Back Pain: Management and Differentials

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Back pain is a very common condition affecting a large number of the population. These patients commonly present to the emergency department with a first presentation or an acute on chronic exacerbation.

In the initial investigation of these patients one must always have a number of differential diagnoses at the back of their mind to ensure potentially life threatening conditions are not missed. A lot may be gleaned from the chronology and type of symptoms the patient presents with.

For example a dissecting aortic aneurysm typically presents with severe 'tearing' acute onset back pain with associated deterioration in pulse and blood pressure.

Pancreatico-biliary disease (such as gallstones) may originate in the right upper quadrant of the abdomen but equally may feel epigastric in origin. It typically radiates to the back but is not usually isolated to the back. However there are patients who will explain the pain as being in the midline in the back only.

Gastrointestinal reflux or peptic ulcer disease may present with back pain. Again it is usually associated with epigastric pain and the pain is commonly described as burning in nature.

Cardiac pain associated with angina or acute coronary syndromes may again present with back pain. This pain may be isolated to the back but is usually described as tight and constricting. Patients suffering from this condition are usually diaphoretic and again may demonstrate deviation from normal observations.

In general patients complaining of back pain should receive a full assessment to ensure occult causes are not missed. This assessment should include:

a) examination of the abdomen, cardiorespiratory system, the spine and lower limb neurology + / - upper limb neurology if appropriate.

b) blood tests including;
- FBC (*full blood count*) : looking for anaemia and a raised white cell count which could indicate chronic disease or infection.
- U+E (*urea and electrolytes*) : looking for renal impairment which could be a sign of dehydration or have implications for medications used if it is deranged.
- LFT (*liver function tests*) : liver function tests may be deranged by pancreatico-biliary disease such as gallstones. They may also be deranged by metastases from distant primary malignancy.
- G+S (*Group and Save*) : allows the blood bank to have blood matched to the patient ready in around 20 minutes should the patient need surgery.
- Amylase : Important in the investigation of pancreatitis as a significant elevation can give rise to a high index of suspicion of the condition.

c) ECG (*electrocardiogram*) : this will rule out an ST elevation myocardial infarction. It may also be important should the patient need to go to theatre.

Causes of Musculoskeletal Back Pain

Back pain is a very common condition. More than 90% of episodes are 'simple mechanical' back pain. Typically this occurs in patients age 20 - 55yrs and episodes are recurrent. The pain is usually relatively sudden in onset and precipitated by lifting or bending. Patients in this group usually have complete recovery in a matter of weeks with no active intervention. The pain itself is often quite severe and usually generalised over the lumbar region. Palpation often reveals tenderness over the paraspinous muscles rather than in the midline.

Patients who do not fall into the simple mechanical back pain group usually have something more significant going on. The main concern in these patients is malignancy and cord compression of various aetiology.

These patient are usually under 20 years or more than 50. The pain is constant and often progressive, unrelieved by rest or sleep. One of the 'red flag' signs is pain preventing or waking from sleep. In these patients an attempt should be made to look for evidence of underlying malignancy in other systems. Metastases commonly arise from tumours in the kidney, prostate, breast, lung and thyroid glands. The table below details the red flag signs which should be sought in the history and examination of a patient with back pain.

History	Examination
Age < 20 or 50 <	Painful deformity (esp. progressive)
Constant and progressive pain	Saddle anaesthesia
Thoracic pain	Progressive neurological symptoms
History or malignancy/TB/HIV	Multiple nerve roots affected
Constitutional Symptoms (eg weight loss, night sweats)	Point midline tenderness on palpation of the spine
History of significant trauma	

Inflammatory back pain refers to pain caused typically by nerve root irritation (radicular pain). One of the key features to elicit in the history is that the pain not only involves the back but also one or both of the lower limbs.

One of the commonest causes of radicular pain is a lumbar disc prolapse. Disc prolapse may by precipitated by something as innocuous as a sneeze, or lifting a relatively light object. The intervertebral disc is the 'shock absorber' between the vertebral bodies in the spine. These consist of the *annulus fibrosus* surrounding the semifluid *nucleus pulposus*. In a disc prolapse the nucleus pulposus herniates through the annulus fibrosus into the spinal canal. This on its own is not enough to cause radicular pain however. The disc must prolapse to the extent that it causes compression of one of the nerve roots or the central cord.