



Blood Test #3

WAMSS SGR 2022



Trigger

You are a GP seeing your first patient of the day. Alex is a 45M who comes in for a skin check. On further questioning, Alex complains that he is constantly fatigued regardless of the amount of sleep he gets and reports ongoing shortness of breath over the last few months.

When you probe his social history, you discover Alex lives by himself at home, drinks a slab of emu exports (24 pack) each day and his diet consists entirely of 2 minute noodles.

On examination:

- Vitals: HR 94, BP 110/90, RR 18, SpO₂ 96%, Temp WNL
- On general inspection Alex appears pale
- On inspection of the face Alex's tongue appears smooth

Routine bloods are performed.

Task: Interpret the results, provide a working diagnosis and list other investigations/things you would like to do.

FBC

- Haemoglobin 115 (135-180)
- White cell count 7 (4-11)
- Platelets 290 (150-400)
- MCV 105 (80-100)

U&Es

- Cr 95 (60-110)
- eGFR 83 (>60)

LFTs

- ALT 50 (<40)
- AST 100 (<45)
- ALP 56 (30-110)
- GGT 150 (<60)
- Bilirubin 8 (<20)
- Albumin 38 (35-50)





Results	FBC – macrocytic anaemia U&Es – normal LFTs – elevated ALT and AST, with AST elevation > ALT elevation. Elevated GGT. Consistent with alcoholic liver disease
Working diagnosis	<p>My working diagnosis is macrocytic anaemia, as the MCV is >100. Macrocytic anaemias are subdivided into megaloblastic and non-megaloblastic causes. Megaloblastic anaemias are due to defects in DNA synthesis. The two most common causes are folate deficiency and B12 deficiency.</p> <p>The common causes of macrocytic anaemias can be remembered with:</p> <ul style="list-style-type: none">AlcoholismB12 deficiencyCompensatory reticulocytosisDrugs (e.g. phenytoin, azathioprine)Endocrine (e.g. hypothyroidism)Folate deficiency <p>The patient in the trigger has risk factors for both megaloblastic causes (poor diet leading to folate/B12 deficiency) and non-megaloblastic causes (daily alcohol). His LFTs are also consistent with early alcoholic liver disease.</p>
Further investigations and workup	Folate/B12 levels – common causes of megaloblastic anaemia Consider a blood film – characteristic findings in megaloblastic anaemia TFTs – hypothyroidism can cause fatigue in and of itself, but also causes a non-megaloblastic, macrocytic anaemia Glucose/HbA1c – diabetes often presents with fatigue Screen for anxiety/depression/alcohol use disorder – common causes of fatigue and need to be addressed



Follow-up Questions

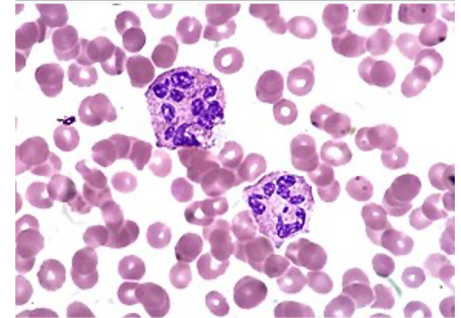
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1. What is the classic description of neutrophils in megaloblastic anaemia?
2. What neurological condition can result from prolonged B12 deficiency?
3. Is folate or B12 deficiency more common? Why?

Question 1

- Hypersegmented neutrophils
- Defined as the presence of neutrophils whose nuclei have 6 or more lobes



Question 2

- Subacute combined degeneration of the spinal cord (SACD)
- Patchy loss of myelin in the dorsal and lateral corticospinal tracts
- Initially presents with loss of proprioception and vibration sense, followed by distal paraesthesias
- Upper motor neuron signs typically develop in the legs



Question 3

- Folate deficiency is more common than B12 deficiency
- This is because B12 is stored in large amounts in the liver
 - If a person stops consuming B12, it takes 3-5 years to deplete the stores
- Folate is stored in small amounts and will deplete within a few months if not consumed





Thank you!

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