations?

He is well for 12 months and then presents with headaches and a seizure. A MRI of his head shows multiple brain metastases. On functional inquiry, he has no other symptoms of concern. Restaging investigations including bone scan, CT chest and abdomen and blood work are normal.

17. What treatment would you offer this patient at this time?
18. Would your recommendation alter if he had only one metastasis? (Discuss SBRT)
19. Is there any role for resecting an isolated brain metastasis?

20. What are the most common sites of metastases in this cancer?
21. What are paraneoplastic syndromes? Which are most commonly seen in small cell lung cancer and how are they managed?
22. Under what scenarios would whole brain radiation not be offered for metastatic disease in the setting of a patient previously treated with PCI?

He responds to dexamethasone and whole brain radiation but deteriorates 1 month later with progressive supraclavicular and mediastinal adenopathy as well as two 1 cm liver metastases. His liver function is normal.

He wants to know what treatment options are available for him at this time, and whether or not he should have a PET scan.

23. What would be considered appropriate second line therapy?
24. Is there a role for further radiation?
25. How would treatment recommendations be affected if this patient were bed confined versus having an ECOG of 1?
26. What is the role of PET scanning in lung cancer?
27. How would your treatment recommendation differ if, at initial presentation, this patient had extensive stage disease?
28. How would your recommendations be affected if this patient were a diabetic with a creatinine of 140?
29. What is the role of radiation in extensive stage disease?
30. How can most small cell lung cancers be prevented?
31. Discuss the role of an early palliative care referral in the treatment of lung cancer.

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## Lung Cancer Case 2

A 55-year old woman presents with cough and exertional shortness of breath. She has a 40-pack year smoking history but is otherwise healthy. Chest x-ray reveals a right lower lobe mass. She is referred to a respirologist for further investigation. CT chest reveals a RLL lesion not amenable to CT guided biopsy. No abnormal lymph nodes are seen on imaging. She proceeds to have a bronchoscopy. Pathology reveals a moderately well differentiated adenocarcinoma. Staging workup does not reveal any abnormalities on bone scan. CT scan of chest and abdomen is clear.

1. What stage of disease does this patient present with?
2. What staging tests are required to more fully stage this patient? When would you consider ordering a PET scan?
3. Does she require pulmonary function testing at this time? If so, what test would you order?
4. What is the role for EGFR, ALK, PD-L1 and ROS testing? When should they be requested?

She has T2 N0 M0, stage 1B, disease. Her PFTs were done in her community hospital, and the patient informs you that the result was 'normal'.

5. Is this patient a surgical candidate?
6. If so, what surgical options should be considered?
7. What is the post-operative mortality rate following lobectomy? Following pneumonectomy?
8. For what stages of NSCL cancer is curative intent surgery offered?
9. Can radiation treatment be offered with curative intent? What are the indications for this?
10. Is there a role for chemotherapy in the adjuvant setting? If so, when? What chemotherapy regimen is effective?

Eighteen months later she presents to her family doctor with low back pain. This has been ongoing for four weeks at this point.

11. What investigations would you order?

She is found to have a lesion at T11. The CT scan also shows a number of lesions in her liver with some enlargement of lymph nodes in her mediastinum.

12. What is her prognosis? When would you begin palliative care discussions?
13. What treatment options would you discuss with her at this time? What systemic therapies are available? What order would you offer them in? What specialized pathology testing should be done and how would these results direct your choices? How do prior treatment choices affect your current treatment options?
14. What is the role of palliative radiotherapy?

She develops nausea and then presents to the emergency room after a fall at home. She also has developed some weakness in her left leg.

15. What investigations would you order?
16. How would a solitary brain metastasis be treated if the patient did not have recurrence elsewhere in the body?
17. How are radiation options affected by the presence of multiple brain metastases?

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## Lung Cancer Case 3

A 60-year old man with a 50 pack-year smoking history presents to his family doctor with worsening cough, increased sputum production and lethargy. He is diagnosed with 'pneumonia'. When his symptoms don't improve after a course of antibiotics, a CXR is ordered which shows a mass in the left lung, and a 'bulky' mediastinum. His staging investigations consist of a MRI head, CT thorax and abdomen, bone scan, PFTs and blood work. His blood work (CBC, chemistry, LFTs, Ca, Alb, LDH, Alk Phos) is normal. CT scan of the thorax shows a 4cm tumour in the left upper lobe with enlarged lymph nodes. Pathology from bronchoscopy suggests it is a squamous cell cancer.

1. What are the options for obtaining a tissue diagnosis? What are limitations of each option?

Biopsy gives sufficient tissue to confirm the diagnosis of squamous cell lung cancer.

2. What is the likely stage of disease for this patient? How would you confirm that?
3. What treatment options should be discussed?
4. What are the expected response rates and overall survival rates?

The patient is treated with combined chemotherapy and radiation therapy.

5. What are the chemotherapy options and what are the potential toxicities?
6. When should radiation be administered? What determines the timing of the radiation? Does the timing affect the response? Does it affect the survival benefit?
7. If this patient were diabetic with an elevated creatinine, how would this affect your chemotherapy choice?
8. How would the patient's ECOG affect the recommendation? If his ECOG was 2 or he had lost 10% of his body weight in the last three months would this affect your recommendation?

The patient completes treatment and goes onto follow-up.

9. What would be your plan for follow up with this patient? (discuss frequency of visits, indication for lab work, imaging)
10. If the patient developed recurrent disease, is it likely to be local or distant?
11. What are the roles of systemic therapy and radiation therapy in the setting of recurrent disease? How are systemic therapy options affected if this patient develops recurrent disease after having completed adjuvant therapy more than six months ago?
12. What is the role of specialized testing in determining systemic treatment options in squamous cell lung cancer?
13. What is the role of immunotherapy and when would you consider offering such treatment?
14. If this patient were found to have asymptomatic bone metastases at the time of presentation, how would this have affected his treatment options?
15. What is the role of bisphosphonates versus RANK ligand inhibitors in treating bone metastases?
16. At what point would you begin palliative care discussions? What is the role of supportive care once metastatic disease has been diagnosed?