Anemia in the Elderly

Thompson CPD program
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Faculty/Presenter Disclosure

- **Faculty:**
- Mark Kristjanson

- **Relationships with commercial interests:**
- None

The speaker does not recognize any real or potential conflicts of interest with respect to today's presentation, and therefore has not developed a strategy to mitigate any hypothetical conflicts of interest.

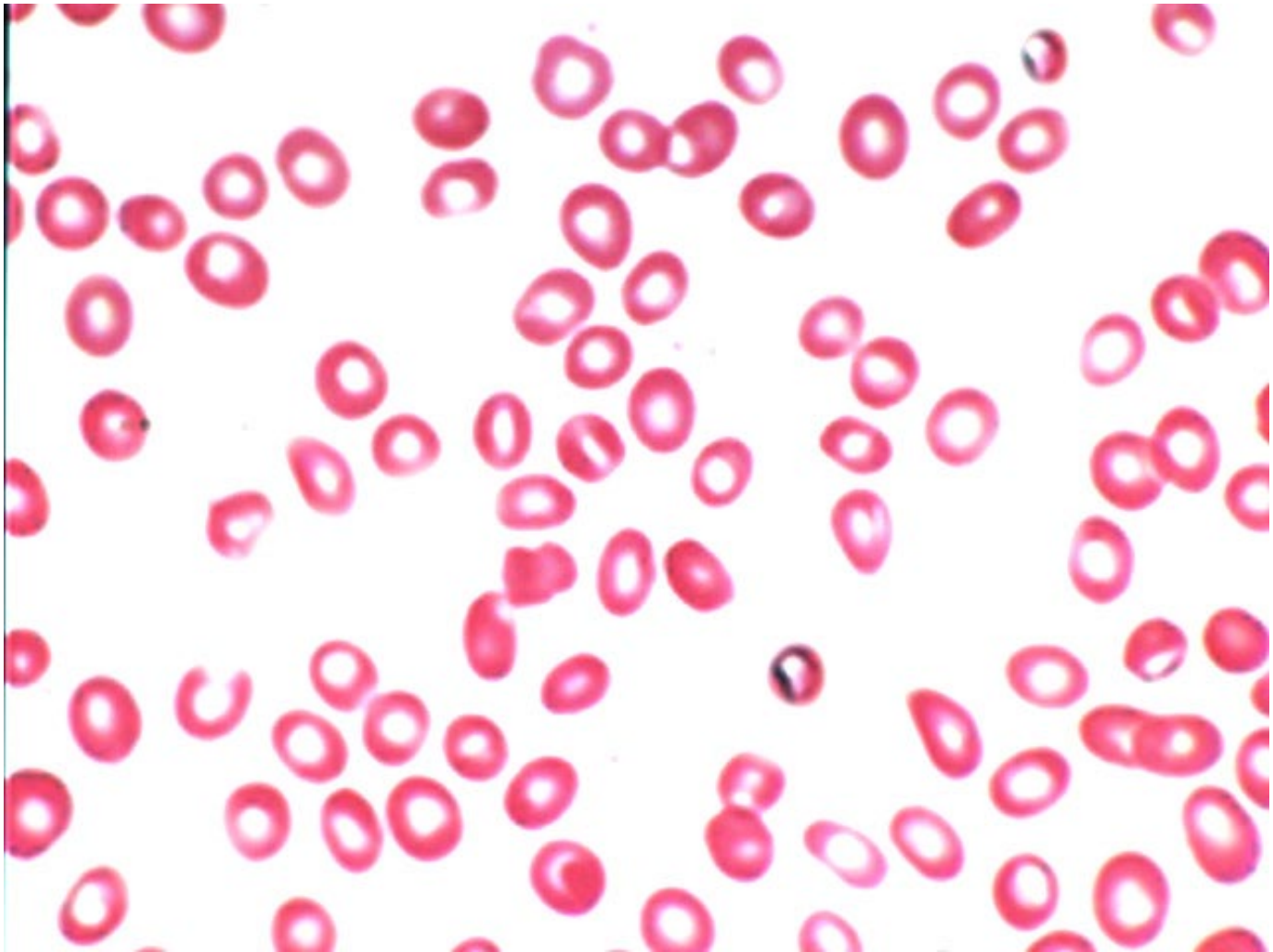
Anemia in the Elderly

Cecil Barnes is a 72 year old man who presents to your office with three months of slowly evolving fatigue and mild headache.

CBC

- Hb 124 g/L (down from a Hb of 148 last year)
- MCV 79 fl (mild microcytosis)
- MCHC 290 g/L (mild hypochromia)

Microcytic Anemias in the Elderly



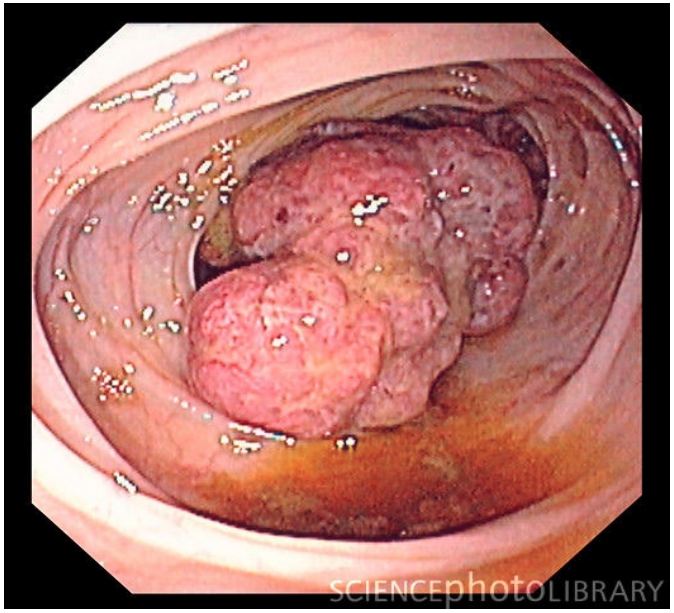
Hypochromic microcytic anemia. Image courtesy S Bhimji MD

What next?

- careful review of systems
- family history
- physical exam
- The next step involves delineation of this patient's iron status
- Ferritin: 16 ug/L
- (Low ferritin <20 ug/L)

What if the ferritin is low?

- Urgent endoscopy consult
- Iron deficiency in the adult male or post-menopausal female = rule out GI pathology



?Fecal Occult Blood?

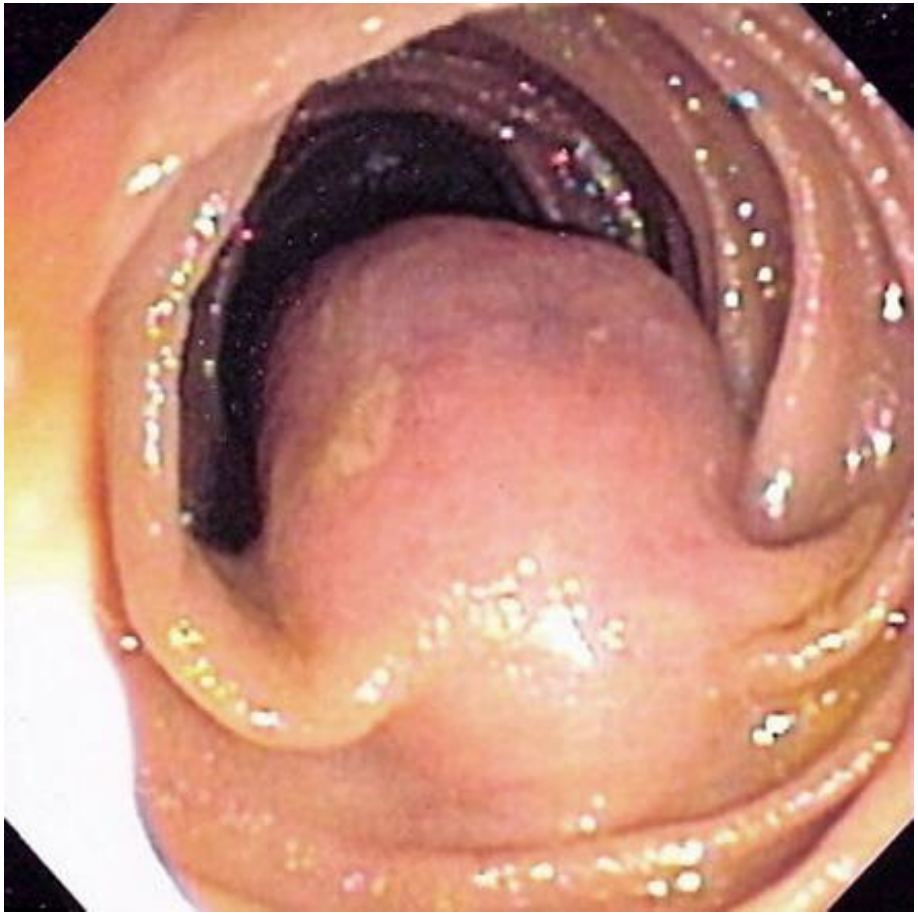
- Don’t be reassured by a negative FOBT

Iron Deficiency & Normal Endoscopy?

- What if colonoscopy and esophagogastroscopy are normal (with negative biopsies for H. pylori)?
- Gluten enteropathy
- Neoplasms of the small intestine
- Angiodysplasia

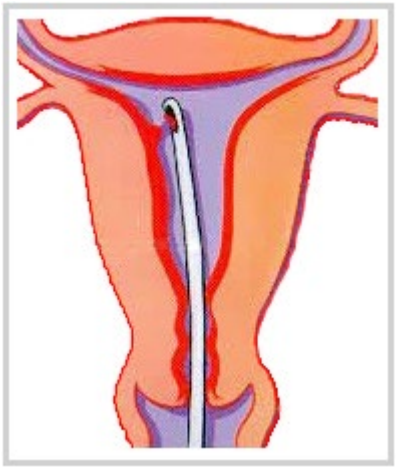
Angiodysplasia

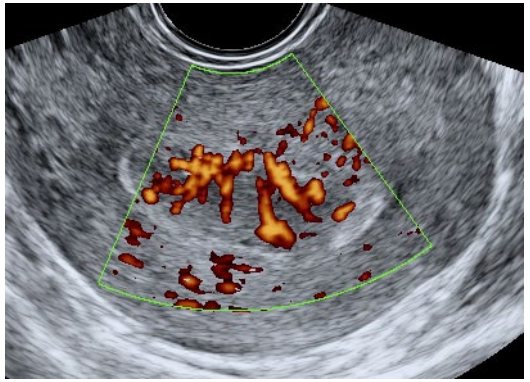
GIST (jejeunum)



Post-menopausal?

- History of vaginal bleeding:
- endometrial biopsy;
- gynecologic ultrasound.





Other Causes

- Menstruation
- Pregnancy
- Delivery
- lactation

Other Causes….

- Iron poor diets (e.g. vegetarian)

Other Causes…

- Iatrogenic causes:
- blood donation/blood letting;
- gastric bypass

Other Causes…

- intravascular hemolysis:
- cardiac valvular disease;
- paroxysmal nocturnal hemoglobinuria.

Normal values

- Iron: 11 to 30 micromoles per liter (umol/L)
- TIBC: 43 to 81 umol/L
- Ferritin: Adults (ug/L) < 15 – diagnostic of iron deficiency
- 15-30 – probable iron deficiency
- >30 – iron deficiency unlikely
- >100 – normal iron stores
- ≥600 – consider test for iron overload

Iron Deficiency

- start an iron supplement
- ferrous gluconate 300 mg od, and working up gradually (to minimize GI intolerance) to 300 mg TID
- Can't tolerate iron?

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Appendix B: Parenteral Iron Formulations and Adult Doses

Iron Product	Formulation (elemental iron)	Usual Adult Dose	Adverse Reactions	Therapeutic Considerations	Cost per 1000 mg Fe and PharmaCare Coverage**
iron sucrose *Venofer, G*	Injection (IV): 20 mg Fe/mL	100 to 300 mg IV intermittent per session Total cumulative dose: up to 1000 mg over 14 days	**CNS**: headache, fever **CVS**: hypotension **GI**: metallic taste, nausea, vomiting **MSK**: muscular pain, cramps	• Refer to the product monograph for dilution and administration information • Hypotension may occur with higher doses and more rapid administration. Monitor for 30 minutes following each administration • Hypersensitivity reactions are rare, monitor for 30 minutes following each administration • Maximum hemoglobin response to IV iron usually occurs within 2 to 3 weeks of the last dose	$300/1000 mg (Limited Coverage)
iron isomaltoside *Monoferric*	Injection (IV): 100 mg Fe/mL	500 mg bolus or up to 1500 mg (20 mg/kg) IV drip per session, separated by 7 days Total cumulative dose: up to 1000-2000 mg	**CNS**: headache **CVS**: hypotension **GI**: nausea, vomiting, constipation		$490/1000 mg (Limited Coverage)
ferric gluconate complex *Ferrlecit*	Injection (IV): 12.5 mg Fe/mL	125 mg IV per session Total cumulative dose: up to 1000 mg over 8 sessions	**CNS:** generalized seizures **CVS:** hypotension, hypertension, vasodilation **GI**: diarrhea, nausea		$470/1000 mg (Non-benefit)

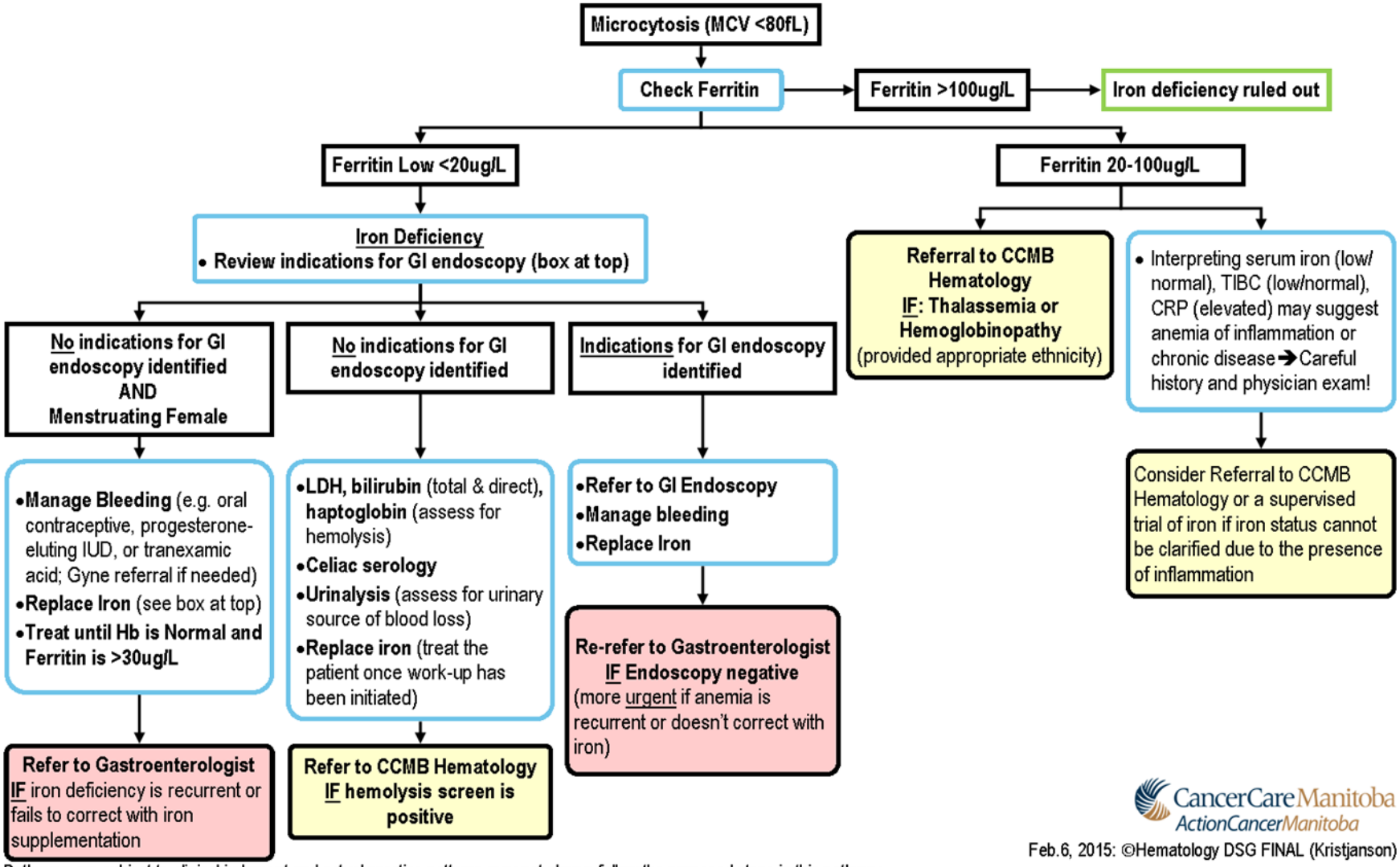
Ferritin Normal?

- Iron deficiency not excluded
- ferritin elevated by inflammation or liver disease
- thalassemia?
- check his serum iron and TIBC.
- In iron deficiency the iron will be low but the TIBC elevated; in anemia of inflammation, the iron will again be low but the TIBC will also be below normal, while the ferritin should be above normal

Work-Up of IRON DEFICIENCY ANEMIA in ADULTS

INDICATIONS FOR GI ENDOSCOPY: •Adult males •Post-menopausal females •Unexplained weight loss •Family history of GI cancer •Any associated GI Symptoms such as: Dysphagia, Odynophagia, Dyspepsia, Abdominal pain, Melena, Hematochezia, Tenesmus, Altered bowel habit.

IRON REPLACEMENT: a) Control Blood Loss; b) Warn patients of GI side effects and start slow; c) Ferrous sulfate, gluconate, or fumarate or iron polysaccharide in doses that provide 150-200mg of elemental iron per day (e.g. ferrous sulfate 300mg TID)



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Pathways are subject to clinical judgment and actual practice patterns may not always follow the proposed steps in this pathway.

Anemia in the Elderly

- 77 year old diabetic female
- Presents for periodic health exam
- Metformin 500 mg po BID
- Candesartan 8 mg daily
- Had bloodwork prior to appointment
- WBC 10.7
- Hb 93 g/L
- MCV 90 fL
- ANC 6.6
- ALC 3.8

What else do you want to know?

- Chronic mild fatigue
- Slight increase in exertional dyspnea
- No other cardiorespiratory symptoms
- Bowels regular
- No urinary symptoms
- Smelly feet
- No pain

Sweet & Low

- Hb A1c 8.1%
- Creatinine 88 umol/L
- Na+ 142 mmol/L
- K+ 4.9
- Albumin/Cr ratio 22 mg/mmol
- eGFR (mdrd) 54
- 58 (CKD-EPI)

Sweet & Low

- On examination:
- Looks mildly, chronically unwell
- BP 122/68
- T 36.5 C
- Fails monofilament testing in stocking distribution
- callus under 1st R metatarsal head
- Tiny central hole in callus, small amount pus

Probable Cause?

- Stage III diabetic CKD
- ? Osteomyelitis


L

Probable Cause?

- ESR 68 mm/h
- CRP 9.9 mg/dL
- Consider ID consult
- Consider MRI of foot

Macrocytic anemias

An 68 year old man treated 18 years ago for lymphoma with R-CHOP presents with c/o:

- Recurrent rashes composed of red dots of the legs and sometimes of the face (after coughing)
- Progressive fatigue for 3 months
- New cough with scant yellow & bloody sputa
- Exertional shortness of breath x 3 months, worse over the past two days
- Fever since yesterday

Macrocytic anemias

- On exam
- Pale
- P 112
- BP 108/56
- T38.3 C
- Crackles left lung base
- Multiple petechia on both legs

Macrocytic anemias

- WBC 2.79
- Hb 88 g/L
- MCV 108 fL
- Platelets 111
- ANC 0.84
- Review of his chart shows
- progressive decline in ANC for the past 2 years,
- Hb of 126 g/L one year ago
- Hb 110 g/L six months ago

Myelodysplastic Syndromes

- When to refer for a suspected MDS:
- Any unexplained cytopenia
- +/- macrocytosis,
- monocytosis,
- or L shift in ANC,
- particularly if progressive.