Week 3 Bronchial Carcinoma/Pulmonary Emboli and Interstitial Lung Disease/Pleural Disease/Sleep Apnoea

Introduction

During this week you will work through case histories of patients with bronchial carcinoma, pulmonary emboli and interstitial lung disease.

Mr N White has bronchial carcinoma, Mrs L Porteous a pulmonary emboli and Miss G Rosie interstitial lung disease, Mr McDonald has obstructive sleep apnoea, Mr Robertson has a pneumothorax.

Aims

The aims of the week are to:

1 Bronchial carcinoma
   (a) Know the clinical presentation of bronchial Ca and how this related to local and metastic spread.
   (b) Be able to detect clinical signs of local lymphatic and haematogenous spread.
   (c) Understand the principles of curative and palliative treatment of bronchial carcinoma and how this relates to metastic spread.

2 Pulmonary emboli
   (a) Be able to recognise the clinical pattern for presentation of pulmonary emboli and how this relates to predisposing risk factors.
   (b) Know how to diagnose pulmonary emboli and associated venous thrombosis.
   (c) Understand the principles of anticoagulation therapy for pulmonary emboli.

3 Interstitial lung disease
   (a) Know the predisposing factors for development of interstitial lung disease.
   (b) Understand the pathophysiology of interstitial lung disease and how this relates to diagnosis and management.
   (c) Be able to differentiate between obstructive and restrictive patterns from pulmonary function tests.

4 Pleural disease
   (a) Know the clinical presentation of pneumothorax, and to be able to recognise a tension pneumothorax.
   (b) Know how to treat pneumothorax.
   (c) Know the causes of transudative and exudative pleural effusion.
   (d know how to treat pleural effusion.
   (e) Be able to recognise a pneumothorax and pleural effusion on a chest X-ray.

5 Obstructive sleep apnoea
   (a) Know the classic presenting symptoms, predisposing factors and underlying pathophysiology.
   (b) Understand the consequences of sleep apnoea to the individual and to others.
   (c) Know how to diagnose the condition.
   (d) Know how to treat the condition.

Mr N White - Bronchial Carcinoma

The Clinical Problem

Mr N White, a 55-year-old man, comes to see you a GP, having been coughing up blood intermittently for the past two weeks. His voice has become hoarse and he is breathless on walking up stairs. His appetite is poor and he has lost some weight. He smokes 20 cigarettes daily and works as a plumber. He has noticed that his ankles are sore and he has painful ribs on the right side. His wife thinks he may also be confused.

Prerequisites

Revise concepts of neoplasia and types and routes of spread, and lymphatic drainage of the thorax.

Learning Issues

1 What is the differential diagnosis of haemoptysis and weight loss?

2 What should you look for on examination of his respiratory system?

3 What else should you examine to look for evidence of metastatic spread?

4 Why might he have:
- Breathlessness
- Sore ankles
- Painful ribs
- Confusion?

5 What investigations are required to:
- Make a diagnosis
- Assess the degree of local and metastatic spread
- Non-metastatic manifestations?

6 He is found to have inoperable bronchial carcinoma. How might you treat his symptoms of:
- Breathlessness
- Bone pain
- Confusion?

Mrs L Porteous - Pulmonary Emboli

The Clinical Problem

Mrs L Porteous, a 70-year-old woman, is admitted with acute breathlessness and pleuritic chest pain. She had a hip replacement operation three weeks ago, and has noticed that her right leg has become progressively swollen. She has osteo-arthritis of her neck and takes a non-steroid anti-inflammatory drug and also takes antacid for indigestion.

Prerequisites

Revise the principles of ventilation/perfusion matching and gas exchange.

Learning Issues

1 Why has she developed a pulmonary embolism?

2 What should you look for on examination of her chest, cardiovascular system and legs?

3 What tests should you do to confirm that she has

- Deep venous thrombosis
- Pulmonary embolism?

What other investigations are required?

4 How should she be treated?

5 What cautions should be taken in view of her drug history?

Miss G Rosie - Interstitial Lung Disease

The Clinical Problem

Miss G Rosie, a 48-year-old woman, presents with a history of progressive breathlessness on exertion over the past six months. She has no cough or wheeze and is a non-smoker. She has two budgies and a dog and works as a receptionist. She has arthritis in her hands for which her GP prescribed ibuprofen.

Learning Issues

1 What is the differential diagnosis and what points from the history may be relevant to the diagnosis?

2 What would you look for an examination of the respiratory system and her hands?

3 What investigations would you do to point to the diagnosis?

4 How might you treat her condition?

Mr R McDonald - Obstructive Sleep Apnoea

The Clinical Problem

Mr McDonald is a 55-year-old company director. He has recently been made redundant because he keeps falling asleep at board meetings. His wife wants a divorce because of his work problems and his intolerable night-time snoring and restlessness. He has also written off his company Jaguar when crashing whilst falling asleep at the wheel on his way to work. He is a heavy drinker and has put on 4 stone in weight in the past year because of regular corporate meals out. His GP recently prescribed night-time sedation to help him sleep better and because he felt tired all day. Physical examination of his chest is unremarkable.

Prerequisites

Revise the normal physiology of breathing during sleep and the anatomy of the pharyngeal muscles.

Learning Issues

1 What investigations should you do to confirm your diagnosis?

2 What may be aggravating his condition and how should be change his lifestyle?

3 How can you treat this condition either medically or surgically?

4 If left untreated, what is the end result?

Mr H Robertson - Pneumothorax

The Clinical Problem

Mr Robertson is a 20 year old who is admitted with acute onset of left-sided pleuritic chest pain and breathlessness. He is 6 foot 4 inches tall and has long spindle fingers and a high arched palate. He had a brother who had recurrent pneumothorax and died aged 25 years of a ruptured aortic aneurysm.

Prerequisites

Revise the anatomical relationships of the pleural and lung and their external markings on chest wall.

Learning Issues

1 What is the differential diagnosis of acute pleuritic chest pain?

2 What signs of pneumothorax might you find on clinical examination?

3 What is the relevance of his body shape and family history?

4 What other common respiratory diseases may predispose to pneumothorax?

5 How can you confirm your clinical suspicion of a pneumothorax?

6 He is found to have an 80% pneumothorax on the left-side - where should you insert the intercostal drainage tube?

7 How do you know if your tube is in the pleural cavity?

8 How do you know if the lung has re-expanded?

9 If he had a 10% and 30% pneumothorax - how would you respectively manage these?

10 If the drain still bubbles after seven days of drainage what would you do?

Glossary of Terms - Week 3

Pleural effusion	Fluid in pleural cavity - either transudate or exudate.
Transudate	Non-inflammatory pleural effusion with protein content <30g/l (eg heart failure) - usually bilateral.
Exudate	Inflammatory pleural effusion with protein content >30g/l (eg lung cancer) - usually unilateral.
Haemoptysis	Production of blood during coughing.
Lymphatic spread	Spread of bronchial carcinoma cells via lymphatics to nodes in mediastinal, hilar or supraclavicular/cervical areas.
Haematogenous spread	Spread of bronchial carcinoma cells via the blood to solid organs such as bone, liver, adrenal, brain.
Pulmonary emboli	Fragments of blood clot, fat, amniotic fluid or foreign material which lodge in the pulmonary arterial circulation arising from the venous system.
Warfarin	A slow acting long duration oral anticoagulant which acts by antagonising vit K_1 dependent prothrombin synthesis which is monitored by measuring the prothrombin time (as international normalised ratio: INR) and is reversed by vitamin K_1 - used for long-term anticoagulation.
Heparin	Fast acting short duration parenteral anticoagulant which acts via antithrombin III, monitored by the activated partial thromboplastin time and reversed by protamine - used for acute anticoagulation or short-term prophylaxis.
Pulmonary infarction	Necrosis of lung tissue due to ischaemia consequent upon pulmonary emboli or thrombosis in situ (eg in pulmonary hypertension, or contraceptive pill).
Interstitial lung disease	Involvement of the alveoli or alveolar walls, by disease process.
Restrictive defect	Pattern of pulmonary function abnormality resulting in reduced lung volumes and reduced alveolar gas transfer.
Pneumothorax	Air in the pleural cavity with associated collapsed lung.
Tension pneumothorax	Pneumothorax increasing in size resulting in acute respiratory distress and mediastral shift - required emergency drainage.
Obstructive sleep apnoea	Upper airway obstruction resulting in abnormal ventilatory response with snoring, poor sleep and day-time sleepiness.