

Lung Cancer Case Study

Presented by

The Royal Marsden's GP Education Programme

Part One - Initial presentation

60 year old lady, presents with a 6 week history of right sided chest pain. The pain is like a dull ache, but comes and goes. It is eased with occasional paracetamol use. It has not changed over the last few weeks; neither worsening or improving. Respiratory examination is unremarkable and there is no chest wall tenderness.



Q1. What other information would you like to elicit?

- ❖ Smoking history
- ❖ Any symptoms of infection
- ❖ Haemoptysis
- ❖ Change in voice
- ❖ Family History
- ❖ Cough
- ❖ Weight loss
- ❖ Asbestos exposure



Q2. What are the differential diagnoses?



Q3. What investigations could you perform at this stage if any?

- ❖ None
- ❖ CXR if not done recently
- ❖ Spirometry
- ❖ FBC- anaemia, thrombocytosis



She is an ex-smoker, having smoked from the age of 16 to 52; she smoked 20 cigarettes a day. She has a family history of lung cancer, with her father dying from the disease at the age of 64. She has lost around five pounds in the last three months, but she has been trying to lose weight. She has a CXR which is reported as normal.



Q4. From her history does she have any risk factors the development of lung cancer?

- ❖ Duration of smoking history
- ❖ Stopped smoking less than 10 years ago
- ❖ Family history of lung cancer



Q5. From her presentation, does she have any symptoms which suggest a diagnosis of lung cancer

- ❖ Chest pain
- ❖ Weight loss



Part Two - She attends your surgery after being seen in a TWR clinic by a respiratory physician

She has undergone a CT scan of the lower neck, chest and abdomen. The respiratory physician has explained that she probably has lung cancer but requires further investigations with a PET, PFTs, CT brain and perhaps an EBUS. She has evidence of obstructive airway disease on spirometry and has been commenced on inhalers. She is told that surgery may be an option.



Q1. She is concerned that more tests are being done and the delay in just 'getting rid of it'. What are the further investigations and why are they important?

- PET- Positron Emission Tomography- nuclear imaging performed to fully stage lung cancer. Can be pick up area of metastatic disease not detected by conventional CT, especially bone metastases
- EBUS- Endobronchial Ultrasound- used to investigate mediastinal nodes and obtain tissue by transbronchial nodal aspiration to ascertain the type of lung cancer
- CT brain- to enable full staging prior to undergoing treatment with curative intent
- PFTs- Pulmonary function tests- to evaluate lung function to enable treatment planning.



Q2. She wishes to stop the inhalers she has been prescribed. Why should she continue with these?

- ❖ It is important to maximise lung function prior to any definitive treatment. Pulmonary function tests will be undertaken to help ascertain whether a patient can withstand a surgical resection or treatment with radical radiotherapy



Q3. Where does lung cancer commonly metastasise to?

- ❖ Liver
- ❖ Bone
- ❖ Brain
- ❖ Adrenals
- ❖ Other parts of the lung
- ❖ Lymph-nodes



Q4. She is fearful of undergoing surgery. Are there any other options, which may still offer a cure?

- ❖ Depends upon tumour size, site and the involvement of lymph nodes
 - Radical chemoradiotherapy
 - Stereotatic ablative radiotherapy (SABR)



Q5. If she elects to undergo surgery what are the possible options and will she need any other treatment afterwards?

- ❖ Type of surgical resection will depend on the position of the tumour, whether there is lymph node involvement, lung function and co-morbidities
- ❖ Can include
 - Lobectomy and lymph node dissection
 - Pneumonectomy and lymph node dissection
 - Wedge resection
- ❖ May need chemotherapy after surgery depending on tumour size and lymph node involvement
- ❖ Occasionally radiotherapy is needed if there are positive resection margins



Part three - Management in primary care

She has undergone a lobectomy and adjuvant chemotherapy at The Royal Marsden 18 months ago. She was diagnosed with a 3.3 cm adenocarcinoma of the lung, with involvement of a hilar lymph node.

She was last seen three months ago by a respiratory physician when a CXR was unchanged. She is being seen by her oncologist every six months and has an appointment in two months time. She is now fatigued and complaining of weight loss.



Q1. What investigations are appropriate at this stage?

- ❖ History to ascertain if her symptoms could be due to the development of metastatic disease.
- ❖ Physical examination to look for evidence of metastatic disease (pleural effusion, hepatomegaly, cervical lymph nodes).
- ❖ Urgent referral back to oncologist for imaging chest and abdomen
- ❖ ?FBC (anaemia), LFT (abnormal ALT or ALP)



Q2. What is her 5 year survival following surgery?

- ❖ Final pathological stage was T2 N1 M0, stage 2B
- ❖ 5-year survival is around 25-36%
- ❖ Most relapses occur within the first 18 months

Stage	5-year survival
1A	~ 58-73%
1B	~ 43-58%
2A	~ 36-46%
2B	~ 25-36%
3A	~ 19-24%
3B	~ 7-9%
4	~ 4-10%



She has developed liver and adrenal metastases and has been told that she now has incurable disease. Treatment is aimed at improving her symptoms and may lengthen her survival.

She has been asked to undergo another biopsy to allow molecular testing as if she has a 'mutation' she may be able to have a tablet rather than chemotherapy



Q3. What are the treatment options of advanced lung cancer

- Palliative chemotherapy, in adenocarcinoma this would be with pemetrexed and a platinum agent given every three weeks, possibly followed by maintenance chemotherapy
- If the tumour contains an sensitising mutation in the epidermal growth factor receptor (EGFR), treatment with an EGFR targeted tyrosine kinase inhibitor
- Palliative radiotherapy for symptom control
- Bisphosphonate given intravenously to prevent skeletal events in patients with bone metastases



Q4. She elects for treatment with a oral tyrosine kinase inhibitor. What are the common side-effects?

- ❖ Diarrhoea
- ❖ Acne like rash affecting face, chest, back and scalp
- ❖ Dry skin
- ❖ Dry eyes
- ❖ Fatigue
- ❖ Hair growth, including eyelashes and facial hair
- ❖ Mouth ulcers
- ❖ Brittle nails
- ❖ Pneumonitis
- ❖ Interaction with clarithromycin, erythromycin and fluconazole



Risk factors for developing lung cancer

- ❖ Smoking history
- ❖ COPD
- ❖ Asbestos exposure
- ❖ Family History
- ❖ >40 years old
- ❖ Previous history of cancer
- ❖ History of pneumonia
- ❖ Autoimmune conditions e.g. Rheumatoid arthritis



Symptoms of lung cancer?

- ❖ Cough
- ❖ Haemoptysis
- ❖ Dyspnoea
- ❖ Weight loss
- ❖ Chest pain
- ❖ Shoulder pain
- ❖ Fatigue
- ❖ Hoarse voice
- ❖ Finger clubbing
- ❖ Cervical/supraclavicular lymph nodes



When to refer?

- ❖ Persistent symptoms last more than 3 weeks
- ❖ CXR suggestive of lung cancer- CXR can be normal
- ❖ Signs of superior vena cava obstruction
- ❖ Stridor
- ❖ Symptoms suggestive of metastatic disease- unremitting pain, weight loss, shortness of breath.



Investigations?

❖ Primary Care

- CXR
- FBC

❖ Secondary care

- ❖ CT chest and abdomen
- ❖ PET
- ❖ CT brain if considering treatment with curative intent
- ❖ Pulmonary function test
- ❖ Bone scan if PET not done
- ❖ Mediastinocopy or EBUS for nodal staging



Treatment options?

❖ Curative

- Surgery
- Radical radiotherapy +/- chemotherapy
- Stereotatic radiotherapy

❖ Palliative

- Chemotherapy
- Targeted therapies
- Radiotherapy
- Bisphosphonates
- Bronchial stents
- Pleurodesis



How can you help?

- ❖ Think about a possible diagnosis of cancer
- ❖ Encourage stopping smoking
- ❖ Diagnosing COPD and optimising pulmonary function whilst your patient is undergoing investigation
- ❖ Optimising pulmonary function after surgical resection

