Malignancy

Malignant bone disease encompasses many conditions which are outside the remit of this book. It is imperative however, that malignant conditions are borne in mind when looking at x-rays, as it is very easy to overlook them when they are not expected and an early diagnosis can significantly improve the outcome for patients.

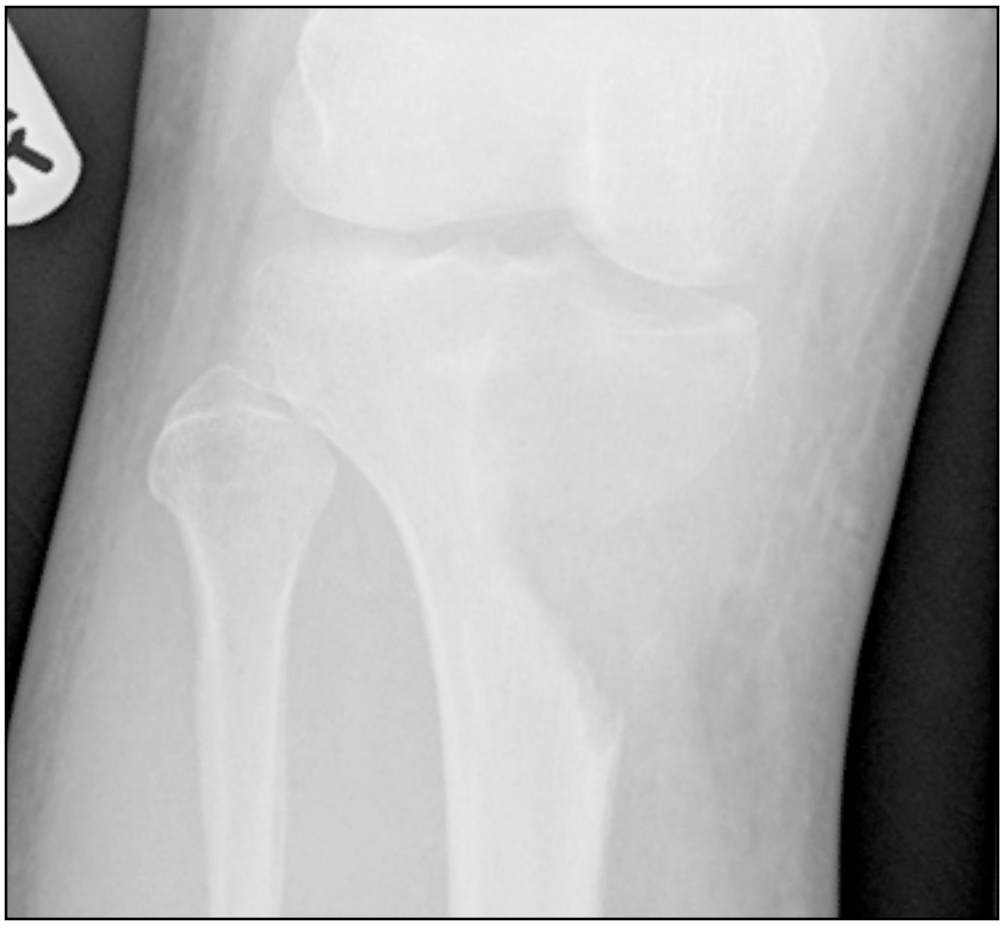
There are some key pieces of knowledge which you should understand in order to identify bone lesions and describe them. The first is that for a lesion of show up on x-ray it must be at least 2cm in size and have changed the density of the bone by 50%, i.e. for a lytic lesion to be visible on x-ray the bone must be at least 50% demineralised.

The second is that broadly speaking, lesions within bone are either primary tumours, that is those which originate in the bone itself, or secondary tumours which originate elsewhere in the body and metastasise to bone.

Primary malignant bone tumours are rare, accounting for around 0.2% of all neoplasms. Around only five hundred cases are reported in the UK each year. Of these the commonest lesions are osteosarcomas, accounting for a third of cases, followed by chondrosarcomas, accounting for a quarter.

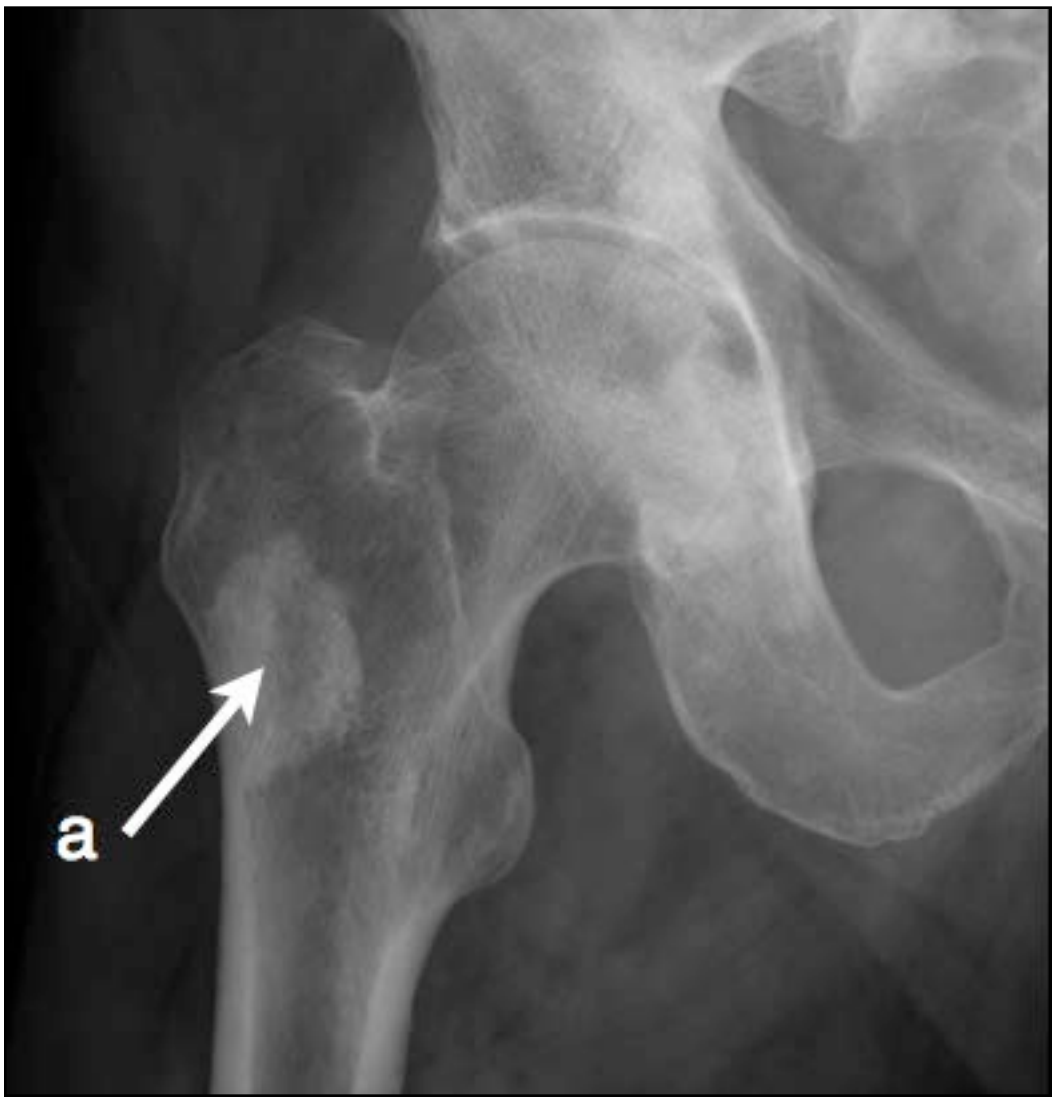
Metastatic disease is far more common, especially in the elderly. It usually relates to one of five primary malignancies; prostate, breast, thyroid, lung and kidney.

There are two described types of lesion within bone; *lytic* and *sclerotic*. A lytic lesion is destructive and involves demineralisation of bone. It is therefore less radiodense on x-ray and so shows up as a darker area.



The x-ray above shows a knee with a large lytic lesion eroding through the medial half of the proximal tibia. In this case it is a giant cell tumour (a primary bone tumour).

Sclerotic lesions are proliferative and so show as more dense (whiter) areas on x-ray.



The x-ray above shows a patient with bony metastases from prostate cancer. There are a number of sclerotic deposits, the most prominent of which is the one just below the greater trochanter.