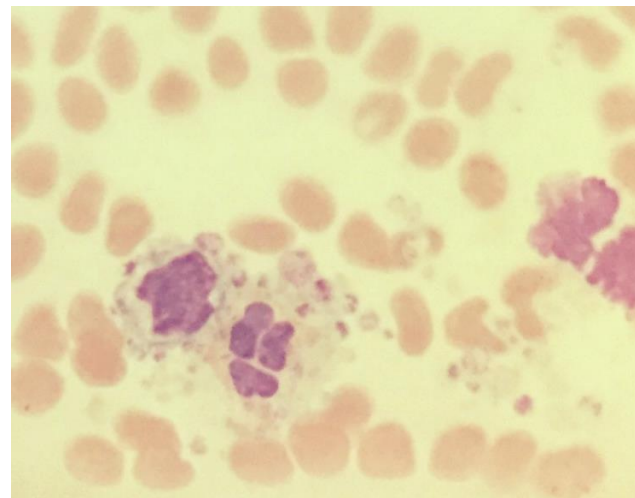


Minor but persistent FBC abnormalities: when to be concerned



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A practical approach to mild anaemia in patients with previously normal Hb

- Definition: Hb 110 – 129 g/l
- MCV (low, normal, high)
- Reticulocyte count (low, normal, high)
- Status of white cells and platelets
- Blood film
- Evidence of destruction (raised LDH or indirect bilirubin)
- Haematinics (Make sure you interpret them correctly)

Clinical evaluation

- Is the patient symptomatic?
(Progressive fatigue, SOB on exertion, palpitations)
- Any other constitutional symptoms?
(Weight loss, night sweats, fevers, loss of appetite)
- Any bleeding?
(Recurrent nose bleeds, PR or PV bleeding, heavy periods)
- Alcohol intake
- Previous exposure to radiotherapy or chemotherapy
- Drug history

Physical examination

- Organomegaly
- Abdominal masses
- Lymphadenopathy
- Consider abdomen US in obese patients
- Pelvic US in young patients with menorrhagia or elderly patients with PV bleeding

Microcytic anaemia

- MCV < 80 fl

Differential diagnosis:

- Iron deficiency
- Anaemia of chronic disease
- Haemoglobinopathies

Iron studies interpretation

- Iron deficiency is best assessed using serum ferritin and transferrin saturation.
- Serum ferritin will be low in the absence of inflammation.
- Ferritin levels can be elevated by inflammatory processes and can mask iron deficiency.
- A ferritin $< 300 \mu\text{g/l}$ associated with low transferrin sats in the presence of raised inflammatory markers can still indicate iron deficiency.
- Always check CRP and ESR

Macrocytic anaemia

- MCV > 100 fl

Differential diagnosis:

- Folate or B12 deficiency
- Haemolytic anaemia or post haemorrhage
- Alcoholism
- Drug related (Hydroxycarbamide)
- COPD
- MDS

False normal vitamin B12 levels

- Assay not always reliable due to interference with high intrinsic factor antibodies.
- Liver disease
- Previous administration of cobalamin
- Myeloproliferative disorders
- In the presence of neurological symptoms, unexplained macrocytosis and hypersegmented neutrophils on blood film, consider a trial of vitamin B12

Normocytic anaemia

- Increased reticulocytes
 - Haemolytic anaemia
 - Post-hemorrhagic anaemia
- Normal/decreased reticulocytes
 - Anaemia of chronic disease
 - Renal disease
 - Liver disease
 - Endocrine disease
 - Marrow infiltration
 - MDS

What is the right approach?

- In the presence of haemolysis, always refer to Haematology
- Always request a blood film
- Check hematinics
- Add serum protein electrophoresis and serum free light chains particularly in elderly patients
- Is the renal function normal?
- Is the haemoglobin decreasing rapidly or is stable?
- Always correlate with clinical picture

Persistently raised Hb and Hct

Hct persistently > 0.52 in males and > 0.48 in females

- Check ferritin, erythropoietin levels (usually low in primary polycythemia).
- Is the patient a smoker or suffers with chronic lung disease or sleep apnoea?
- Check sats, request chest x-ray and US abdomen
- Refer to haematology if no cause identified or patient symptomatic.

Mild neutropenia

- Is it isolated or associated with other cytopenias?
- Any signs of viral infection?
- Has the patient been recently started on new drugs?
- Has the patient been experiencing recurrent episodes of infection?
- Request a blood film (Any dysplastic changes or abnormal cells?)
- Check hematinics, viral (including HIV) and autoimmune screen.
- Monitor counts and refer to haematology if persistent.

Persistent leucocytosis

- Are all white cells increased or is it an isolated neutrophilia?
- Is the patient a smoker or has a chronic inflammation?
- Are the inflammatory markers raised? Any signs of infection?
- Does the patient have constitutional symptoms?
- What does the blood film show? (Leucoerythroblastic picture, toxic granulation, myeloid precursors, blasts?)
- Has the white cell count been stable or has been fluctuating?
- Refer to haematology if no clear cause or patient symptomatic.

Persistent lymphocytosis

- Is the patient a smoker?
- Is the patient symptomatic? (weight loss, night sweats)
- Splenomegaly or lymphadenopathy on examination?
- What does the blood film show? (Monoclonal vs polyclonal)
- Is the rest of the blood count normal?
- If patient asymptomatic, no organomegaly or lymphadenopathy, rest of the full blood count normal, repeat FBC in 3-6 months.
- Refer to Haematology if lymphocytosis persistent and no clear cause.

Lymphopenia

- Common finding in elderly patients where it is usually of no clinical significance.
- May be drug related (e.g. steroids), secondary to recent surgery or infection.
- Offer HIV screen in patients at risk
- A stable lymphopenia over a six month period and in the absence of symptoms does not require further investigation.

Mild thrombocytosis

- Check iron status!
- Are inflammatory markers raised?
- Any constitutional symptoms?
- Is the rest of FBC normal?
- Splenomegaly?
- Is the platelet count stable or has been fluctuating?
- If patient asymptomatic, repeat FBC after 3 months and refer to haematology if persistent.

Mild thrombocytopenia

- Is the rest of the FBC normal?
- What does the blood film show? (Platelet anisocytosis, clumping, dysplastic changes)
- Any signs of infection?
- Any new drug?
- Check hematinics, viral (Hep C and HIV) and autoimmune screen
- Serum protein electrophoresis in elderly patients
- Splenomegaly? Lymphadenopathy? Skin rash?
- If no clear cause and persistent, refer to haematology

Clinical case

- 50 ys old Afro-Caribbean lady
- Long-standing (> 3 years) microcytic anemia (Hb 90 g/l, MCV 78 fl)
- No constitutional symptoms apart from fatigue
- No active bleeding
- Single mum with disabled child
- Never smoked and no alcohol intake

Clinical case

- Ferritin 600 $\mu\text{g/l}$, transferrin sats 6%
- Normal retics, LDH and bilirubin
- Normal B12 and folate
- Blood film: a few reactive lymphocytes, otherwise unremarkable
- CRP 80 mg/l
- Serum protein electrophoresis: small IgG PP, too low for quantitation
- Normal renal function and calcium levels
- No immunoparesis

Clinical case

- Bone marrow: normocellular, plasma cells mildly increased (6%)
- Features in keeping with MGUS

Why is the patient anaemic?

Clinical case

A couple of months later...

- The patient has an episode of hematuria
Urologists request an US of the renal tract which shows a large splenic mass (10 x 10 cm)
- I arranged a PET/CT: no significant lymphadenopathy, splenic mass non FDG-avid
- US spleen with contrast reveals benign features of the splenic mass

Clinical case

- The patient was referred to the Hepato-biliary Team who decide to remove the spleen.
- As part of routine pre-op investigations, they request HIV screen which comes back positive.
- Surgery was cancelled and patient was referred to HIV Team.

Clinical case

- The patient started HIV treatment with excellent response
- Received IV iron and Hb improved to 110 g/l
- Feels much better after iron infusion
- PP still too low for quantitation
- Splenic mass unchanged after 6 months
- No constitutional symptoms
- Remains on a “watch and wait” programme and on regular follow up every three months

Take home message

- Patients with anaemia of chronic disease can benefit from iron replacement.
- HIV screen should be considered in patients with unexplained anemia and persistently raised inflammatory markers.

Thank you!

