e-Film Exam

Thursday, 18 March 2021
**Question 1**

**History**
14 weeks 0 days gestation by certain dates. For survey of fetal anatomy following a low probability Non-Invasive Prenatal Testing (NIPT) result.

**Imaging**
Ultrasound - 21 images

1) **Findings**

   **Major findings:**
   - Live Monochorionic Diamniotic (MCDA) Twin pregnancy
   - Thin intertwin membrane
   - CRL Twin 1 82mm (in keeping with dates)
   - CRL Twin 2 29mm (small for dates)
   - Second twin abnormal morphology
   - Reversed arterial perfusion in Twin 2

   **Minor findings:**
   - No hydrops
   - Equal fluid in both sacs
   - Single posterior placenta
   - Cervix is long and closed

2) **Likely Diagnosis**

   - Twin Reverse Arterial Perfusion Syndrome (TRAPS) or Acardiac Twin
   - Only mentions MCDA Twins

3) **Differential**

   - N/A

4) **Further Investigation or Management**

   - Referral to Tertiary Institution
Question 2

History
5 month old male with recent rotavirus vaccination. Presents with abdominal pain, vomiting and jelly like blood in stool.

Imaging

Series 1 - AXR (supine and left side down decubitus) (13 December 2016): 2 images
Series 2 - Abdominal US (13 December 2016): 17 images
Series 3 - Air enema (13 December 2016): 38 images

1) Findings

- AXR
  - Abnormal bowel gas pattern Absent colonic gas, absent gas in caecum on decubitus mildly dilated small bowel
  - No free air/perforation
  - Nasogastric tube mal positioned in distal oesophagus

- Limited US
  - “Target”/ “pseudo kidney” sign
  - No lead point

- Air enema reduction
  - Intussusception in sigmoid
  - Reduces only to descending colon then
  - Perforation with pneumoperitoneum

2) Likely Diagnosis

- Ileocolic intussusception
- Perforation during air reduction

3) Differential

- N/A

4) Further Investigation or Management

- Urgent surgery/surgical referral
Question 3

History
A 24 year old male presented with an abdominal crush injury after a motor vehicle accident.

Imaging
A CT Abdomen/Pelvis was performed:
Series 1 - Sagittal: 94 images
Series 2 - Coronal: 67 images
Series 3 - Axial: 165 images

1) Findings

Major findings
- Defect through the pancreatic body/tail
- Haematoma surrounding pancreatic defect
- Oedematous pancreatic tail
- Absent contrast enhancement left renal artery and left kidney
- Linear lucency Seg 5/8 liver parenchyma (<10cm)
- Enlarged right adrenal gland of low density

Minor findings
- Hyper dense appearance of the Bowel
- Haemoperitoneum
- Retroperitoneal Haematoma
- Right 2 to 4 lumbar transverse process fractures
- Bilateral haemothorax
- No pneumoperitoneum

2) Likely Diagnosis

- Pancreas transection
- Devascularised left kidney/Left renal artery injury
- Liver laceration segment 5 and 8. (Grade II)

3) Differential

- N/A

4) Further Investigation or Management

- Inform surgical team
**Question 4**

**History**
A 45 year old male presented with a 3 month history of productive cough, night sweats and back pain. His CXR was abnormal.

**Imaging**
A CT chest was performed on 11 December 2019:
Series 1 - Axial lungs: 55 images
Series 2 - Axial mediastinum: 55 Images
Series 3 - Coronal mediastinum: 51 Images
Series 4 - Axial abdomen: 73 Images

1) **Findings**

Major findings:
- Right upper lobe cavitary lesion with
- Multiple loculations
- Large air-fluid cavity superiorly
- Extension to the mediastinum and blurring of the mediastinal fat
- Mediastinal and right hilar adenopathy
- Right lower lobe nodule

Minor findings:
- Extensive emphysematous change in the lungs else-where
- Adjacent ground glass opacity
- No skeletal abnormality
- No visceral metastases
- Trace pericardial fluid
- Right hemidiaphragm elevation

2) **Likely Diagnosis**

- Accept: “Cavitary bronchogenic carcinoma/TB”

3) **Differential**

- Any other undifferentiated cavitary pneumonia
- Or bronchogenic cancer (if not previously mentioned)

4) **Further Investigation or Management**

- Referral to respiratory service with recommendation for bronchoscopy
Question 5

History
54 year old male presented with 5 weeks of neck pain with acute exacerbation after chiropractic manipulation.

Imaging
MRI was performed on 4 July 2019:
- Series 1 - T2FS Sagittal: 13 images
- Series 2 - T2 Axial: 33 images
- Series 3 - T1FS Post C Sagittal: 13 images
- Series 4 - T1FS Post C Axial: 50 images

1) Findings

Major findings:
- Destruction C5 and C6 end plates
- Increased T2 signal disc and end plates
- Irregular enhancement disc/vertebrae
- Kyphosis deformity
- Epidural phlegmon C2 to C7
- Prevertebral phlegmon skull base to upper thoracic
- Oedema and Inflammatory changes posterior soft tissues, posterior elements with facet joint widening
- Canal stenosis at C5/6
- Mildly increased or normal cord T2 signal
- No significant/drainable abscess

2) Likely Diagnosis

- Unstable
- C5-6 discitis/osteomyelitis

3) Differential

- N/A

4) Further Investigation or Management

- Recommend urgent neurosurgical review
Question 6

History
85 year old female with right total hip replacement 3 years previously. She presented with increasing pain over 12 months.

Imaging
CT right hip
Series 1 - Coronal bone image: 95 images
Series 2 - Axial soft tissue windows: 130 images

1) Findings

- Mixed density complex collections around right hip
- High density fragment
- Asymmetrical cup wear/malaligned
- Bone lysis acetabulum
- Bone lysis femur
- Cortical thinning
- GT Fracture

2) Likely Diagnosis

- Particle disease or metallic fragmentation or granulomatous reaction to metal fragments

3) Differential

- N/A

4) Further Investigation or Management

- Aspirate
- Blood Tests (chromium/cobalt)
Question 7

History
A 58 year old male presented with acute right facial droop and right tongue deviation.

Imaging

CT Head
Series 1 - 5mm: 31 images
Series 2 - 0.5 mm: 65 images

CT Perfusion head
Series 3 - Axial: 21 images

CT Angiogram neck and intracranial arteries
Series 4 - Coronal MPR Neck: 60 images
Series 5 - Axial MPR Neck: 130 images
Series 6 - Coronal MPR Head: 45 images
Series 7 - Axial MPR Head: 88 images

1) Findings

Major findings:

- CT head
- No haemorrhage
- No definite early/established ischemic changes
- Possible dense vessels in the sylvian fissure on left – no dense MCA artery
- Hyperattenuated and expanded left upper cervical ICA

CT angiogram:

- Occluded post bulbar left ICA level of C3
- Reconstituted supra/paraclinoid ICA – Pcom and Acom complex
- Patent large vessels of circle of Willis
- Possible or M2 branch occlusion

CT Perfusion:

TTP, MTT and CBF:

- Focal segmental anterior left MCA territory perfusion defect – prolonged transit and reduction in CBF
- Global left hemispheric reduced perfusion

CBV: matched reduction in CBV with TTP & CBF lesion – suggests little or no penumbra

Minor findings:

- Extra-axial calcification right parietal region -prob meningioma
- CTA: right vertebral artery nondominant with origin narrowing
- Mild calcific atheroma right CCA bifurcation
2) **Likely Diagnosis**

- Acute left frontal MCA segmental infarct
- Matched perfusion defect
- Left ICA occlusion with features suggesting a dissection

3) **Differential**

- N/A

4) **Further Investigation or Management**

- Consider emergent INR clot retrieval or neurological thrombolysis – consultation required
Question 8

History
A 49 year old female presented with 3 days of abdominal pain.
Previous appendectomy and sleeve gastrectomy.

Imaging
A CT was performed:
- Series 1 - Sagittal: 130 images
- Series 2 - Coronal: 103 images
- Series 3 - Axial: 163 images

1) Findings

Major findings:
- Left diaphragm defect containing loop distal transverse colon/splenic flexure
- Bowel wall thickening/oedema of involved bowel loop
- Dilated loops small and large bowel

Minor findings:
- Abdominal wall hernias
- Ascites
- No pneumoperitoneum
- No pneumatosis

2) Likely Diagnosis
- Large and small bowel/splenic flexure obstruction
- secondary to post surgical diaphragmatic hernia
- Possible ischaemia

3) Differential
- N/A

4) Further Investigation or Management
- Urgent surgical referral