Scurvy…

Radiographic features

In children

- generalised osteopaenia
- cortical thinning: "pencil-point" cortex
- periosteal reaction: due to subperiosteal haemorrhage
- scorbutic rosary: expansion of the costochondral junctions. It may relate to fracturing of the zone of provisional calcification during normal respiration. Similar to the rachitic rosary appearance is seen in rickets.
- haemarthroses
- Wimberger's sign: circular, opaque radiologic shadow surrounding epiphyseal centers of ossification, which may result from bleeding
- Frankel's line: dense zone of provisional calcification
- Trümmerfeld zone: lucent metaphyseal band underlying Frankel's line
- Pelkan spur: metaphyseal corner fractures resulting in cupping of the metaphysis

In adults

- osteopaenia
- pathologic fractures

Rickets…

Radiographic features

In the growing skeleton the deficiency of normal mineralisation is most evident at growth plates where there is an excess on non-mineralised osteoid resulting in growth plate widening. With increasing severity and abnormal biomechanics the metaphysis flares out and appears frayed.

It is not surprising that these features are most prominent at the growth plates where growth is greatest:

- knee: distal femur, proximal tibia
- wrist: especially the ulna
- anterior rib ends: rachitic rosary

It is important to remember that even bones that appear mineralised are weak, and result in bowing, most commonly seen in the lower limbs once the child is walking. The legs bow outwards with variable deformity of the hips (both coxa vara and coxa valga are seen). The lower ribs may also be drawn inwards inferiorly by the attachment of the diaphragm (Harrison's sulcus).