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Cast 24 – Haematological Malignancy PART 1

You are the ED Consultant in-charge of a rural ED with a 53/F patient Jane Doe, who was brought in by her partner, for progressively worsening SOB for 5 days.
Jane presented very severe respiratory distress, pallor, and diaphoresis. She reported non-productive cough with fevers and rigors over the past 2 days, associated with a loss of taste and smell. She has no significant past medical history and is not on any regular medications. She has a 30 pack-year smoking history, ETOH on weekends socially.

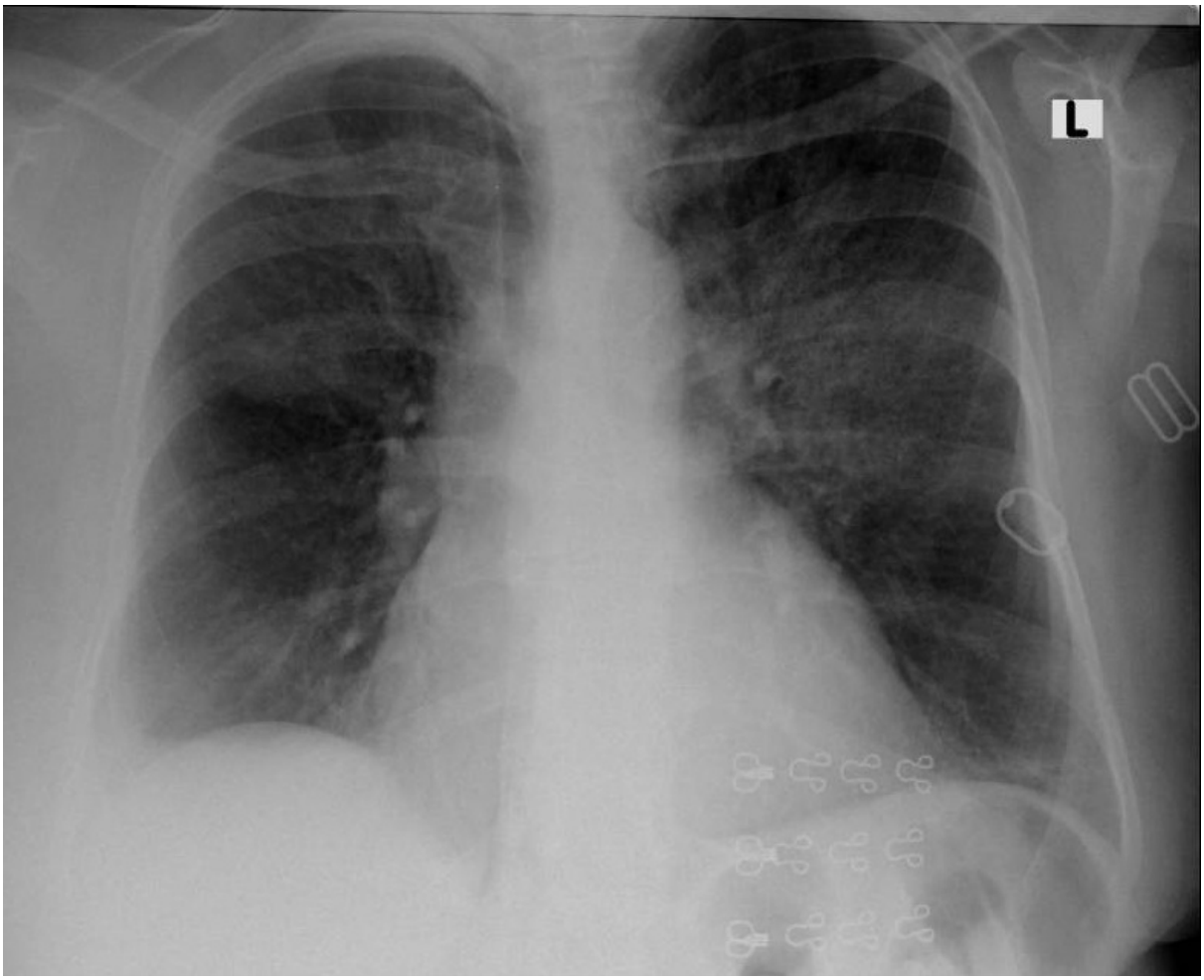
On examination –

- Jane is working very hard using all accessory muscles & speaking in short phrases
- Temp: 40 ℃
- HR: 144 /min
- BP: 172/90 mmHg
- RR: 26 /min
- SaO2 (%): 81 % on Room Air, - On O2 10L through NRBM - 99%
- GCS: 15
- On auscultation: Creps present all over the lung fields

(a) List 4 differential diagnoses for this presentation? (4 Marks)

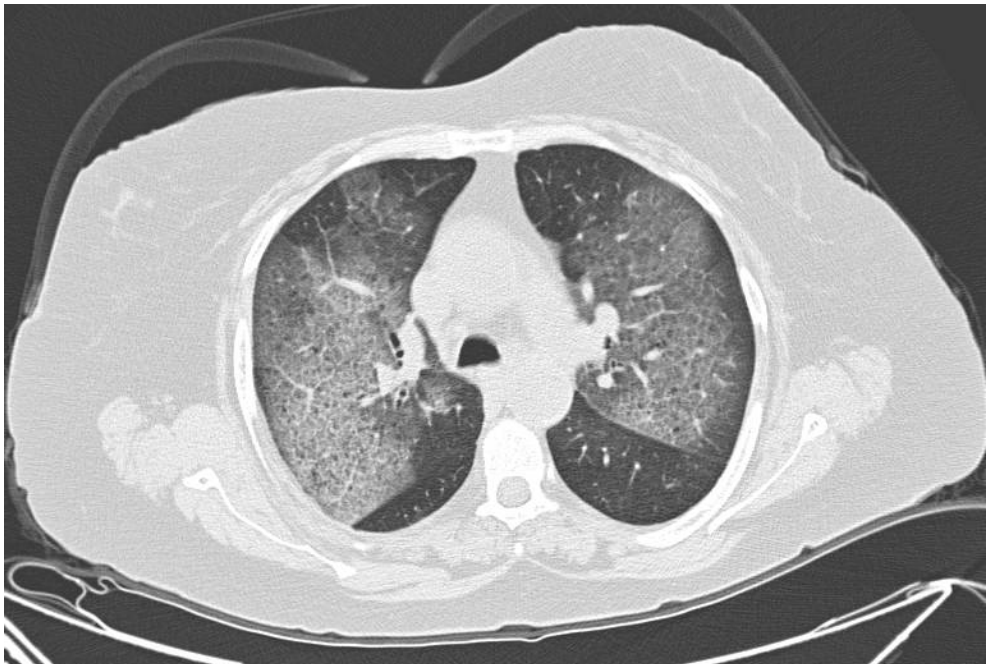
1. Infection - Pneumonia
2. Inflammation – Infective Exacerbation of undiagnosed COPD
3. PE
4. Cancer – Respiratory malignancy
5. Septic cardio myopathy
6. Sepsis
7. Toxicological – Neuroleptic Malignant syndrome / Serotonin Syndrome
8. Neurological Pulmonary Oedema

(b) A CXR is performed. Please list 2 positive & 2 negative findings on the CXR related to this presentation (4 Marks)



1. Bilateral interstitial markings mainly at the peri-hilar regions
2. Blunting of the right CP angle – possible effusion
3. No pneumothorax
4. No mass
5. No consolidation

(c) A CT chest is performed. List 2 positive & 2 negative findings on this single slice of CT chest related to this presentation (4 marks)



1. Bilateral peri-hilar interstitial thickening with a background of **ground glass opacification**.
2. No pneumothorax
3. No mass at this level
4. No effusion at this level
5. No penumomediastinum
6. No aneurysm or dissection

[Case courtesy of Abdallah Al Khateeb, Radiopaedia.org, rID: 45631]

(d) List 6 abnormalities from the VBG (6 marks)

- pH 7.429
- pCO2 29.9
- HCO3 19.8
- Hb 92
- Na 129
- K 4.6
- Cl 92
- Ca 1.08
- Lac 6.7
- Glu 13.6

Answer -

1. Respiratory Alkalosis
2. Concomitant Elevated Anion Gap Meta Acidosis (Anion Gap – 17.6 mmol/L)
3. Anaemia
4. Hyperglycaemia
5. Hyperlactatemia
6. Hyponatraemia - mild

Her Blood results are given below –

FBE	**Biochem**
• Hb: 89 (130-180) • WCC: 35.1 (4-11) • Platelet: 12 (150-450) • RCC: 2.58 (4.5-6.2) • Neut: 0.35 (2 - 8) • Lymp: 1.05 (1.00-4.00) • Mono: 0.35 (0.20-1.00) • Eosi: 0.00 (0.00-0.50) • Baso: 0.00 (0.00-0.20) • Blast cell present	• CRP: 501 • Na: 129 (135-145) • K: 4.4 (2.5-5.2) • Cl: 91 (95-110) • Bic 18 (22-32) • Urea: 12.8 (2.8-7.2) • Creat: 189 (60-110) • eGFR: 34 (>90) • LFTs: WNL • Troponin: 291 (0-20)

(e) State 6 abnormalities from the blood results (6 marks)

Answer -

1. Anaemia
2. Low RBC count
3. Leucocytosis **BUT** Neutropaenia
    a. Blast Cells
    b. Most likely haematological malignancy
4. Thrombocytopaenia
5. Raised CRP – most likely infective
6. Mild Hyponatraemia
7. Raised Urea and Creatinine most likely due to kidney injury
8. Raised troponin – most likely Type 2 MI, as there was no suspicion of ACS

(f) State the MOST LIKELY diagnosis based on these blood results? (2 marks)

Answer -

1. Most likely haematological malignancy with Blast crisis

(g). List 2(two) other tests you would request and give your reasons? (2 marks)

Answer -

1. **Coagulation profile – to rule out any coagulopathy**
2. ABG – to calculate the A-a gradient/ratio

(h). State a known respiratory complication to be expected in such a patient? (1 marks)

Answer –

Acute pulmonary/alveolar haemorrhage

Additional Possible Question

What to do if there are blasts cells on a film?

- Think about acute leukaemia!
- Medical emergency
- Call for help (24/7)
    - Haematology registrar/haematologist on call
- Coagulation profile – look for DIC
- Treat any infections.
- Look to transfer to tertiary centre ASAP for diagnostic marrow and treatment.

This is the end of our cast, and in the part 2 of this series, we will discuss about administration type of question and the services available for haematological malignancies.