

Case: 01

Clinical Information			
Patient Age:	10 months	Patient Gender:	Female
Clinical Problem:	Unconscious		
Images in Exam Case:	CT head (non-contrast) CXR		

Observations:

CT:

- Extra-axial fluid collection on the left side of the brain. It contains both high and low attenuation.
- Midline shift is seen with compression of the left lateral ventricle.
- No skull fracture is seen on these images.

CXR:

- Fractures of the left sixth and seventh ribs posterolaterally with evidence of callus formation.
- Fractures of the right eighth and tenth ribs posteriorly but no associated callus or periosteal new bone.
- Lung fields are clear.

Interpretation: A non-contrast head CT shows an extra-axial fluid collection on the left side of the brain. The shape of this suggests that it lies within the sub-dural rather than the sub arachnoid space. It contains both high and low attenuation material indicating that it is likely to represent an acute or chronic sub-dural haematoma.

A chest x-ray shows fractures of the left sixth and seventh ribs posterolaterally with evidence of callus formation indicating healing. There are also fractures of the right eighth and tenth ribs posteriorly but no associated callus or periosteal new bone, suggesting that these fractures have occurred very recently. These findings suggest that these rib fractures have occurred at different times.

Principal Diagnosis: Non-accidental injury.

Differential Diagnosis: Consider accidental trauma. This appears unlikely in view of the posterior rib fractures of different ages.

Management (if appropriate): The patient needs an urgent neurosurgical opinion and the child protection service must be alerted. A skeletal survey should be performed to look for other fractures and to ensure that there is no evidence of any other skeletal abnormality, such as osteogenesis imperfecta.

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Case: 02

Clinical Information			
Patient Age:	2 years	Patient Gender:	Male
Clinical Problem:	Painful left hip		
Images in Exam Case:	AXR Skeletal scintigram (bone scan)		

Observations:

AXR:

- lytic ill defined lesion left femoral neck with associated periosteal new bone formation
- calcification in the right upper quadrant
- possible paravertebral mass around the L1 vertebral body

Skeletal scintigram (bone scan)

- Areas of increased uptake in the left 6th, 7th and 8th and the right 4th, 5th and 8th ribs, right humerus and left femur
- possible areas of increased activity in region of calcification seen on abdominal radiograph

Interpretation:

- The lesion in the left femoral neck has the appearances of an aggressive lesion suggestive of malignancy. Infection appears unlikely.
- The calcification in the right upper quadrant could relate to the liver, gall bladder, kidney or adrenal gland. In the context of possible malignancy, this is likely to relate to a malignancy in the adrenal gland.
- The possible paravertebral soft tissue mass will need further investigation with cross sectional imaging but may indicate intraspinal extension of an adrenal tumour.
- The areas of increased activity on the bone scan suggest widespread skeletal metastases.

Principal Diagnosis: Neuroblastoma in right adrenal region with bone involvement and possible intraspinal extension.

Differential diagnosis

- Adrenal carcinoma can rarely occur in this age group and may calcify but is unlikely to extend intraspinally.
- Wilms' tumour is intrarenal, only occasionally calcifies and rarely metastasises to bone so should not give these appearances.

Management

- An ultrasound scan would confirm whether the calcified mass lies within the adrenal gland.
- An MRI scan, MIBG and skeletal scintigrams would be required for staging and monitoring response to treatment.
- Bone marrow aspiration and catecholamine estimation are usually also performed.
- A biopsy may also be required.

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