

Part-2 - Chapter 5

Topographic approach to differential diagnosis

Chest pain

Chest pain is one of the most frequent causes for admissions to hospital A&E departments. Due to the complex nature and character of chest pain, and the possible serious complications of cardio-respiratory structures it is necessary to have the patient admitted, or assessed on-site by a competent clinician. There are those patients that have a history of chronic or recurring chest pains, and those that experience chest pain for the first time. However in both instances it may be necessary to reevaluate candidates as pre-existing conditions may have changed. For instance a patient with a history of angina may now be experiencing a myocardial infarction. Fortunately most A&E admissions with chest pain are 'false alarms' as far as cardio-respiratory pathologies are concerned.

In order to make a competent differential diagnosis of chest pain it is essential that the case history is thorough enough to provide you with a clear description of the attributes of the patient's symptoms. As the contents of the thoracic and abdominal cavities are mostly visceral in nature, it is often difficult to distinguish the precise organ(s) that may be involved. Visceral structures are supplied by efferent and afferent autonomic nerves. They also contain a limited amount of pain receptors, and therefore they do not localise the pain in the same way as somatic structures.

Autonomic nerves (sympathetic and parasympathetic) form complex plexuses and are not confined to the site from the body at which they emerge. By this we mean that if the sympathetic output from T1-3 emerges from the left side of the thoracic spinal cord, once they have emerged out of their ganglia they branch widely. Conversely, a nerve root relating to a somatic supply - C6 emerging from the right side of the neck - will only supply the right upper limb (particularly the thumb area).

Another complicating factor in localising visceral pain is the embryological development and migration of the viscera. For example, although the testes are located well below the pelvis, their neurovascular bundle originates near the upper lumbar regions. Another factor in the expression of pain from visceral structures is how it might interfere or refer to related somatic regions.

This phenomenon of somato-visceral referral in most instances is believed to relate to the proximity of synapses at certain segments within the spinal cord. For instance if cardiac pain results in excessive 'bombardment' of afferent signals conveyed by T1 sympathetic nerves, a common referral manifestation is pain in the T1 dermatomal and myotomal regions of the upper limbs. Cardiac pain also refers to the neck and mandible; this may be attributed to a referral manifestation via the carotids and their associated ascending sympathetic nerves.

Therefore when considering a patient with chest pain you must remain open minded in your initial line of enquiry, and resist the temptation to hone into specific structures or conditions even though the presenting complaint may appear clear-cut. Let us review the structures of the thoracic region both internal and external.

Intra-thoracic structures:

- **The heart**
- **Great vessels**
- **Lungs**
- **Mediastinal contents**
- **Oesophagus**
- **Trachea**

Structures of the thoracic wall:

- **The ribs and costal cartilages**
- **Sternum**
- **Thoracic vertebrae**
- **Associated muscular-ligamentous structures**

Other structures capable of chest pain manifestation include the diaphragm and structures closely associated with the diaphragm - the stomach, liver and gall bladder. Also consider structures located superior to the thorax that can refer pain into this region – the cervical spine, regional spinal nerves and associated muscular-ligamentous structures. Therefore, consider pathologies associated with these structures in order to make a full evaluation and differential of your patient's chest pain manifestation.

The following tables list causes of cardiac and non-cardiac chest pain:

<p>Cardiac causes:</p> <ul style="list-style-type: none">– Angina pectoris– Myocardial infarction– Coronary heart disease– Mitral valve prolapse– Pericarditis– Arrhythmia– Aortic dissection
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<p>Non-Cardiac causes:</p> <ul style="list-style-type: none">– Pneumonia– Pulmonary hypertension– Pulmonary embolism– Costochondritis– Rib fracture– Psychoneurosis– Radiculitis– Peptic ulcer– Reflux oesophagitis– Oesophageal spasm– Biliary colic– Gall bladder disease– Aneurysm– Diaphragmatic hernia

Focused inquiry into chest pain.

Like all case history presentations you need to cover all the attributes of the presenting complaints. This can be remembered using the acronym – SOCRATES (as mentioned above). As a student you are expected to screen and if necessary take appropriate action if a red flag is identified.

In particular when dealing with chest pain you need to bear in mind the criteria which indicate urgent hospital referral.

Chest pain - Criteria for urgent hospital referral

1. Crushing retrosternal chest pain lasting more than 20 mins with or without radiation
2. Angina which fails to respond to nitrite spray within 90 seconds
3. Sudden onset of stabbing chest pain with dyspnoea and tracheal displacement
4. Acute chest pain & dyspnoea with haemoptysis and/or calf tenderness
5. Severe mid-line chest pain which radiates into the abdomen & legs with unequal femoral pulses

When examining instances of reported causes of chest pain, by far the most frequent causes are anxiety related, followed by musculoskeletal causes, and thirdly those symptoms manifesting from myocardial hypoxia. However, it is imperative that you screen and exclude myocardial hypoxia before you can attribute the patient's symptoms to anxiety or musculoskeletal causes.

Another method of categorising the origins of chest pain is to think of three broad categories. Those originating from emotion (psychogenic), those stemming from musculoskeletal structures (somatic), and those originating from intra-thoracic viscera. The following tables attempt to identify the characteristics and nature of symptoms for each of the above categories.

Psychogenic – clinical picture:

- Vague onset, character & site
- Aggravated by anxiety & fatigue
- Continuous
- Stabbing or sharp
- May last several hours or days
- Location may vary
- Radiation is not common
- Patient may be hyperventilating with symmetrical paraesthesiae
- Aggravated by anxiety
- Relieved by alcohol, relaxation, nitroglycerine
- Fails to respond to diverse medical interventions
- No consistent relationship to exercises
- 'Severe' pain does not disturb patient's sleep

Musculoskeletal chest pain - clinical picture:

- Local tenderness on palpation
- Reproducible pattern
- Think of thorax and spine (local or referral)
- May be precipitated by movement and posture
- Agg: cold, damp, activity
- Rel: rest, heat, (ice), change in posture, anaesthetics
- May be associated and with muscular and neural phenomena
- Tolerable
- Spontaneous resolution

Visceral causes of chest pain - clinical picture

- Often clear cut in onset
- Associated with changes in the normal function on an organ
- May last minutes or hours
- Variable in nature (mostly crushing, burning)
- Can be mild to excruciating
- For retrosternal chest pain think of:
 - HEART
 - GREAT VESSELS
 - LUNGS
 - STOMACH
 - OESOPHAGUS

When investigating chest pain the most important causes of visceral origin include:

- **Angina pectoris**
- **Myocardial infarction**
- **Aortic dissection**
- **Pulmonary embolism**
- **Oesophageal rupture**

In addition to the above it may be helpful to look at other causes of chest pain in terms of their specificity and localisation of their pain patterns.

Poorly localized:

- Reflux oesophagitis
- Oesophageal spasm
- Hypertrophic obstructive cardiomyopathy HOCM
- Myocarditis
- Tracheitis
- Pneumonia
- Peptic ulcer

Well localized:

- Fractured ribs
- Pleurisy
- Tietz's syndrome
- Shingles
- Biliary colic
- Mastitis

Chest differential diagnosis exercise 1

Attempt to identify the pathologies described for patients X & Y

Condition X

- Heavy or tight discomfort on or around the chest
- Association with exertion
- Rest brings relief within a few minutes
- Discomfort may radiate to arms, neck or jaw
- Additional precipitants include:
 - Cold weather
 - Heavy meals
 - Emotion
- Pain may be associated with
 - Dyspnoea
 - Faintness
 - Sweating

Condition Y

- Chest pain:
 - Central, crushing pain
 - May radiate to the jaw, neck, and one or both arms
- Nausea, vomiting, sweating
- The patient is often distressed and may be tachycardic, cold and clammy
- Blood pressure is variable
- The patient may be cyanosed
- Mild pyrexia is variable feature
- Complications, such as left ventricular failure
- May be silent in up to 30% - (esp. diabetics and elderly patients)

Answer: Angina

Answer: Myocardial infarction

Chest differential diagnosis exercise 2

Attempt to identify the pathologies described for patients X & Y

Condition X

The patient complains of chest pain:

- The pain is typically unheralded, sudden and severe
- The pain is described as tearing or pulsating
- The pain is deep, radiating to the back or left shoulder
- Myocardial pain may coexist if coronary arteries are involved
- There may be a history of hypertension or other complications of atherosclerosis

Answer: Aortic Dissection

Condition Y

Possible symptoms include:

- Acute breathlessness
- Pleuritic chest pain
- Haemoptysis
- Collapse

Possible signs include:

- Hypotension
- Tachycardia
- Dyspnoea
- Raised JVP
- Pleural rub
- Cyanosis

Answer: Pulmonary Embolus

Chest pain differential diagnosis exercise 3

Attempt to identify the pathologies described for patients X & Y

Condition X

- Pain in the neck, chest or upper abdomen
- Dysphagia and pyrexia
- Cyanosed and tachycardic
- May also be associated with
 - Violent vomiting after a large meal
 - Severe chest pain
 - Pain in the dorsal region of the spine or the upper abdomen
 - Collapsed and cyanosed
 - Abdomen may be rigid

Answer: Oesophageal perforation

Condition Y

- Thoracic pain
- May have a specific distribution and localised
- May be sharp with a constant dull background ache
- Possible numbness, tingling or burning
- May have been precipitated by heavy manual work
- Unable to lie flat comfortably
- Some relief with NSAIDs

Answer: Nerve root / rib lesion

PAIN patterns

EXERCISE

Describe the nature of pain and general clinical features associated with the follow conditions.

Identify the distribution of pain and referral pattern produced.

Question sheet

CARDIAC PAIN

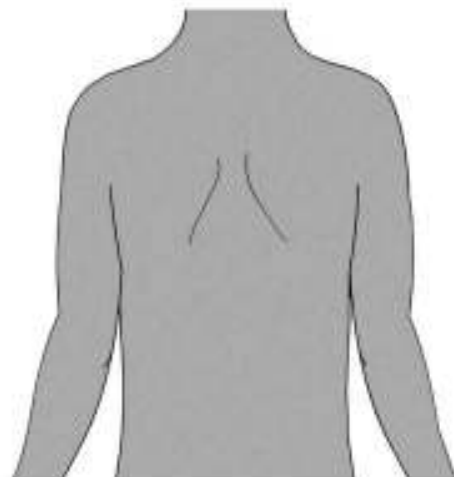
CHARACTERISTICS OF PAIN:

- A
-
- B
-
- C
-
- D
-

REFERRAL PATTERN:

- A
- B
- C
- D

DRAW ON THE REFERRAL PATTERN:



PAIN patterns

EXERCISE

Describe the nature of pain and general clinical features associated with the follow conditions.

Identify the distribution of pain and referral pattern produced.

Answer sheet

CARDIAC PAIN

CHARACTERISTICS OF PAIN:

- A Central / retrosternal chest pain
- B Crushing / squeezing / lightness
- C Pressure – like over sternum
- D Neck constrictive feeling

REFERRAL PATTERN:

- A Arms, esp. left medial border, more on left
- B Shoulders
- C Neck and jaw
- D Thoracic spinal area

DRAW ON THE REFERRAL PATTERN:



BOX chart

EXERCISE

Attempt to fill in the missing information using the guidelines provided in the completed box(es).

Question sheet

	CLINICAL FEATURES	EXAM FINDINGS	DIAGNOSIS
PALPITATIONS	<ul style="list-style-type: none"> • Usually affects younger persons • Anxious looking • Sweaty palms 	<ul style="list-style-type: none"> • Patient may be hyperventilating • Anxious looking 	
	<ul style="list-style-type: none"> • Usually affects older persons • History of heart or vascular disease • Angina 	<ul style="list-style-type: none"> • Paroxysmal atrial fibrillation • Premature ventricular contractions • Congestive heart failure 	
	<ul style="list-style-type: none"> • Bradycardia or tachycardia with arrhythmia • Older patients • Dizziness • Chest pain 		
		<ul style="list-style-type: none"> • Tachycardia • Extra systoles • Atrial fibrillation • Staring eyes • Flushed face 	
	<ul style="list-style-type: none"> • Sweating • Tremor • Weakness • Panic • Headaches • Anxiety • Possible sugar craving 		
	<ul style="list-style-type: none"> • Variable • Usually no features of a pathology • Nervousness • Tremour 	<ul style="list-style-type: none"> • Premature contractions • Tachycardia • Restless patient 	
	<ul style="list-style-type: none"> • Patient complaining of palpitations • Nausea • Poor appetite • Patient on medications 	<ul style="list-style-type: none"> • Electrolyte changes • Variable manifestations of arrhythmia 	
	<ul style="list-style-type: none"> • Irregular rhythm • Usually healthy looking patient 		<ul style="list-style-type: none"> • Exercise or exertion - induced
		<ul style="list-style-type: none"> • Evidence of hyperventilation • Restlessness • Sweating esp. moist palms 	<ul style="list-style-type: none"> • Anxiety

BOX chart

EXERCISE

Attempt to fill in the missing information using the guidelines provided in the completed box(es).

Answer sheet

	CLINICAL FEATURES	EXAM FINDINGS	DIAGNOSIS
PALPITATIONS	<ul style="list-style-type: none"> • Usually affects younger persons • Anxious looking • Sweaty palms 	<ul style="list-style-type: none"> • Patient may be hyperventilating • Anxious looking 	<ul style="list-style-type: none"> • Benign ectopics / extra systoles • Anxiety induced arrhythmia
	<ul style="list-style-type: none"> • Usually affects older persons • History of heart or vascular disease • Angina 	<ul style="list-style-type: none"> • Paroxysmal atrial fibrillation • Premature ventricular contractions • Congestive heart failure 	<ul style="list-style-type: none"> • Coronary artery disease
	<ul style="list-style-type: none"> • Bradycardia or tachycardia with arrhythmia • Older patients • Dizziness • Chest pain 	<ul style="list-style-type: none"> • Irregular heart rhythm 	<ul style="list-style-type: none"> • Sick sinus syncope
	<ul style="list-style-type: none"> • Nervousness • Tremor • Weight loss • Palpitations • Restless in warm environment 	<ul style="list-style-type: none"> • Tachycardia • Extra systoles • Atrial fibrillation • Staring eyes • Flushed face 	<ul style="list-style-type: none"> • Hyperthyroidism
	<ul style="list-style-type: none"> • Sweating • Tremor • Weakness • Panic • Headaches • Anxiety • Possible sugar craving 	<ul style="list-style-type: none"> • Tachycardia • Premature contractions • Anxious patient 	<ul style="list-style-type: none"> • Hypoglycaemia
	<ul style="list-style-type: none"> • Variable • Usually no features of a pathology • Nervousness • Tremour 	<ul style="list-style-type: none"> • Premature contractions • Tachycardia • Restless patient 	<ul style="list-style-type: none"> • Stimulant - induced
	<ul style="list-style-type: none"> • Patient complaining of palpitations • Nausea • Poor appetite • Patient on medications 	<ul style="list-style-type: none"> • Electrolyte changes • Variable manifestations of arrhythmia 	<ul style="list-style-type: none"> • Adverse drug reactions
	<ul style="list-style-type: none"> • Irregular rhythm • Usually healthy looking patient 	<ul style="list-style-type: none"> • None indicative of a pathology 	<ul style="list-style-type: none"> • Exercise or exertion - induced
	<ul style="list-style-type: none"> • Usually affects younger persons • Stressed patient 	<ul style="list-style-type: none"> • Evidence of hyperventilation • Restlessness • Sweating esp. moist palms 	<ul style="list-style-type: none"> • Anxiety

BOX chart

EXERCISE

Attempt to fill in the missing information using the guidelines provided in the completed box(es).

Question sheet

	CLINICAL FEATURES	EXAM FINDINGS	DIAGNOSIS
CHEST PAIN	<ul style="list-style-type: none"> • Sharp pain, often movement related • Occasionally neurological symptoms • Somatic-radiating patterns 	<ul style="list-style-type: none"> • Painful or restricted spinal regions • Possibly sensory, motor, reflex changes in arms 	
		<ul style="list-style-type: none"> • Pallor if acute 	<ul style="list-style-type: none"> • Oesophagitis
	<ul style="list-style-type: none"> • Heavy, tight, achy, pressing • Severe retrosternal pain • Radiations into neck and arms 		<ul style="list-style-type: none"> • Angina
			<ul style="list-style-type: none"> • Tietzes syndrome and costochondritis
	<ul style="list-style-type: none"> • Sharp, well localised pain • Prolonged duration • Possibly radiation into shoulders, arms and abdomen 		<ul style="list-style-type: none"> • Pericarditis
	<ul style="list-style-type: none"> • Central crushing chest pain • Radiation into jaw and arms • Nausea and vomiting • Prolonged duration 	<ul style="list-style-type: none"> • Cyanosis • Sweating / pyrexia • Tachycardia • Sympathetic effects 	
	<ul style="list-style-type: none"> • Chest pain • Palpitations • Effort intolerance • Dyspnoea • Tiredness 		<ul style="list-style-type: none"> • Mitral valve prolapse
	<ul style="list-style-type: none"> • Acute breathlessness • Haemoptysis • Collapse • Chest pain • Exertional dyspnoea 		
	<p>Construct your own chart for these conditions</p>		<p>OTHERS:</p> <ul style="list-style-type: none"> • Prinzmetal's angina • Oesophageal spasm • Aortic aneurism • Gas entrapment syndrome • Chest wall syndrome • Pneumothorax

BOX chart

EXERCISE

Attempt to fill in the missing information using the guidelines provided in the completed box(es).

Answer sheet

	CLINICAL FEATURES	EXAM FINDINGS	DIAGNOSIS
CHEST PAIN	<ul style="list-style-type: none"> • Sharp pain, often movement related • Occasionally neurological symptoms • Somatic-radiating patterns 	<ul style="list-style-type: none"> • Painful or restricted spinal regions • Possibly sensory, motor, reflex changes in arms 	<ul style="list-style-type: none"> • Arthritis of cervicothoracic spine
	<ul style="list-style-type: none"> • Retrosternal or epigastric pain • Possibly referral to neck, shoulders and arms • Dysphagia • Posture related • Tightness in throat • Heartburn 	<ul style="list-style-type: none"> • Pallor if acute 	<ul style="list-style-type: none"> • Oesophagitis
	<ul style="list-style-type: none"> • Heavy, tight, achy, pressing • Severe retrosternal pain • Radiations into neck and arms 	<ul style="list-style-type: none"> • Bradycardia or tachycardia • Evidence of high cholesterol • BP • Diabetes • Arrhythmia 	<ul style="list-style-type: none"> • Angina
	<ul style="list-style-type: none"> • Pain localised over anterior ribs 1-4 • Aggravated by cough, sneeze and movement 	<ul style="list-style-type: none"> • Local tenderness on palpation • Relieved by anti-inflammatories and analgesics 	<ul style="list-style-type: none"> • Tietzes syndrome and costochondritis
	<ul style="list-style-type: none"> • Sharp, well localised pain • Protracted duration • Possibly radiation into shoulders, arms and abdomen 	<ul style="list-style-type: none"> • Pericardial rub • Signs of ventricular failure • Fever, recent viral infection • Pulsus paradoxus • Kussmaul's sign 	<ul style="list-style-type: none"> • Pericarditis
	<ul style="list-style-type: none"> • Central crushing chest pain • Radiation into jaw and arms • Nausea and vomiting • Protracted duration 	<ul style="list-style-type: none"> • Cyanosis • Sweating / pyrexia • Tachycardia • Sympathetic effects 	<ul style="list-style-type: none"> • Myocardial infarction
	<ul style="list-style-type: none"> • Chest pain • Palpitations • Effort intolerance • Dyspnoea • Tiredness 	<ul style="list-style-type: none"> • Click and/or late systolic murmur esp. audible at apex 	<ul style="list-style-type: none"> • Mitral valve prolapse
	<ul style="list-style-type: none"> • Acute breathlessness • Haemoptysis • Collapse • Chest pain • Exertional dyspnoea 	<ul style="list-style-type: none"> • Cyanosis • Hypotension • Tachycardia • Raised JVP • Pleural rub 	<ul style="list-style-type: none"> • Pulmonary embolism
	<p>Construct your own chart for these conditions:</p>		<p>OTHERS:</p> <ul style="list-style-type: none"> • Prinzmetal's angina • Oesophageal spasm • Aortic aneurism • Gas entrapment syndrome • Chest wall syndrome • Pneumothorax

BOX chart

EXERCISE

Attempt to fill in the missing information using the guidelines provided in the completed box(es).

Question sheet

	CLINICAL FEATURES	EXAM FINDINGS	DIAGNOSIS
SHORTNESS OF BREATH (DYSPNOEA)	<ul style="list-style-type: none"> • Common esp. in children • Variable • Possibly cough • Acute dyspnoea may be dangerous 		<ul style="list-style-type: none"> • Asthma
		<ul style="list-style-type: none"> • Onset of dyspnoea with physical activities • No other overt findings 	<ul style="list-style-type: none"> • Poor physical conditioning
		<ul style="list-style-type: none"> • Rapid but shallow breathing • "Blue bloater" facies 	<ul style="list-style-type: none"> • Chronic obstructive pulmonary disease (COPD)
	<ul style="list-style-type: none"> • Usually asymptomatic at rest • Attacks of dyspnoea then cough 	<ul style="list-style-type: none"> • Decreased breath sounds • Poor diaphragmatic movement • Barrel chest • Hyperresonance • "Pink puffer" facies 	
	<ul style="list-style-type: none"> • Cough followed by dyspnoea, but not usually severe • Persistent cough little expectoration 		
	<ul style="list-style-type: none"> • Dyspnoea and orthopnoea • Paroxysmal nocturnal dyspnoea • Acute and chronic episodes • Frothy sputum 	<ul style="list-style-type: none"> • Basal crepitations and rales • Gallop rhythm • Right-sided heart failure 	
	<ul style="list-style-type: none"> • Acute onset of dyspnoea • May be severe 	<ul style="list-style-type: none"> • Tracheal displacement • Decreased or absent breath sounds 	
	<ul style="list-style-type: none"> • Acute onset of dyspnoea • Chest pain, may lead to collapse • Distressed-looking patient 		<ul style="list-style-type: none"> • Pulmonary embolus
	<ul style="list-style-type: none"> • Restless and anxious looking patient • Disorientation • Tunnel vision • Paraesthesiae 	<ul style="list-style-type: none"> • Cold extremities • Tremor • Restless • Panic-looking patient 	
	<ul style="list-style-type: none"> • Chronic progressive dyspnoea • Paroxysmal nocturnal dyspnoea • Usually in old patients 		

BOX chart

EXERCISE

Attempt to fill in the missing information using the guidelines provided in the completed box(es).

Answer sheet

SHORTNESS OF BREATH (DYSPNOEA)

CLINICAL FEATURES	EXAM FINDINGS	DIAGNOSIS
<ul style="list-style-type: none"> • Common esp. in children • Variable • Possibly cough • Acute dyspnoea may be dangerous 	<ul style="list-style-type: none"> • Wheezing, audible with or without stethoscope • Extended expiratory phase • Possibly chest deformities 	<ul style="list-style-type: none"> • Asthma
<ul style="list-style-type: none"> • Sedentary • Inactive patient • Overweight 	<ul style="list-style-type: none"> • Onset of dyspnoea with physical activities • No other overt findings 	<ul style="list-style-type: none"> • Poor physical conditioning
<ul style="list-style-type: none"> • Usually a smoker or in a polluted environment • Normally older > 30 years • Long-term dyspnoea esp. with exertion 	<ul style="list-style-type: none"> • Rapid but shallow breathing • "Blue bloater" facies 	<ul style="list-style-type: none"> • Chronic obstructive pulmonary disease (COPD)
<ul style="list-style-type: none"> • Usually asymptomatic at rest • Attacks of dyspnoea then cough 	<ul style="list-style-type: none"> • Decreased breath sounds • Poor diaphragmatic movement • Barrel chest • Hyperresonance • "Pink puffer" facies 	<ul style="list-style-type: none"> • Emphysema
<ul style="list-style-type: none"> • Cough followed by dyspnoea, but not usually severe • Persistent cough little expectoration 	<ul style="list-style-type: none"> • On auscultation presence of coarse crepitations or rhonchi "blue bloater" 	<ul style="list-style-type: none"> • Chronic bronchitis
<ul style="list-style-type: none"> • Dyspnoea and orthopnoea • Paroxysmal nocturnal dyspnoea • Acute and chronic episodes • Frothy sputum 	<ul style="list-style-type: none"> • Basal crepitations and rales • Gallop rhythm • Right-sided heart failure 	<ul style="list-style-type: none"> • Pulmonary oedema
<ul style="list-style-type: none"> • Acute onset of dyspnoea • May be severe 	<ul style="list-style-type: none"> • Tracheal displacement • Decreased or absent breath sounds 	<ul style="list-style-type: none"> • Pneumothorax
<ul style="list-style-type: none"> • Acute onset of dyspnoea • Chest pain, may lead to collapse • Distressed-looking patient 	<ul style="list-style-type: none"> • Wheezing • Peripheral cyanosis • Low blood pressure • Fast shallow breathing • Possibly sore calf muscle 	<ul style="list-style-type: none"> • Pulmonary embolus
<ul style="list-style-type: none"> • Restless and anxious looking patient • Disorientation • Tunnel vision • Paraesthesiae 	<ul style="list-style-type: none"> • Cold extremities • Tremor • Restless • Panic-looking patient 	<ul style="list-style-type: none"> • Hyperventilation / anxiety attack
<ul style="list-style-type: none"> • Chronic progressive dyspnoea • Paroxysmal nocturnal dyspnoea • Usually in old patients 	<ul style="list-style-type: none"> • Shallow breathing • Oedema • Positive JVP • Basal rales • Ascites • Hepatomegaly • Patient may be on beta blockers or calcium channel blockers 	<ul style="list-style-type: none"> • Congestive heart failure

BOX chart

EXERCISE

Attempt to fill in the missing information using the guidelines provided in the completed box(es).

Question sheet

	CLINICAL FEATURES	EXAM FINDINGS	DIAGNOSIS
COUGH	<ul style="list-style-type: none"> • Acute onset of cough • Worse at night • Sputum: yellow > green • Rhinorrhoea • Sore throat • Aches and pains 		
	<ul style="list-style-type: none"> • Recurrent bouts of cough • Sneezing • Sore itching eyes • Post nasal drip 	<ul style="list-style-type: none"> • Irritated mucosae esp. nasal • Red eyes • Possibly wheezing 	
	<ul style="list-style-type: none"> • Recurring chronic cough • Some expectoration • Possibly breathlessness • Common in elderly 		• Chronic bronchitis
	<ul style="list-style-type: none"> • Irritant cough • Non productive • Possibly waterbrush • Heartburn 		
		<ul style="list-style-type: none"> • Rales • Crepitations • Frothy sputum • Tachycardia • Pitting oedema • Hepatomegaly 	• Congestive heart failure
	<ul style="list-style-type: none"> • Cough worse on waking • Tendency to spit • Difficulty breathing • Constant swallowing 		
	<ul style="list-style-type: none"> • Cough • Poorly localised chest pain • Dyspnoea • Possibly haemoptysis • Hoarseness 		• Lung carcinoma
	<ul style="list-style-type: none"> • Acute onset of cough • Worse in morning • Respiratory distress • Patient feeling ill 	<ul style="list-style-type: none"> • Fever • Cyanosis • Reduced percussion • Crackles • Bronchial breathing • Confusion 	
	Construct your own chart for these conditions		<ul style="list-style-type: none"> • Pharmacological • Whooping cough • Aspergilosis • Cystic fibrosis • Tuberculosis • Pertussis

BOX chart

EXERCISE

Attempt to fill in the missing information using the guidelines provided in the completed box(es).

Answer sheet

	CLINICAL FEATURES	EXAM FINDINGS	DIAGNOSIS
COUGH	<ul style="list-style-type: none"> • Acute onset of cough • Worse at night • Sputum: yellow > green • Rhinorrhoea • Sore throat • Aches and pains 	<ul style="list-style-type: none"> • Fever • Possibly irritation of tonsillar area / oropharynx • Irritated nasal mucosa 	<ul style="list-style-type: none"> • Acute bronchitis
	<ul style="list-style-type: none"> • Recurrent bouts of cough • Sneezing • Sore itching eyes • Post nasal drip 	<ul style="list-style-type: none"> • Irritated mucosae esp. nasal • Red eyes • Possibly wheezing 	<ul style="list-style-type: none"> • Allergic cough
	<ul style="list-style-type: none"> • Recurring chronic cough • Some expectoration • Possibly breathlessness • Common in elderly 	<ul style="list-style-type: none"> • Ausc: rhonchi • Wheezes • Prolonged expiration • Perc: hyperresonance 	<ul style="list-style-type: none"> • Chronic bronchitis
	<ul style="list-style-type: none"> • Irritant cough • Non productive • Possibly waterbrush • Heartburn 	<ul style="list-style-type: none"> • No upper respiratory tract signs • Smell of gastric contents 	<ul style="list-style-type: none"> • Gastroesophageal reflux
	<ul style="list-style-type: none"> • Chronic cough • Often worse at night • Orthopnoea • Dyspnoea with exertion • Paroxysmal nocturnal dyspnoea • Weightloss 	<ul style="list-style-type: none"> • Rales • Crepitations • Frothy sputum • Tachycardia • Pitting oedema • Hepatomegaly 	<ul style="list-style-type: none"> • Congestive heart failure
	<ul style="list-style-type: none"> • Cough worse on waking • Tendency to spit • Difficulty breathing • Constant swallowing 	<ul style="list-style-type: none"> • Rhinoscopy: nasal congestion • Sinuses congested • Nasal voice 	<ul style="list-style-type: none"> • Post nasal drip
	<ul style="list-style-type: none"> • Cough • Poorly localised chest pain • Dyspnoea • Possibly haemoptysis • Hoarseness 	<ul style="list-style-type: none"> • Wheezing or stridor • Possibly signs of endocrine pathology • Possibly neurological signs • Possibly pleural effusion • Possibly weightloss 	<ul style="list-style-type: none"> • Lung carcinoma
	<ul style="list-style-type: none"> • Acute onset of cough • Worse in morning • Respiratory distress • Patient feeling ill 	<ul style="list-style-type: none"> • Fever • Cyanosis • Reduced percussion • Crackles • Bronchial breathing • Confusion 	<ul style="list-style-type: none"> • Pneumonia (bacterial)
	<p>Construct your own chart for these conditions</p>		<ul style="list-style-type: none"> • Pharmacological • Whooping cough • Aspergilosis • Cystic fibrosis • Tuberculosis • Pertussis

PAIN patterns

EXERCISE

Describe the nature of pain and general clinical features associated with the follow conditions.

Identify the distribution of pain and referral pattern produced.

Question sheet

CARDIAC PAIN

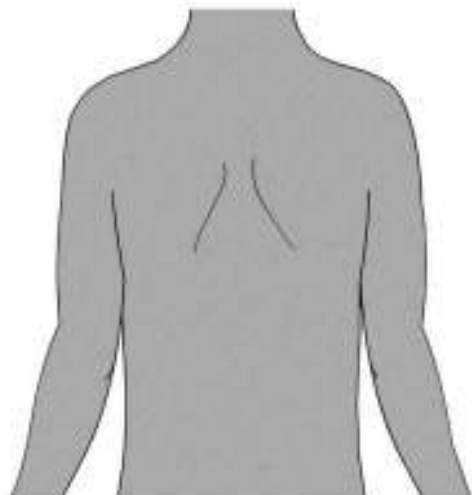
CHARACTERISTICS OF PAIN:

- A
-
- B
-
- C
-
- D
-

REFERRAL PATTERN:

- A
- B
- C
- D

DRAW ON THE REFERRAL PATTERN:



PAIN patterns

EXERCISE

Describe the nature of pain and general clinical features associated with the follow conditions.

Identify the distribution of pain and referral pattern produced.

Answer sheet

CARDIAC PAIN

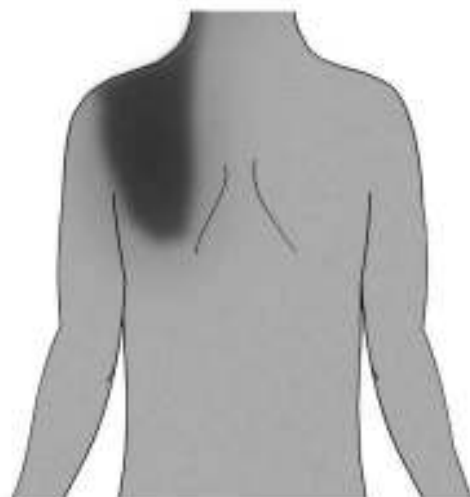
CHARACTERISTICS OF PAIN:

- A Central / retrosternal chest pain.....
.....
- B Crushing / squeezing / tightness.....
.....
- C Pressure – like over sternum.....
.....
- D Neck constrictive feeling.....
.....

REFERRAL PATTERN:

- A Arms, esp. left medial border, more on left.....
- B Shoulders.....
- C Neck and jaw.....
- D Thoracic spinal area.....

DRAW ON THE REFERRAL PATTERN:



PAIN patterns

EXERCISE

Describe the nature of pain and general clinical features associated with the follow conditions.

Identify the distribution of pain and referral pattern produced.

Question sheet

DIAPHRAGMATIC PAIN

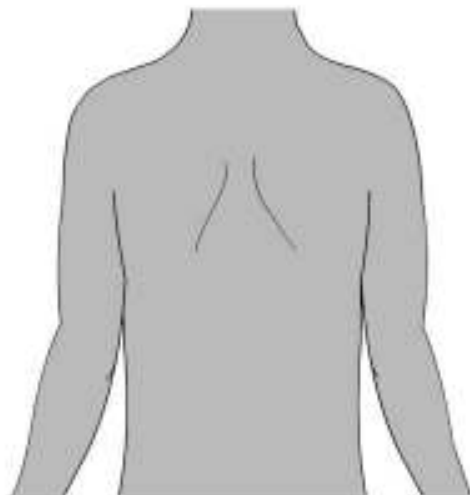
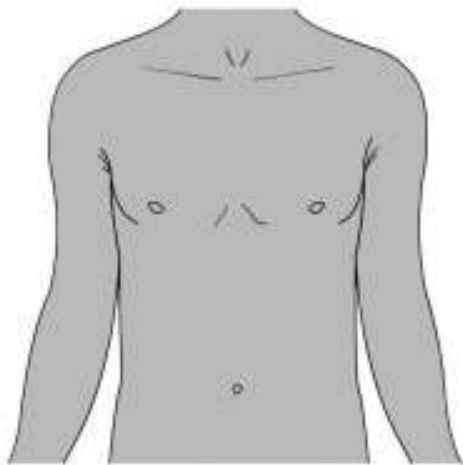
CHARACTERISTICS OF PAIN:

- A
-
- B
-
- C
-

REFERRAL PATTERN:

- A
- B

DRAW ON THE REFERRAL PATTERN:



PAIN patterns

EXERCISE

Describe the nature of pain and general clinical features associated with the follow conditions.

Identify the distribution of pain and referral pattern produced.

Answer sheet

DIAPHRAGMATIC PAIN

CHARACTERISTICS OF PAIN:

- A Tight feeling around the base of chest
-
- B Shoulders aches
-
- C Worse on deep inspiration
-

REFERRAL PATTERN:

- A Base of thorax
- B Shoulders and neck

DRAW ON THE REFERRAL PATTERN:



Case history – chest pain

A 56 year-old accountant, originally from Egypt, presented to his doctor complaining of feeling increasingly tired and generally not feeling well over the last few months. His appetite has also deteriorated and he found he could no longer tolerate large or fatty meals. He also suffers from chronic constipation and for several weeks now he has seen blood in his stools. He also stated that when he plays with his grandchildren he feels out of breath and also experiences some pain in his chest. He no longer exercises as he is busy running his firm but he occasionally swims when on holidays. He does not consider that his asthma is a problem as he manages to control this with the occasional use of a nebulizer. He also stated that he finds it more comfortable to sleep using several pillows.

Five years ago he was treated with a course of antacids for gastritis. He was told at the time that he may have a duodenal ulcer. He is very worried as his mother died from a tumour of the gut, although he did not know of the specific type. She also suffered from diabetes mellitus. His brother had pulmonary tuberculosis as a young man.

He started smoking at the age of 17 and continues to smoke about 25-30 cigarettes per day. He drinks on most days usually $\frac{1}{4}$ of a bottle of brandy but substantially more when socializing.

On examination:

He was obese with protruding abdomen. He was a little pale. Examination of the blood pressure and pulse were within the accepted range.

On palpation of the abdomen it was thought that the liver was palpable and percussion over the lumbar regions of the abdomen was dull. His ankles were slightly swollen. There were several spider naevi over the upper chest.

In the following week he was admitted to hospital for further investigations. These were the findings:

- BP 120/95, PR 95 irregularly irregular, Temperature 37.6, Respiratory rate 28
- Apex beat not palpable
- Percussion of the heart indicated normal size
- Auscultation revealed a third heart sound
- Jugular Venous Pressure was raised to 9cm
- Blood tests: Haemoglobin (Hb) 11g/dl, Erythrocyte sedimentation rate (ESR) 63 mm

QUESTIONS

- 1. What further investigations would you think appropriate at this stage?**
- 2. Explain the significance of each of the clinical findings.**
- 3. What is the significance of his lifestyle habits?**
- 4. Explain with reasons your differential diagnosis.**
- 5. Explain with reasons your most likely diagnosis.**

References, Bibliography and Recommended reading

Jamison J R (2007), Differential Diagnosis for primary Practice, 2nd edn., Churchill Livingstone. (ISBN-13: 978-0443102875)

Goodman C G, Snyder T K (2007), Differential Diagnosis for Physical Therapists: Screening for Referral, 4th edn, Saunders. (ISBN: 978-0721606194)

Seller R H, Differential Diagnosis of Common Complaints, Saunders, 3rd edn, 1996 ISBN: 978-1416029069

Beck R, et al (2003), Tutorials in Differential Diagnosis, 4th edn., Churchill Livingstone. ISBN: 978-04430615-7-8

DVD-VIDEO recordings

Syrimis A (2007), Clinical Examinations DVDs, Bloomsbury Educational Ltd.

ISBNs:

- Respiratory system examination: 978-0-9551291-0-0
- General system examination: 978-0-9551291-1-7
- Cardiovascular system examination: 978-0-9551291-2-4
- Abdominal system examination: 978-0-9551291-3-1
- Peripheral nervous system examination: 978-0-9551291-4-8
- Cranial nerves examination: 978-0-9551291-5-5
- Musculoskeletal examination: 978-0-9551291-6-2
- Case History Taking: 978-0-9551291-7-9
- Clinical Examinations: Complete DVD series: 978-0-9551291-9-3

<http://www.clinicalexams.co.uk/student-resources-section.htm>

(For additional lecture notes, Q&As and images, Username & Password provided in class)

Boon N A, Colledge N R, Walker, B & Hunter J A A (2006), Davidson's Principles and Practice of Medicine. 20th Edition, Churchill Livingstone ISBN: 978-0-4430703-5-8

Bickley, L. S.; Szilagyi, P. G.; 2003; *Bates' Guide to Physical Examination and History Taking*; (8th Ed); Lippincott; New York.

Epstein, O.; et al.; 1997; *Clinical Examination*; (2nd Ed.); Mosby; London. (similar to Bates but presents the information in a different but equally good way. Some very good photographs and is user friendly).

Marsh J; 1999 *History and Examination*; Mosby London. (a great 'crash course' book with sample questions. Very user friendly. I recommend it).

Forbes, C. D.; Jackson, W. F.; 1998; *Color Atlas and Text of Clinical Medicine*; (2nd Ed.); Mosby; London. Excellent reference book for photographs of various pathologies.

Haslett, C.; et al.; 1999; *Davidson's Principles and Practice of Medicine*; (18th Ed.); Churchill Livingstone; Edinburgh. (Use to put your clinical findings into context of general medicine).

Bradley J, Rubenstein D, Wayne D, The Clinical Manual, Blackwell Scientific publications. ISBN 0-632-03312-6. This is another very good pocket size book but you may have to order it. I find this book very useful because it also had a summary of the main pathologies and their signs and symptoms.