



STATIC CASES

Omar Mousa, MD

Palestine Faculty of Medicine, Al-Azhar University

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Case 01

- Immediately after undergoing a right total knee replacement, a 69-year-old woman has severe abdominal pain, non-bloody emesis, and confusion. She has a history of Hashimoto thyroiditis that is well-controlled with levothyroxine and hyperlipidemia that is controlled by diet.



Case 01

- What is the Dx ?
- Addisons disease
- What are the most common causes ?
- Developing ---- TB Developed countries ----- autoimmune
- What is the electrolytes abnormality and acid base balance abnormality in this pt ?
- Low Na high K high urea metabolic acidosis low glucose
- In CBC the pt will have ?
- neutrophilic leukocytosis with esinophilis

Case 01

- Differences b/w primary and secondary type
- Hyperpigmentation
- Electrolytes abnormality
- hypotension
- Treatment
- Hydrocortisone
- Fludrocortison

Case 01

Primary versus central adrenal insufficiency		
	Primary	Secondary
Most common cause	Autoimmune	Chronic glucocorticoid therapy
Cortisol	↓	↓
ACTH	↑	↓
Aldosterone	↓	Normal
Clinical features	• Severe symptoms • Hyperpigmentation • Hyperkalemia • Hyponatremia • Hypotension	• Less severe symptoms • No hyperpigmentation • No hyperkalemia • Possible hyponatremia

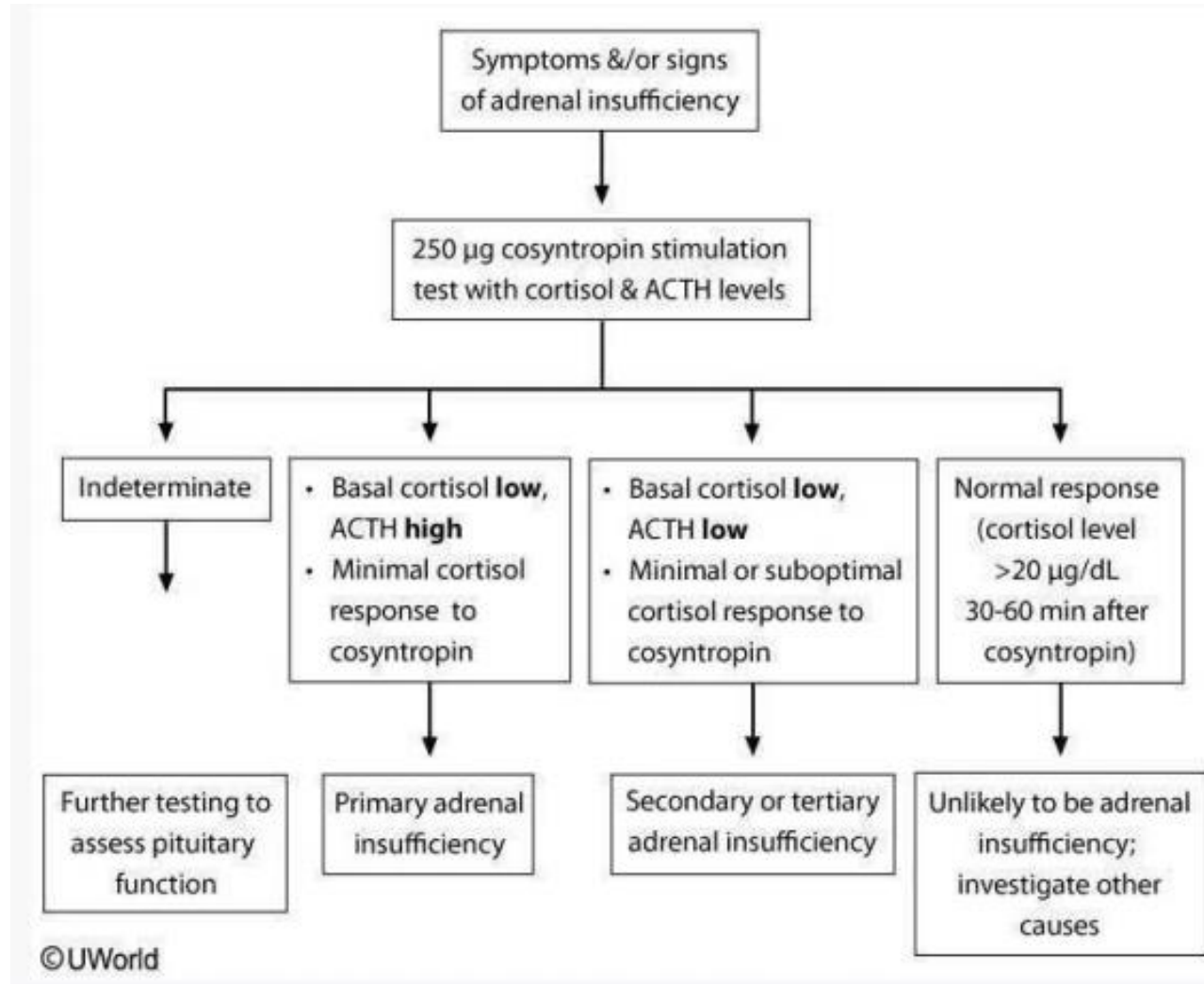
Case 01

Chronic primary adrenal insufficiency	
Etiology	• Autoimmune • Infections (eg, tuberculosis, HIV, disseminated fungal) • Hemorrhagic infarction • Metastatic
Clinical features	• Fatigue, weakness, anorexia/weight loss, salt craving • Gastrointestinal symptoms • Postural hypotension • Hyperpigmentation or vitiligo • Hyponatremia, hyperkalemia • May lead to acute adrenal crisis (abdominal pain, shock, fever, altered mental status)
Diagnosis	• ACTH, serum cortisol, and high-dose (250 µg) ACTH stimulation test ○ Primary adrenal insufficiency: low cortisol, high ACTH ○ Secondary/tertiary adrenal insufficiency: low cortisol, low ACTH

Case 01

Acute adrenal insufficiency (adrenal crisis)	
Etiology	• Adrenal hemorrhage or infarction • Acute illness/injury/surgery in patient with chronic adrenal insufficiency or long-term glucocorticoid use
Clinical features	• Hypotension/shock • Nausea, vomiting, abdominal pain • Weakness • Fever
Treatment	• Hydrocortisone or dexamethasone • High-flow intravenous fluids

Case 01



Case 02

- A 30-year-old Caucasian female comes to the physician because of chronic diarrhea and abdominal bloating that started 6 months ago. She also reports increasing fatigue and intermittent tingling in her hands and feet. She lost 5 kg (11 lb) of weight over the past 6 months without changing her diet or trying to lose weight.



Case 02

- 1- what is this skin lesions ?

Dermatitis herpetiformis

- 2- what are the typical sites of this skin lesion ?
 - Extensor surfaces of the limbs and back scalp and neck
- 3- this pt most likely have ?
 - Celiac disease
- 4. Deficiencies caused by celiac disease ?
 - Iron deficiency anemia (most common presentation), Folic acid,
• Calcium, Vitamin D, • Vitamin B12 (rarely) Vitamin K

Case 02

- 5. what are the serological tests for it and what is the most specific and sensitive test of them ?
 - IgA antiendomesyal Ab
 - IgG and IgA antigliadine Ab
 - The most SP and SN tissue transglutaminase Ab
- 6. What is the diagnostic test ?
Duodenal biopsy
- 7. Mention 3 complications of this disease ?
 - 1- intestinal T cell lymphoma
 - 2- carcinoma of the small intestine or esophagus
 - 3- Osteomalacia and ulcerative jejunitis

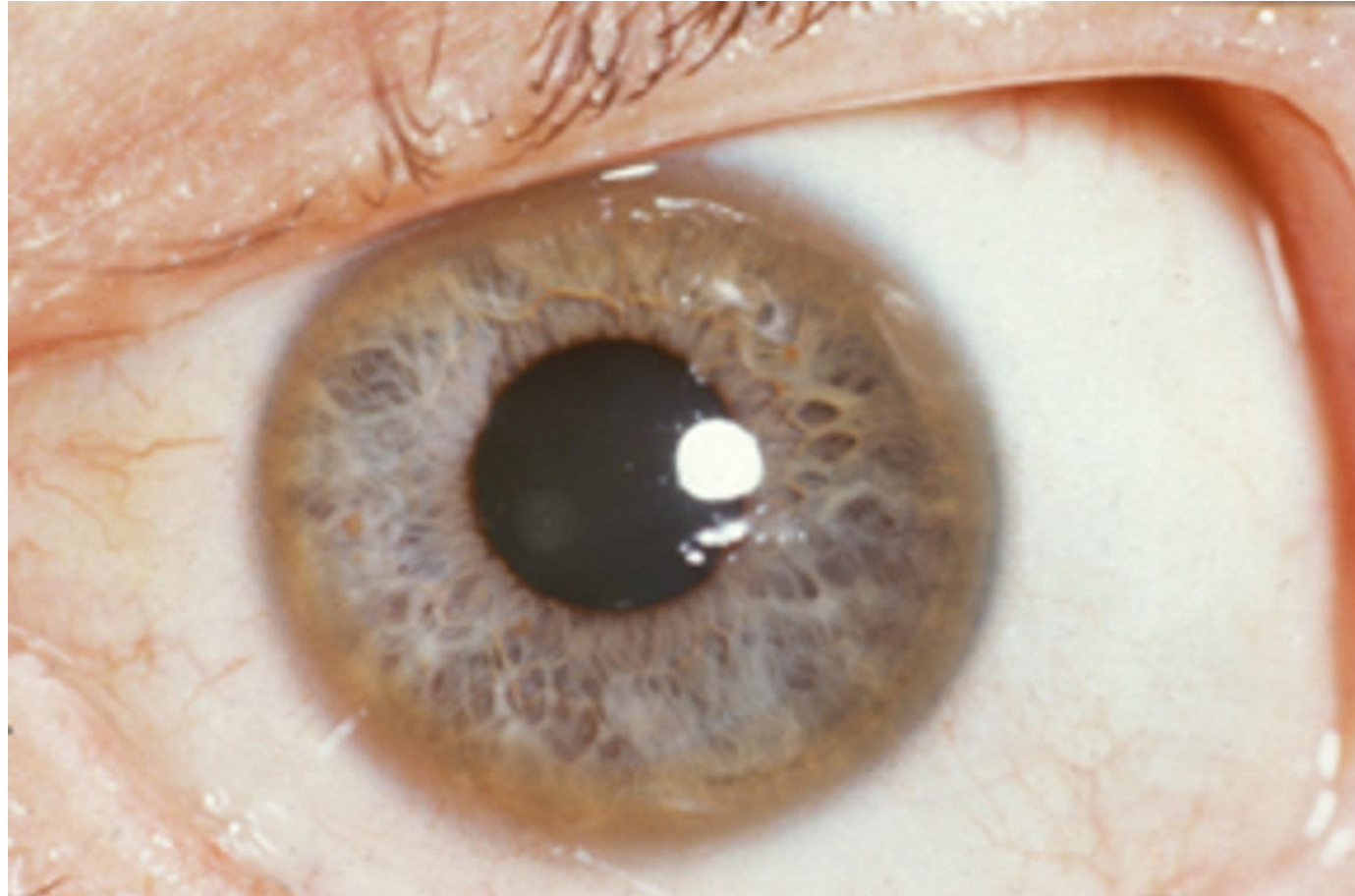
Case 02

Features of malabsorption in celiac disease	
Nutrient	Symptoms
General	Bulky, foul-smelling, floating stools
Fat & protein	Loss of muscle mass, loss of subcutaneous fat, fatigue
Iron	Pallor (anemia), fatigue
Calcium & vitamin D	Bone pain (osteomalacia), fracture (osteoporosis)
Vitamin K	Easy bruising
Vitamin A	Hyperkeratosis

Case 03

- A 22-year-old man comes to the physician because of a fall associated with a 6-month history of increasing difficulty walking. Over the last year, his friends have also noticed his speech becoming slower. During this period, he also gave up his hobby of playing video games because he has become clumsy with his hands. His father died of esophageal varices at the age of 40 years.

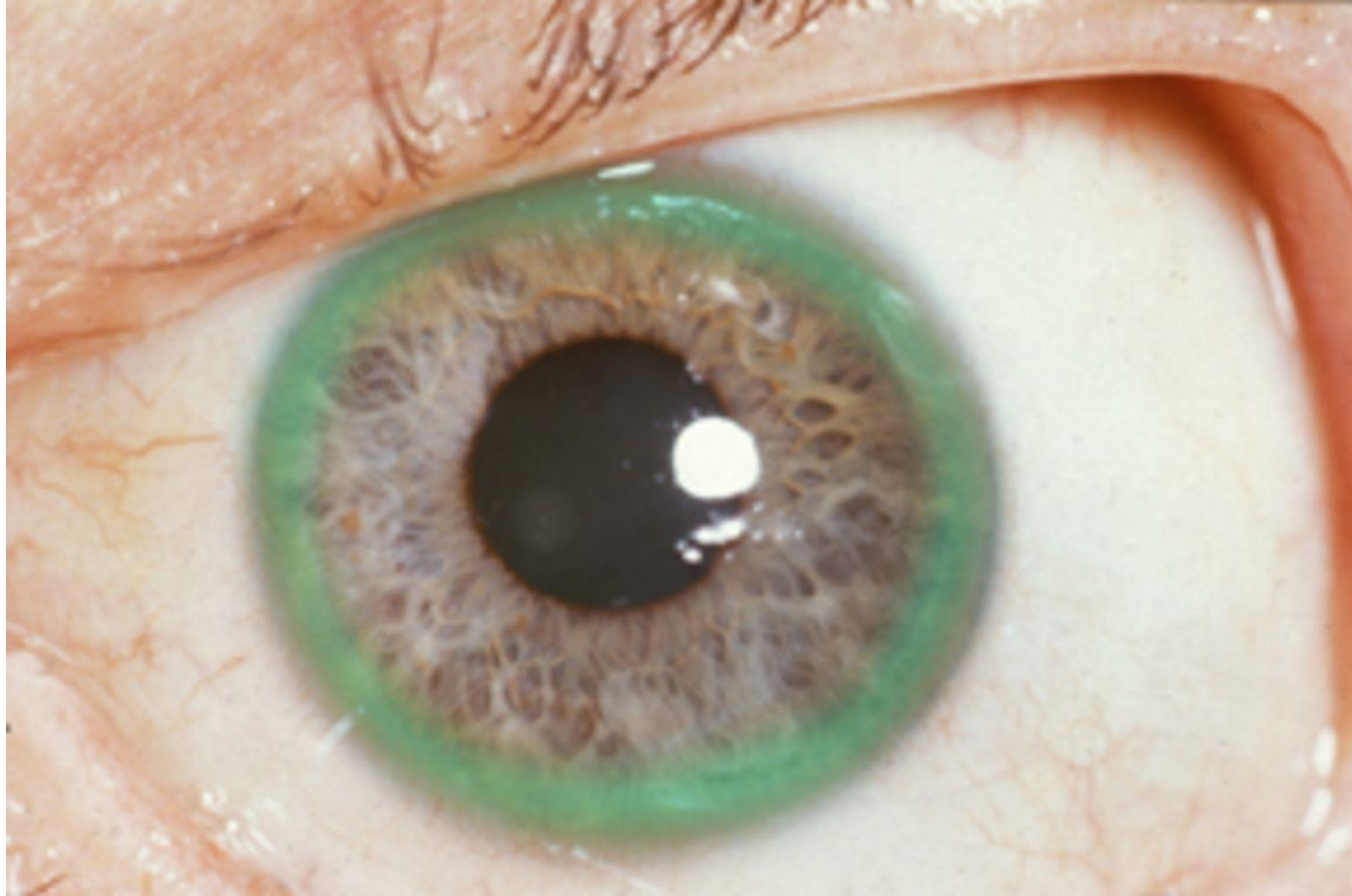
Case 03



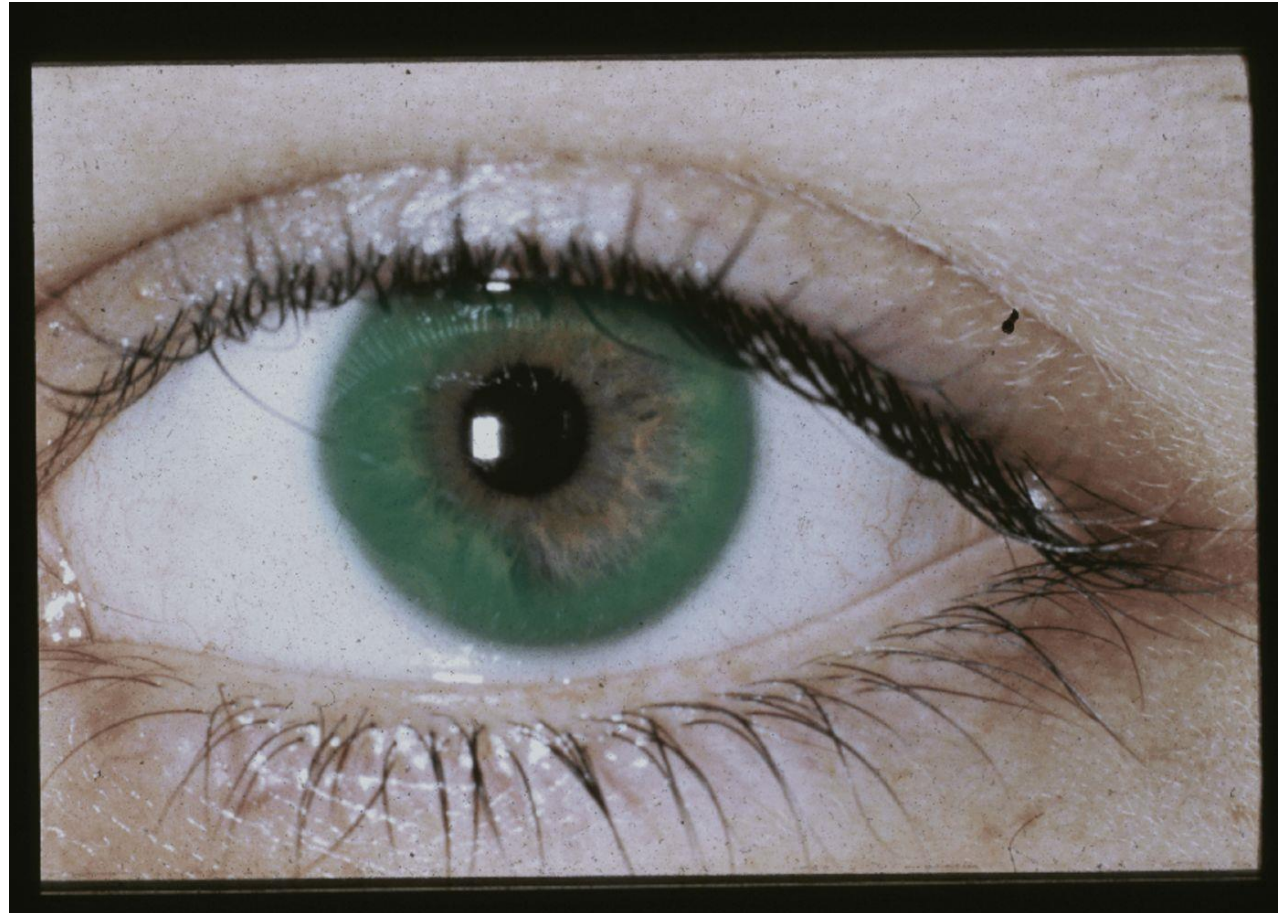
Case 03



Case 03



Case 03



Case 03

- 1- What is the finding in this picture ?
- **Kayser-Fleischer rings**
- 2- what is the causes of this sign ?
- **Wilson disease**
- **primary biliary cirrhosis, primary sclerosing cholangitis, and cryptogenic cirrhosis**
- 3- if the pt had neurological manifestation then the most likely Dx ?
- **Wilson disease**
- 4- how to confirm the Dx ?
- **Decr in serum ceruoplasmin**
- **Incr in total urine cupper**
- **Incr in hepatic cupper concentration**
- 5 - what is the treatment ?
- **D-pencillamine with pyridoxine**
- **Zinc**

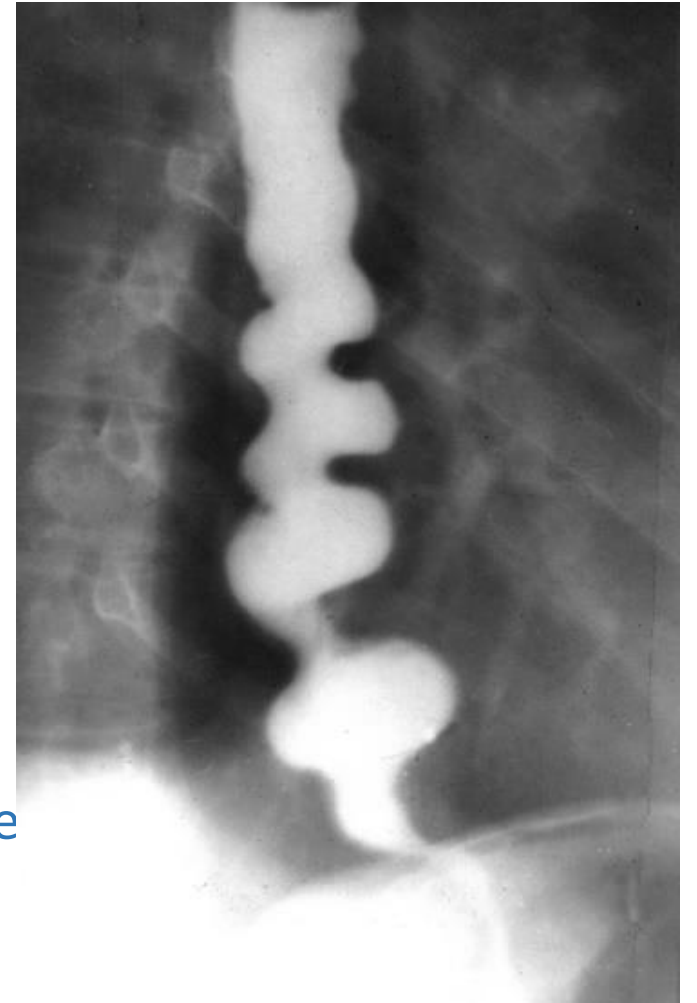
Case 03

Diagnostics

- Slit lamp examination: Kayser-Fleischer rings (best initial test)
- Blood tests ^[2]
 - ↑ Transaminases
 - Coombs-negative hemolytic anemia, thrombocytopenia
 - ↓ Serum ceruloplasmin (normal value > 20 mg/dL)
 - ↑ Free serum copper, but ↓ total serum copper
- Urine tests: ↑ Urine copper excretion (over 24 hours)
- Liver biopsy: if other tests are inconclusive
 - copper staining

Case 04

- 1- name this test
- Barium swallow
- 2- name this sign ?
- Corkscrew pattern
- 3- what is the most likely Dx ?
- DES
- What the other tests should be done ?
Esophageal endoscope and manometry
- 4- how to confirm the Dx?
- By Esophageal Manometry
- 5- what are the lines of treatment ?
- medical :
 1. 1st CCB (Diltazem)
 2. 2nd nitroglycerine
 3. 3rd botulinum toxin injection
- Life style modification as a avoiding certain foods, like cold beverage
- PPIs if GERD is suspected



Case 04

Diffuse esophageal spasm	
Pathophysiology	• Uncoordinated, simultaneous contractions of esophageal body
Symptoms	• Intermittent chest pain • Dysphagia for solids & liquids
Diagnosis	• Esophagram: "Corkscrew" pattern • Manometry: Intermittent peristalsis, multiple simultaneous contractions
Treatment	• Calcium channel blockers • Alternate: Nitrates, tricyclics

- A 56-year-old man is brought to the emergency department with lethargy and confusion. He has a history of cirrhosis his temperature is 38.00 C
- physical examination, he has a flapping tremor. Abdominal examination shows distension with shifting dullness and diffuse tenderness to palpation.
- His lab work shows the following
- Paracentesis
wbc 700 neutrophils 450 albumin .08 serum albumin 2.5

Case 05

- 1. What is the Dx ?
- **SBP**
- 2. Most common causative organism
- **Enteric organisms like E. coli then S. pneumoniae, then Klebsiella**
- 3. What is the empirical management ?
- **cefotaxime antibiotic 2 g TID**
- 4. what is the prophylaxis management ?
- **Oral norofloxacin (quinolone or TMP/SMX)**
- 5. Risk factors for SBP ?
- **Ascites protein < 1.0 g/dL**
- **History of variceal bleed**
- **Prior episode of SBP**

Case 05

Spontaneous bacterial peritonitis	
Clinical presentation	• Temperature ≥ 37.8 C (100 F) • Abdominal pain/tenderness • Altered mental status (abnormal connect-the-numbers test) • Hypotension, hypothermia, paralytic ileus with severe infection
Diagnosis from ascitic fluid	• PMNs $\geq 250/\text{mm}^3$ • Positive culture, often gram-negative organisms (eg, <i>Escherichia coli</i>, <i>Klebsiella</i>) • Protein < 1 g/dL • SAAG ≥ 1.1 g/dL
Treatment	• Empiric antibiotics - third-generation cephalosporins (eg, cefotaxime) • Fluoroquinolones for SBP prophylaxis

Case 06

- A 41-year-old man comes to the emergency department with nausea, abdominal discomfort, and diarrhea for the past 2 days. His abdominal discomfort is worse shortly after meals. He has also had progressive perioral numbness and upper-extremity muscle cramping for the past 24 hours. Six months ago, he underwent a Roux-en-Y gastric bypass to treat obesity. He underwent a total thyroidectomy to treat a Hurthle cell lesion 4 days ago.



Case 06

- What are the two signs?
- - Trousseau sign of latent tetany
 - Chvostek's sign

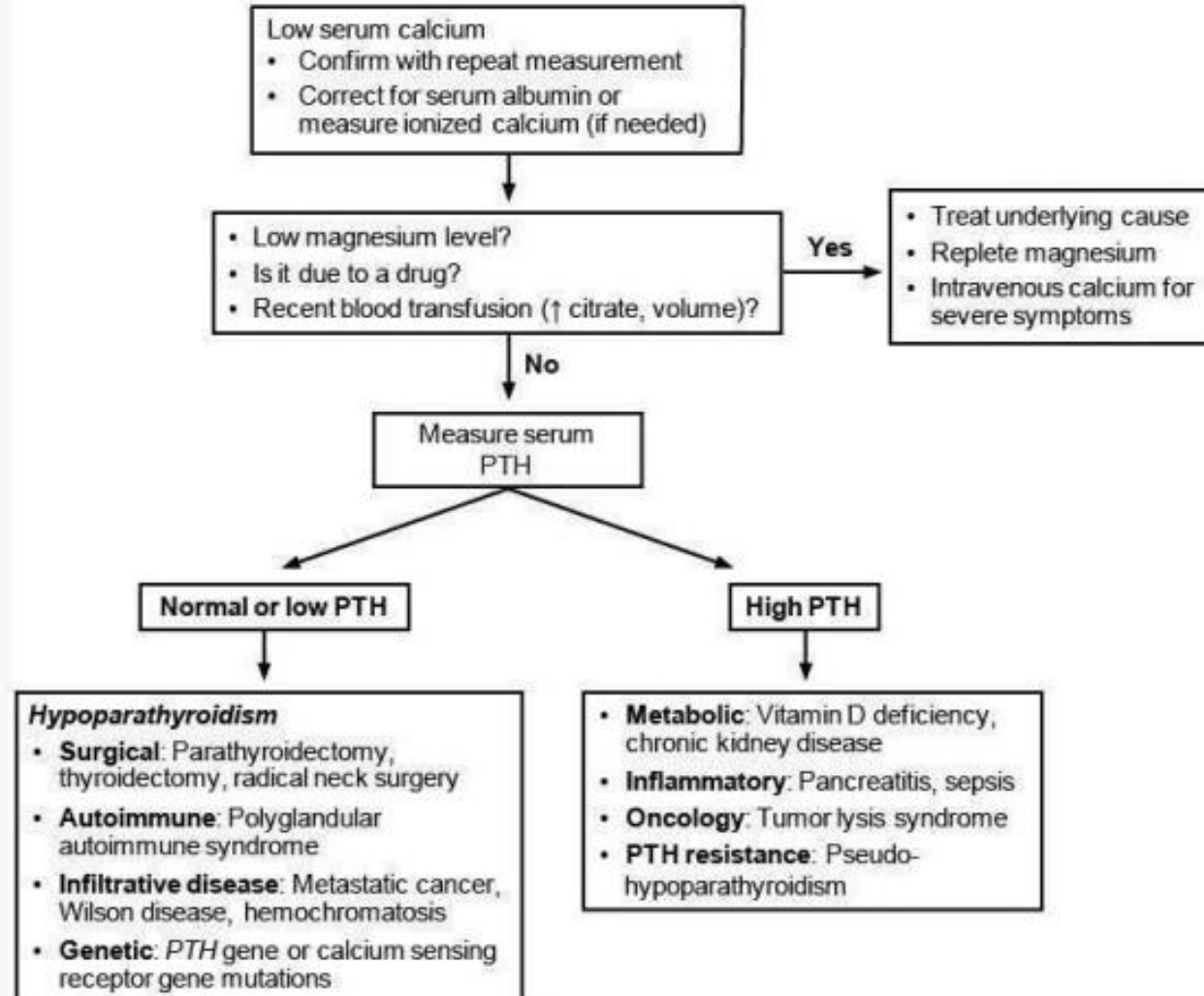
What is the dx?

Hypocalcaemia

- What are the causes?
- - Hypocalcemia is most often due to hypoparathyroidism or vitamin D deficiency (e.g., malabsorption, chronic kidney disease).
- Corrected Ca?
- $\text{Corrected calcium (mg/dL)} = \text{measured total Ca (mg/dL)} + 0.8 (4.0 - \text{serum albumin [g/dL]})$,

Case 06

Approach to hypocalcemia



Case 06

PTH level	Additional findings	Conditions
Low PTH	• ↑ Phosphate	• Hypoparathyroidism (e.g., postsurgical)
High PTH	• Low or normal phosphate • ↓ 25-hydroxyvitamin D (calcidiol) [16]	• Vitamin D deficiency
	• ↑ Phosphate	• Hyperphosphatemia • Pseudohypoparathyroidism
	• ↑ Phosphate • ↑ Creatinine	• Chronic kidney disease
	• ↓ Magnesium	• Malabsorption or alcoholism

Pseudohypoparathyroidism type 1A (PHP1A)

- **Definition:** end-organ (i.e., bones and kidneys) resistance to parathyroid hormone (PTH) despite sufficient PTH synthesis due to a defective G_s protein α subunit
- **Inheritance**
 - Autosomal dominant
 - Inherited from the mother (GNAS gene imprinting)
- **Pathophysiology:** mutations in GNAS1 → impaired encoding of α subunit → missing activation of adenylate cyclase when PTH binds to G_s → resistance to PTH in kidney and bone tissue
- **Clinical features**
 - Albright hereditary osteodystrophy (AHO)
 - Round face
 - Short stature
 - Obesity
 - Brachydactyly of the 4th and 5th fingers
 - Intellectual disability
 - Subcutaneous ossifications
 - Symptoms related to low calcium and high phosphate levels
 - Seizures
 - Numbness, tetany
 - Cataracts
 - Dental problems

Case 07

- A 56-year-old woman comes to the physician because of increasing muscle weakness in her shoulders and legs for 1 month. She has difficulties standing up and combing her hair. She also has had a skin rash on her face and hands for the past week.

Case 07



Case 07

- **1. What are the findings in this pics?**

Gottron papules, Heliotrope rash

- 2. What is the diagnosis?**

Dermatomyositis

- 3. Which antibodies present in theses cases?**

Anti-Jo-1 antibodies (histidyl-tRNA synthetase)

Anti-Mi-2 antibodies (helicase)

- 4. Screening?**

(non-Hodgkin lymphoma; lung, stomach, colorectal, or ovarian cancer)

Case 07

Clinical features of dermatomyositis	
Muscle weakness	• Proximal, symmetric • Weakness in UE = LE
Skin findings	• Gottron's papules • Heliotrope rash
Extramuscular findings	• Interstitial lung disease • Dysphagia • Myocarditis
Diagnosis	• ↑ CPK, aldolase, LDH • Anti-RNP, anti-Jo-1, anti-Mi2 • Diagnostic uncertainty ◦ EMG ◦ Biopsy (skin/muscle)
Management	• High-dose glucocorticoids PLUS glucocorticoid-sparing agent • Screening for malignancy

Case 08

- **A 70-year-old man comes to the physician because of progressive fatigue and lower back pain for the past 4 months. The back pain worsened significantly after he had a minor fall while doing yard work the previous day. For the past year, he has had a feeling of incomplete emptying of his bladder after voiding.**

Case 08



Case 08



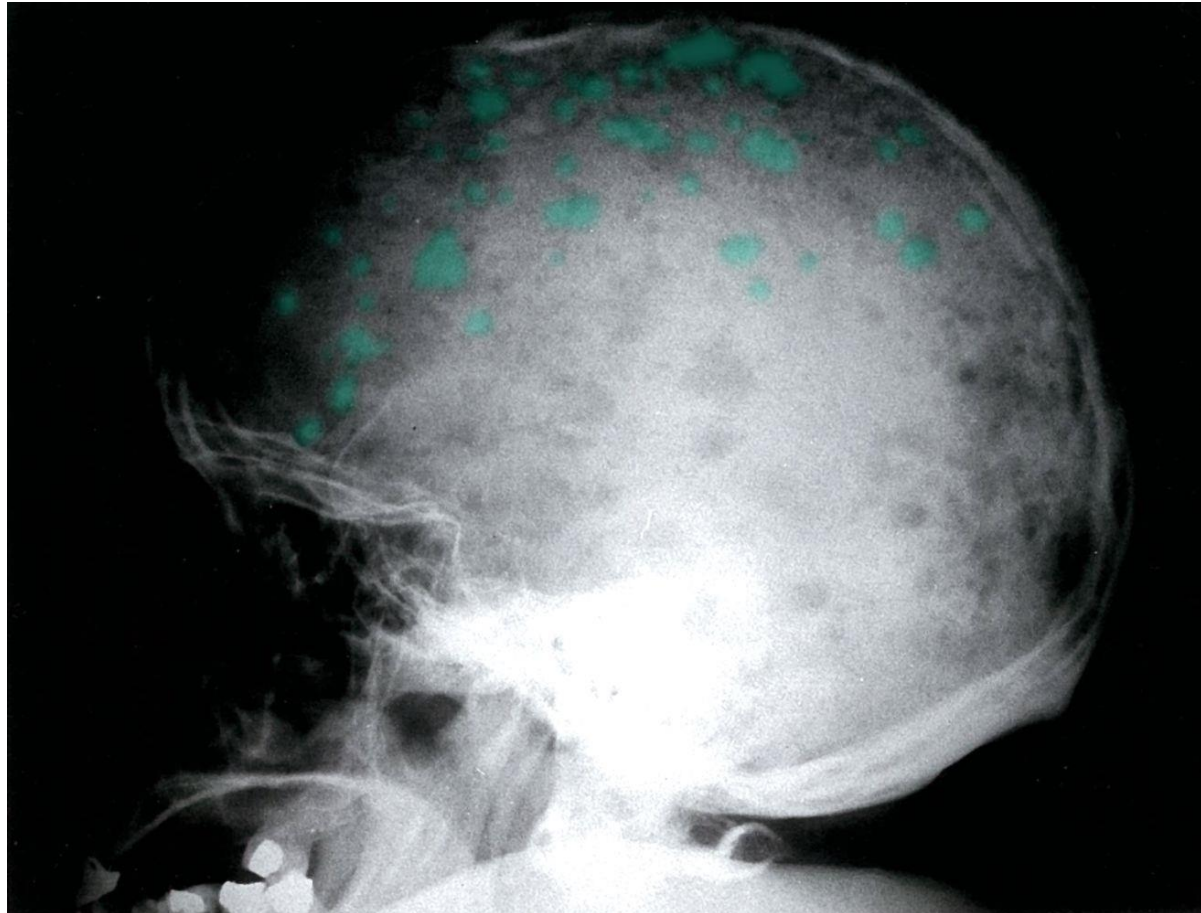
Case 08



Case 08



Case 08



Case 08

- 1.What is the finding in this pics?
- **multiple lytic lesions ("punched-out" holes), e.g. in the skull**
- 2. What is the diagnosis?
- **Multiple Myeloma**
- 3. What are the main features of this disease?
- Organ damage (**CRAB**)
- **Calcium** > 11 mg/dL
- **Renal** insufficiency: creatinine clearance < 40 mL/min or serum creatinine > 2 mg/dL
- **Anemia** (Hb < 10 g/dL)
- **Bone** lesions on MRI
- 4.Complications ?
- **AL amyloidosis**
- **Infections**
- **Hypercalcemic crisis**
- **Myeloma cast nephropathy (myeloma kidney)**
- **Secondary plasma cell leukemia**

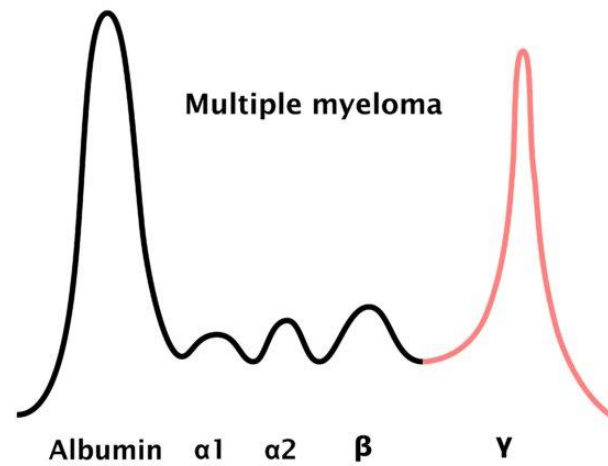
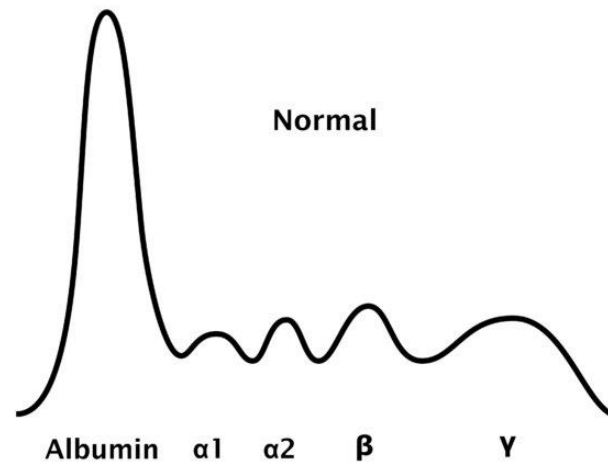
Case 08

- **Hypercalcemic crisis**: life-threatening condition that should be suspected at total **calcium levels > 14 mg/dL** (3.5 mmol/L) or ionized calcium > 10 mg/dL (2.5 mmol/L); patients present with
 - Dehydration (due to ADH resistance and vomiting)
 - Oliguria/anuria
 - Altered consciousness
 - Psychosis

Case 08

Multiple myeloma	
Pathophysiology	• Monoclonal plasma cell proliferation
Manifestations	• Bone pain, fractures • Constitutional symptoms (weight loss, fatigue) • Recurrent infections
Laboratory	• Normocytic anemia • Renal insufficiency • Hypercalcemia • Monoclonal paraproteinemia
Radiology	• Osteolytic lesions/osteopenia (osteoclast activation)

Case 08



Case 09

- **A woman in her mid thirties has suffered from episodes of pleurisy and has been told she may have SLE.**
- **Her prior blood cell counts have been normal. She now complains of exertional dyspnea, fatigue and yellowing of her eyes. Physical exam is normal except for mild scleral icterus, and moderate splenomegaly.**

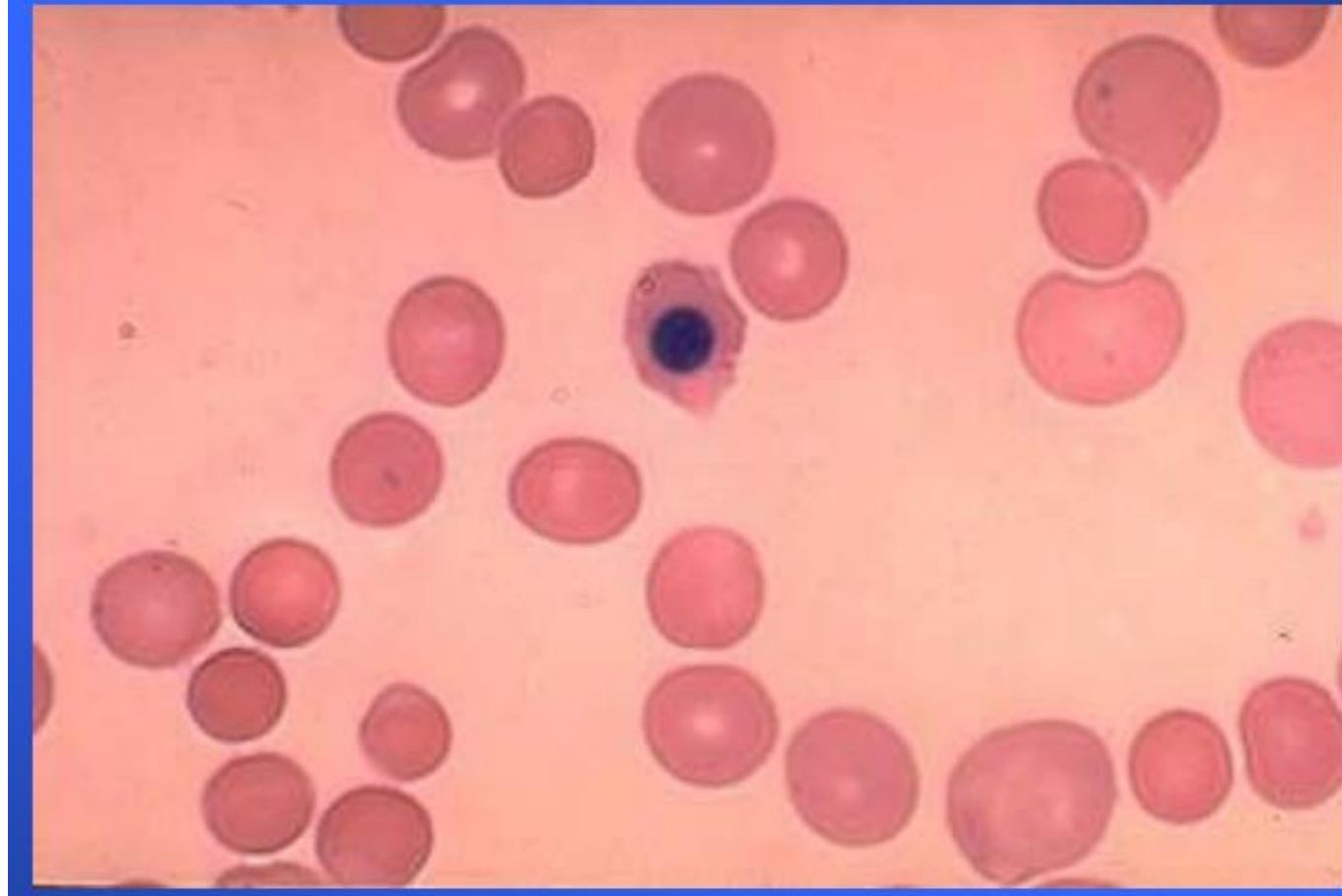
Case 09

- Initial labs reveal:
- hgb=7.9 gm/dl
- hct=23.9%
- wbc=4000 /mm³ with a normal differential
- platelet=138,000 /mm³
-
- What other initial labs / values would you like to see?

Case 09

- **MCV=114 cubic microns**
- **Retic count=14.2% uncorrected**
- **LDH=2343 U/L**
- **Bilirubin=4.3 mg/dl, .8 direct mg/dl**
- **The peripheral blood smear reveals macrovalocytes, polychromasia and an occasional nucleated red blood cell.**

Case 09



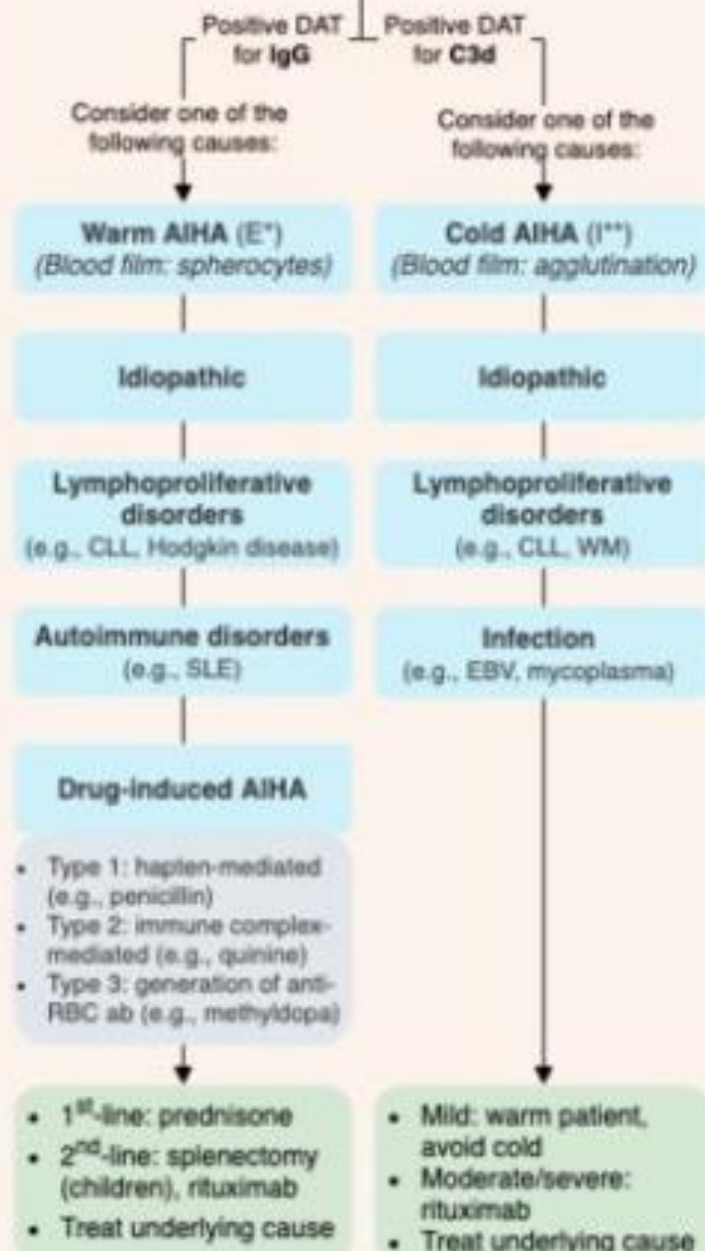
Case 09

- **You suspect an autoimmune hemolytic anemia based on her history, PE, labs and smear.**
-
- **What further tests would you like to order?**

Case 09

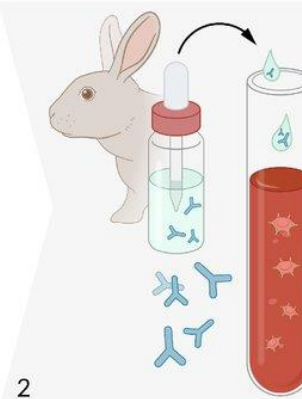
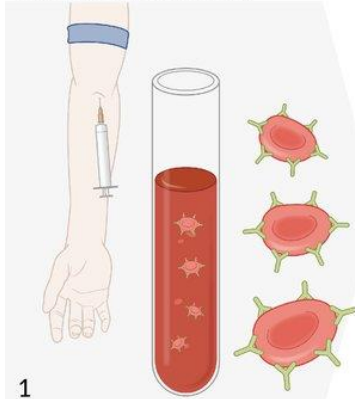
- **Direct Coombs test results are as follows:**
 -
 - **DAT: Positive 3+**
 - **IgG: Positive 3+**
 - **Complement: Negative**
 -
- **What type of autoantibody is this?**
- **What conditions are typically associated with this type of antibody?**

Autoimmune hemolytic anemias (AIHAs)

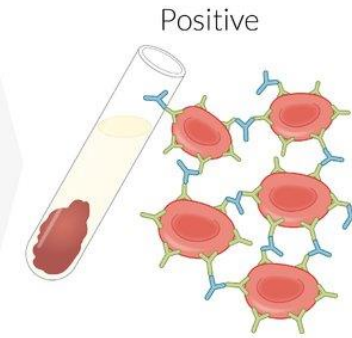


Case 09

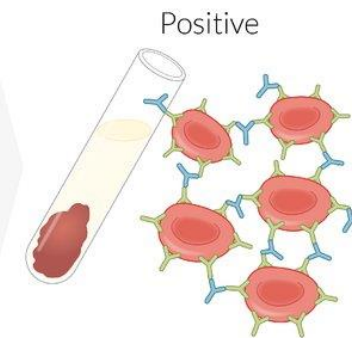
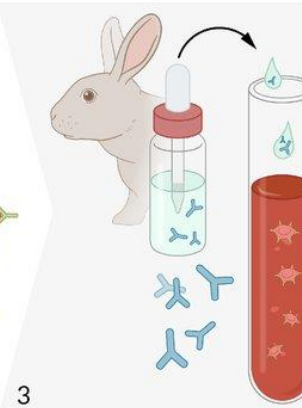
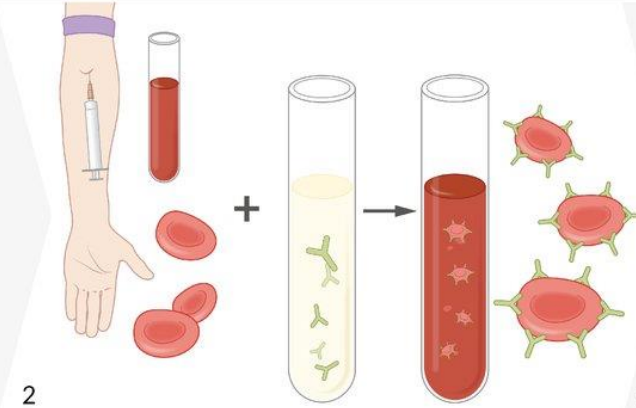
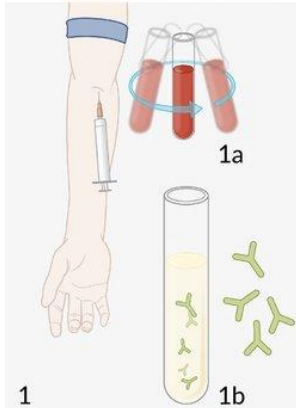
Direct Coombs test



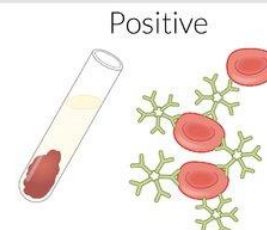
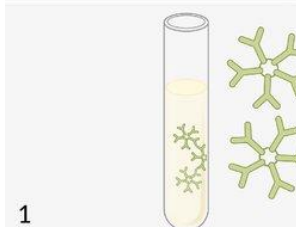
Test results



Indirect Coombs test



Indirect Coombs test (variant)



Case 10

- **A 35-year-old woman comes to the physician because of a 2-month history of progressive fatigue and intermittent abdominal pain. During this time, she has noticed that her urine is darker when she wakes up in the morning. Her stool is of normal color. Five months ago, she was diagnosed with type 2 diabetes mellitus, for which she takes metformin. Physical examination shows pallor and jaundice. There is no splenomegaly. Laboratory studies show:**

Case 10

Hemoglobin	7.5 g/dL
WBC count	3,500/mm ³
Platelet count	100,000/mm ³
Serum	
Creatinine	1.0 mg/dL
Total bilirubin	6.0 mg/dL
Direct bilirubin	0.2 mg/dl
Lactate dehydrogenase	660 U/L
Haptoglobin	18 mg/dL (N = 41-165)

Case 10

- Her urine is red, but urinalysis shows no RBCs. A Coombs test is negative. Peripheral blood smear shows no abnormalities. This patient is at greatest risk for which of the following complications?
- A. Cholesterol gallstones
 - B. Acrocyanosis
 - C. Hepatocellular carcinoma
 - D. Venous thrombosis
 - E. Chronic lymphocytic leukemia
 - F. Seizures

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 - E. Chronic lymphocytic leukemia
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Case 10

- **Venous thrombosis is the leading cause of mortality in PNH.**
Thrombosis occurs in **atypical locations**, such as hepatic veins (Budd-Chiari syndrome), portal veins, and cerebral veins (headaches, stroke).

Case 10

Clinical features of paroxysmal nocturnal hemoglobinuria	
Clinical manifestations	• Hemolysis → fatigue • Cytopenias (impaired hematopoiesis) • Venous thrombosis (intraabdominal, cerebral veins)
Workup	• Complete blood count (hypoplastic/aplastic anemia, thrombocytopenia, leukopenia) • Elevated lactate dehydrogenase & low haptoglobin (hemolysis) • Indirect hyperbilirubinemia • Urinalysis (hemoglobinuria) • Flow cytometry (absence of CD55 & CD59)
Treatment	• Iron & folate supplementation • Eculizumab (monoclonal antibody that inhibits complement activation)

Case 11

- A 62-year-old man comes to the physician for decreased exercise tolerance. Over the past four months, he has noticed progressively worsening shortness of breath while walking his dog. He also becomes short of breath when lying in bed at night. His temperature is 36.4°C (97.5°F), pulse is 82/min, respirations are 19/min, and blood pressure is 155/53 mm Hg.

Case 11

- Cardiac examination shows a high-pitch, decrescendo murmur that occurs immediately after S2 and is heard best along the left sternal border. There is an S3 gallop. Carotid pulses are strong. Which of the following is the most likely diagnosis?
- A. Mitral valve stenosis
 - B. Mitral valve regurgitation
 - C. Tricuspid valve regurgitation
 - D. Aortic valve regurgitation
 - E. Mitral valve prolapse
 - F. Aortic valve stenosis

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 - E. Mitral valve prolapse
 - F. Aortic valve stenosis

Case 11

	Maximum point	Murmur	Characteristics
<u>Aortic stenosis</u>	- Aortic valve (parasternal 2nd right intercostal space) - Erb point	Harsh crescendo-decrescendo systolic ejection murmur 🗣️	- Radiation to the carotids - Soft S₂ - Possibly ejection click 🗣️
<u>Aortic regurgitation</u>	- Aortic valve (parasternal 2nd right ICS) - Erb's point	- Diastolic murmur with a decrescendo 🗣️ - Possible additional quiet systolic murmur	- Immediately following the 2nd heart sound ("immediate diastolic murmur") - Austin Flint Murmur 🗣️
<u>Mitral stenosis</u>	Heart apex (midclavicular 5th left ICS)	Delayed diastolic murmur with a decrescendo 🗣️	"Tympanic" 1st heart sound - Mitral opening murmur/opening snap (OS)
<u>Mitral valve prolapse</u>	Heart apex (midclavicular 5th left ICS)	Late-systolic crescendo 🗣️	- Midsystolic high-frequency click (due to the tensing of the chordae tendinae) - Loudest before S₂
<u>Mitral regurgitation</u>	- Heart apex (midclavicular 5th left ICS) - Left axilla 🗣️	- Holosystolic murmur 🗣️ 3rd heart sound audible - Quiet 1st heart sound	- Blowing - Radiation into the axilla

Case 11

	Venous Return / Preload		Afterload		Drugs	
	Increase	Decrease	Increase	Decrease	Diuretic	ACEIs
	(Leg raise / Squat)		(Handgrip)	(Amyl Nitrate)		
MS, AS	↑	↓	↓(AS)	↑(AS)	Yes, but better	
			Negligible Effect in (MS)		AS (Replace)	×
					MS(Ballon)	
MR, AR	↑	↓	↑	↓	✓	✓
VSD	↑	↓	↑	↓	✓	✓
HOCM	↓	↑	↓	↑	×	×
MVP	↓	↑	↓	↑	×	×