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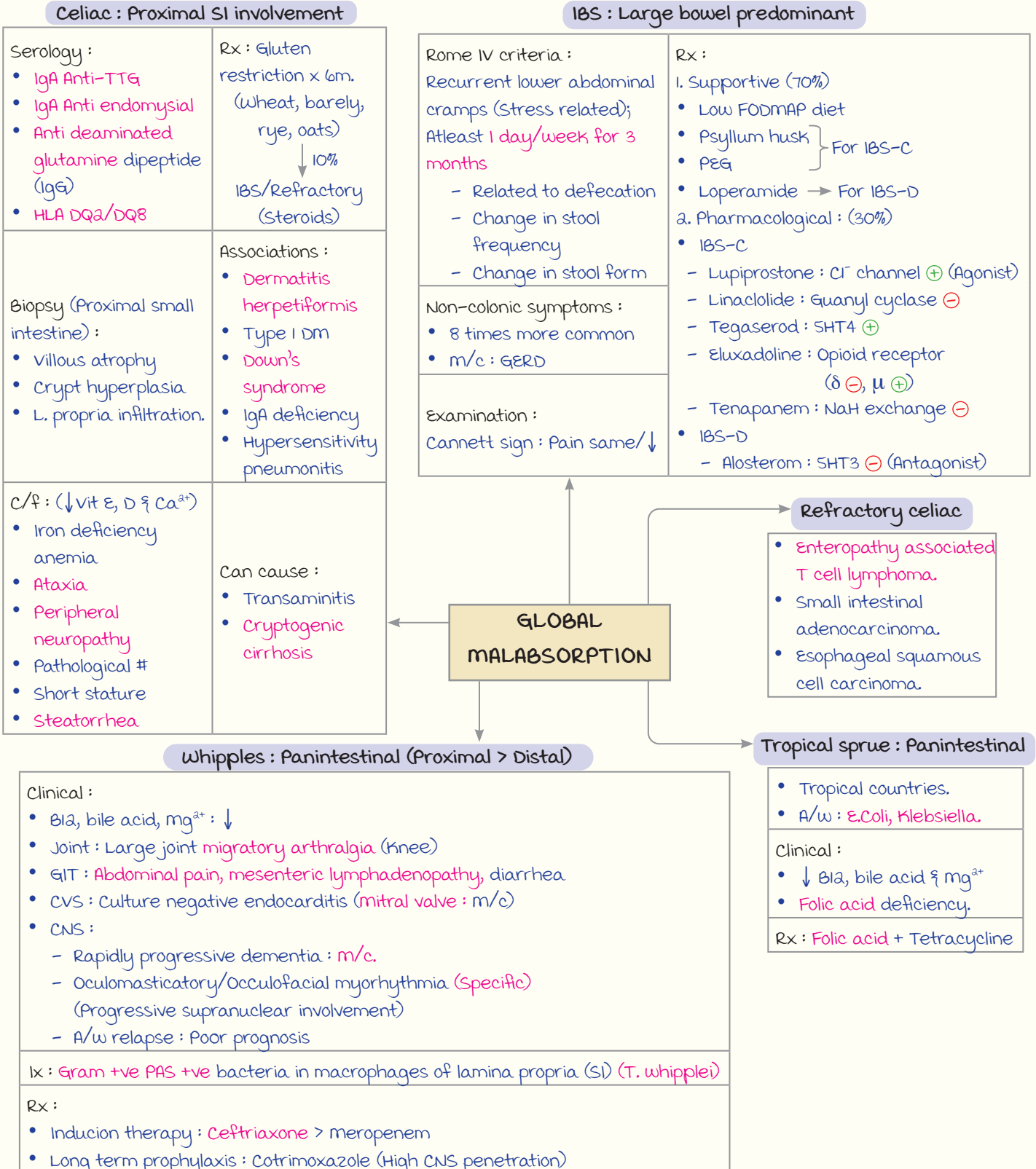
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INTEGRATED MEDICINE : PART 1

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Global Malabsorption

00:00:45



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Annexure :

T-cell lymphomas :

- Angioimmunoblastic T cell lymphoma.
- Anaplastic large cell lymphoma.
- mycosis fungoides.
(Sezary syndrome)
- Enteropathy associated T cell lymphoma.

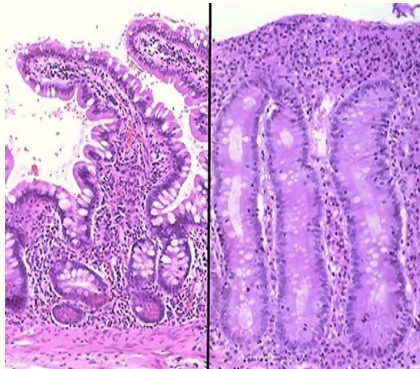
Carnett sign : Palpate point of maximum tenderness in supine position, then raise legs with knees extended :

- ↑ Pain : musculoskeletal.
- Same/↓ : IBS.

Drug S/ε :

Tegaserod : Cardiotoxic.
Eluxadolene : Biliary complication.
Alaosteron : Ischemic colitis.

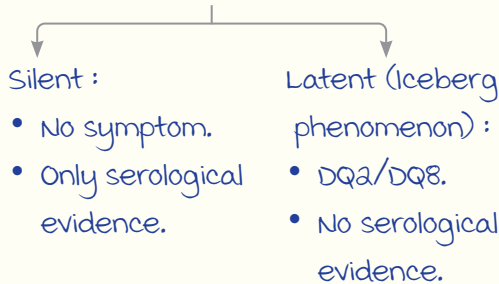
Celiac disease : Biopsy



Bristol stool chart :

Type 1 & 2 : IBS-C (Constipation).
Type 6 & 7 : IBS-D (Diarrhea).

Uncommon celiac disease presentation :



Anti-deaminated glutamine dipeptide :
To check for celiac disease in IgA deficiency.

C/f not seen in IBD :

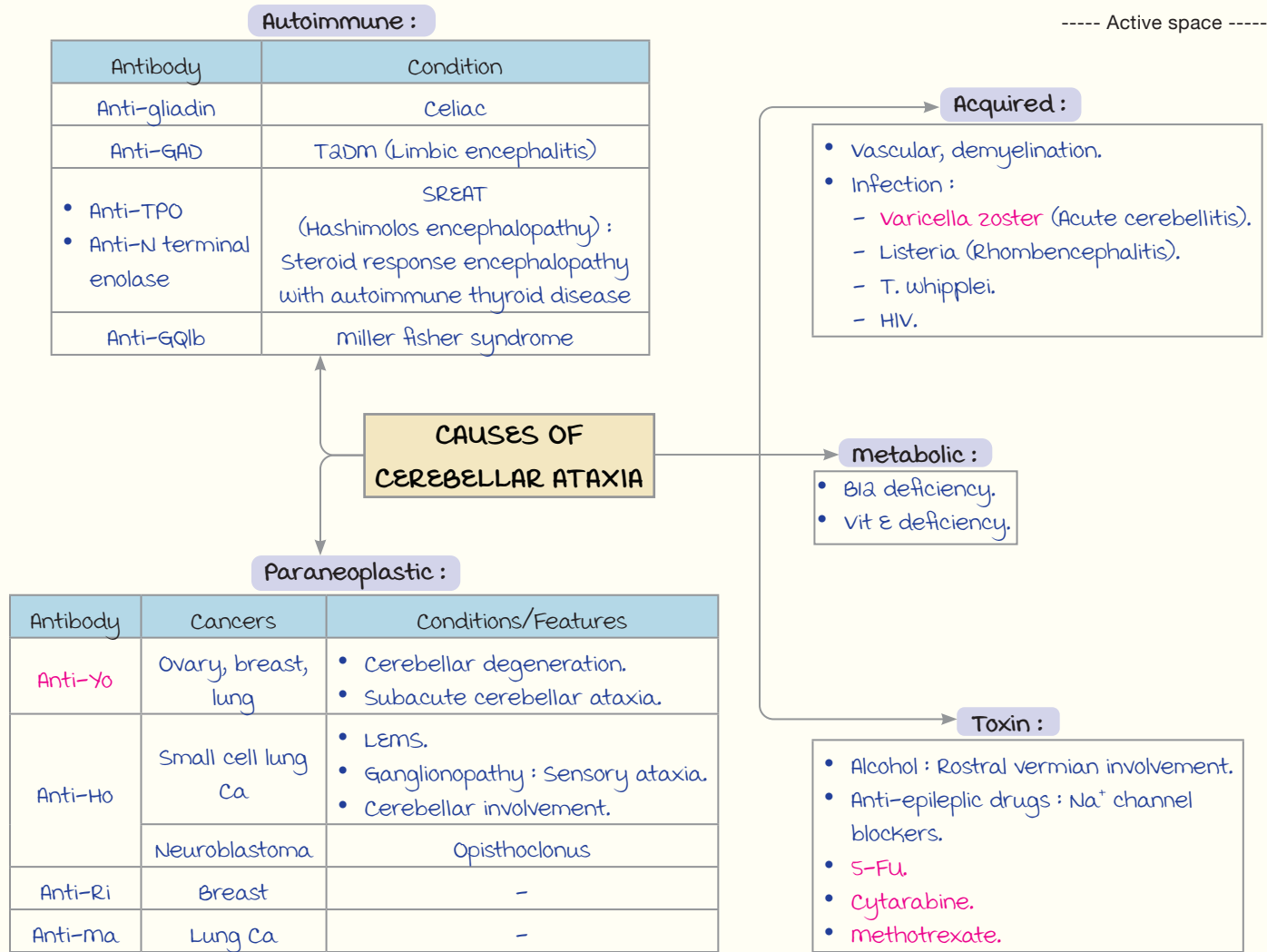
- Nocturnal diarrhea.
- **Steatorrhea.**
- **Blood in stools, ↑ stool volume.**
- Fever

CNS-Ataxia

00:40:30

Ataxia	Features	
Vestibular Ataxia	<ul style="list-style-type: none"> • vestibulitis • Nystagmus & vertigo 	
Sensory Ataxia	<ul style="list-style-type: none"> • Dorsal column (Proprioception) : Tingling, numbness, paraesthesia (↑ in darkness) • Pseudoathetosis, wash basin phenomenon (↓ visual stimuli) • Rhombergs test : Positive 	Associated ganglionopathies : <ul style="list-style-type: none"> - Sjogrens syndrome - Paraneoplastic syndrome - SCLC
Cerebellar Ataxia	Rhombergism <ul style="list-style-type: none"> • Gait ataxia • Truncal ataxia • Arms spared • No nystagmus/dysarthria 	Caudal vermis (medulloblastoma) : <ul style="list-style-type: none"> • Truncal ataxia • Nystagmus • Titubation • No dysarthria } Triad

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Anti GQ1b : Gullian Barre

- Ophthalmoplegia
 - Areflexia
 - Ataxia
- } + Altered sensorium → Bickerstaff encephalitis

Lambert Eaton myasthenic Syndrome (LEMS) :

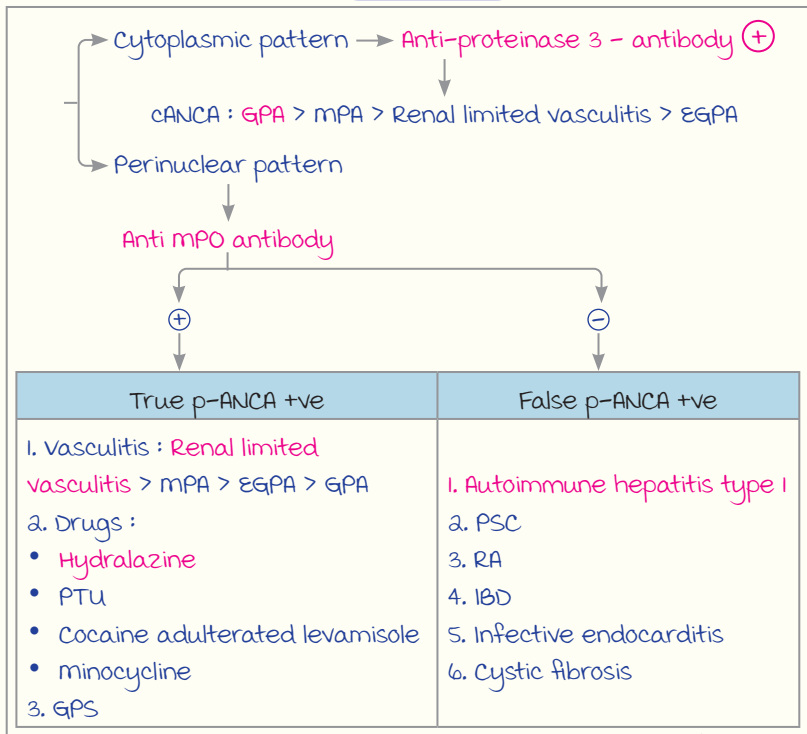
- Proximal limb weakness.
- Autonomic symptoms.
- Cranial nerve involvement.
- P/Q voltage gated Na channel Ab.

INTEGRATED MEDICINE : PART 2

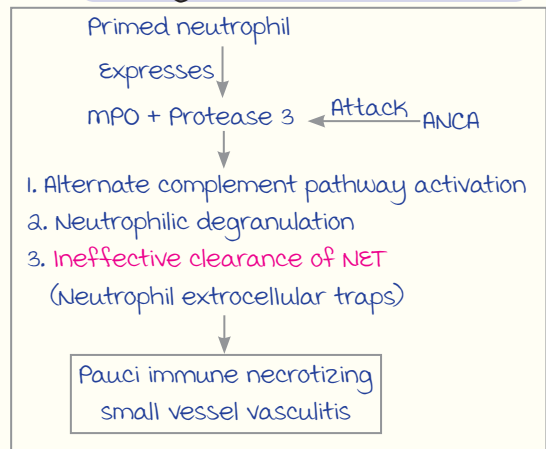
Small Vessel Vasculitis

00:00:24

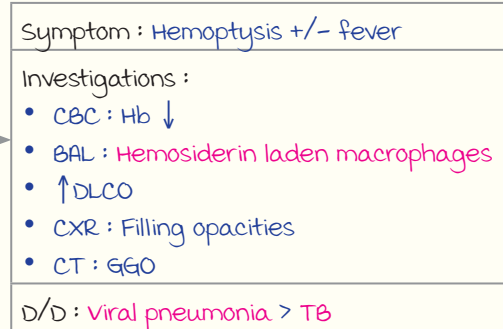
ANCA +ve :



Pathogenesis of ANCA vasculitis :



Clinical features :



Systemic manifestations

	GPA	MPA	GPS
Renal	60 % RPGN type 3	100 % RPGN type 3	RPGN type I (Linear IgG ± C3)
URT	95 % • Saddle nose deformity • Hearing loss (CHL/SNHL) • Chronic sinusitis	30 % Chronic sinusitis	
LRT	Diffuse alveolar hemorrhage + nodules	Diffuse alveolar hemorrhage	Frank alveolar hemorrhage
Others	Scleritis	Prominent skin manifestations	
mx	• Steroids + Cyclophosphamide/Rituximab. • maintenance : Azathioprine.		

SMALL VESSEL VASCULITIS

Skin manifestation :

Non thrombocytopenic palpable purpura, Bullae, vesicles

Types :

	Pauci-immune	Immune complex mediated
ANCA	+	-
Feature	Fibrinoid necrosis	Leukocytoclasia
Eg	• GPA (m/c) : Granuloma (+) • MPA (2 nd m/c) • EGPA/AGPA • Renal limited vasculitis	• IgA vasculitis (HSP) • Cryoglobulinemic vasculitis • 2 ^o vasculitis d/t drugs, autoimmune • Goodpasture Syndrome (GPS)

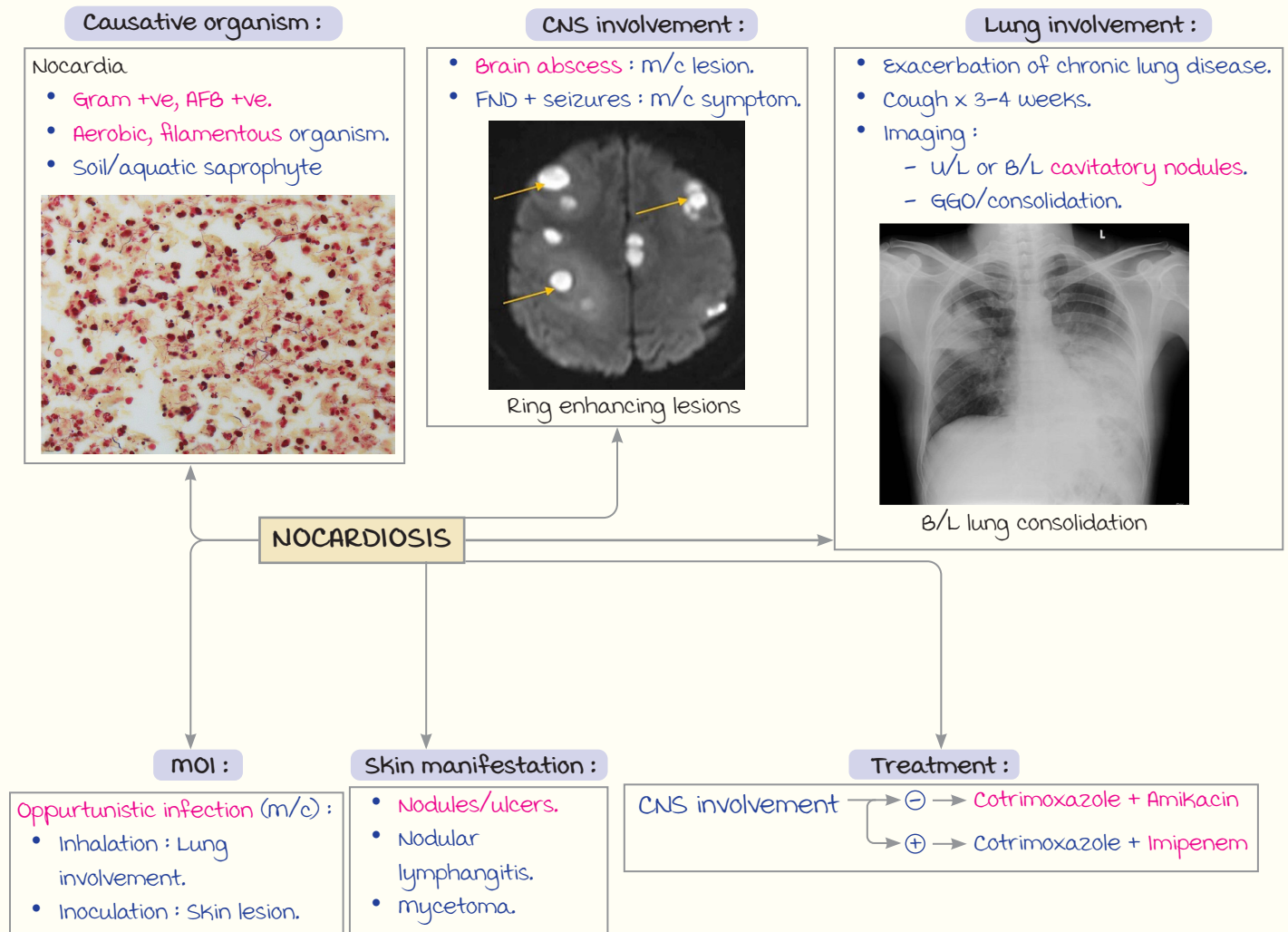
Annexure :

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1. S/o medium vessel involvement :
 - Nodules, deep ulcers, gangrene.
 - Severe neuropathy.
2. EGPA :
 - Late onset asthma
 - Lung infiltrates (+)
 - DAA (-)
3. PAN : No lung or glomerulus involvement.

Nocardiosis

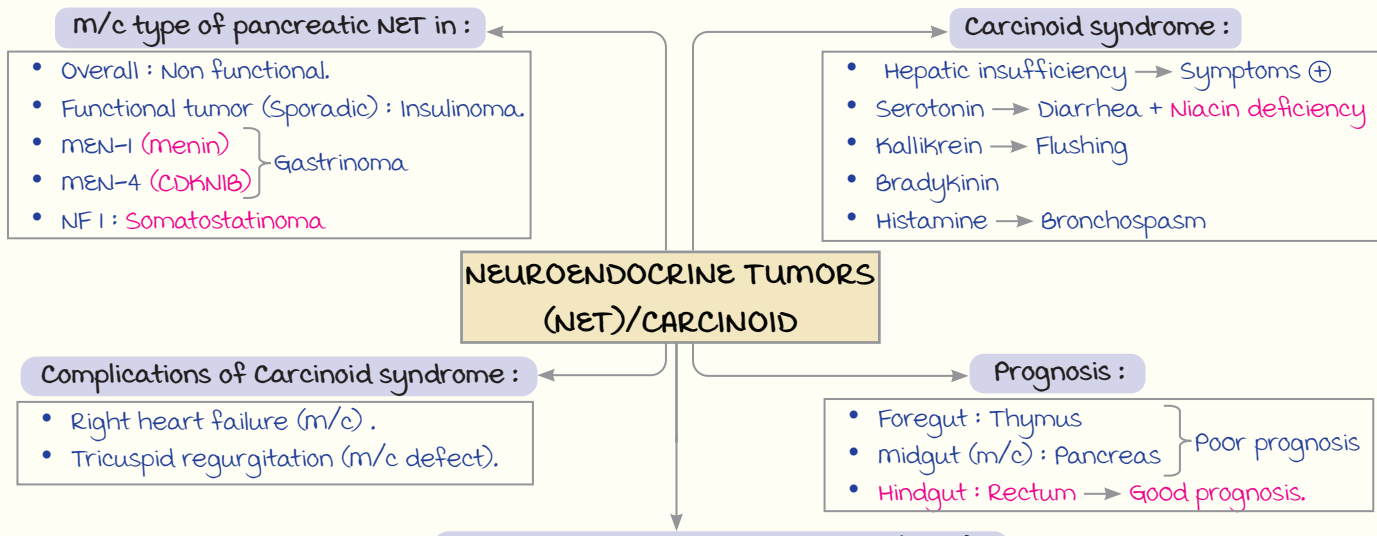
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NET & Causes Of Diabetes

00:34:55



Pancreatic neuroendocrine tumors (PNET) :

	Glucagonoma	Somatostatinoma
Arises from	Tail > Body of pancreas	Duodenum (m/c)
c/f	<ul style="list-style-type: none"> Elderly patient Weight loss : D/t hypo aminoacidemia Dermatitis : Necrolytic migratory erythema Diarrhea, Abdominal pain Diabetes DVT Depression <p>Triad of glucagonoma</p>	<ul style="list-style-type: none"> mild diabetes Cholelithiasis Steatorrhea
A/w	Zinc deficiency : Acrodermatitis enteropathica	NF I

If flushing, diarrhea ⊕ in PNET → Indicates Liver mets.

Syndromes with PNET :

- MEN 1 & MEN 2
- Tuberous sclerosis
- VHL
- NF I

Ix :

- PNET (IOC) : SRS (Somatostatin Receptor Scintigraphy)
 - Insulinoma
 - Small gastrinoma
- Endoscopic USG

2° Causes Of Diabetes :

- Hemochromatosis
- IgG4 related disease
- Ca. pancreas
- NET (Neuroendocrine tumors)

Endocrinopathies With Diabetes :

- Cushing's disease
- Acromegaly
- Hyperthyroidism
- Hyperparathyroidism
- Pheochromocytoma

Adrenal Insufficiency

00:50:39

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Types :

	1° : Addison's disease 2° : Abrupt steroid withdrawal (m/c cause)	
	Glucocorticoid insufficiency ↓ Euvolemic hyponatremia	
	1° Insufficiency	2° Insufficiency (m/c)
Aldosterone	↓	Normal
K ⁺	↑	Normal
Na ⁺	Hypovolemic hyponatremia	↓
Salt craving	⊕	⊖
Postural hypotension	⊕	⊖
Glucocorticoid/Sex steroids	↓	↓
ACTH	↑↑ → Hyperpigmentation	Normal
Auricular calcification	⊕	⊖

Causes Of 1° Adrenal Insufficiency :

Children :

1. CAH
2. Triple A/4A/Algrove syndrome
3. X-linked adrenoleukodystrophy.
4. meningococemia : **Waterhouse** **Fredrichsen syndrome.**

Adults :

1. TB (m/c in India).
2. **Polyglandular autoimmune syndrome (PGA)/Autoimmune polyendocrine syndrome (Type I > 2).**
3. **Histoplasmosis in HIV.**

ADRENAL INSUFFICIENCY

management :

Ix :

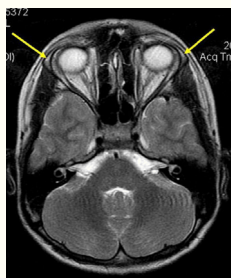
- Fasting cortisol assay
 - ↳ <3 µg/L : Diagnostic.
 - ↳ 3-20 µg/L : Synacthen stimulation test.
 - ↳ >20 µg/L : Rules out Addison's.
- Eosinophilia

Rx : Steroids

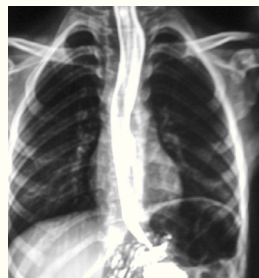
Cushing's : Eosinopenia

TRIPLE A/ALGROVE SYNDROME :

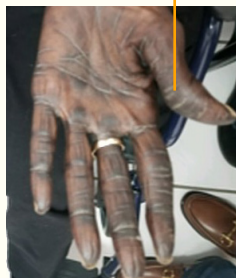
Defect : **Aladin gene defect.**



Alacrimia



Achalasia cardia



Addison's disease

Hyperpigmentation

4th A :
Autonomic dysfunction

INTEGRATED MEDICINE : PART 3

Hepatitis

00:00:36

Chronic hepatitis :

LFT : upto 5 times (ALT > AST)

Presentations :

Cirrhosis :

- Biopsy proven

Liver failure :

- Jaundice
- AST > ALT

Decompensation :

- Ascites
- Hepatic encephalopathy
- Upper GI bleed

Portal hypertension :

- Splenomegaly
- Thrombocytopenia

Causes :

- NASH
- Hepatitis B, C
- Autoimmune
- Hemochromatosis, Wilson

Acute hepatitis :

LFT : > 10 times (ALT > AST)
Viral prodrome → Jaundice

Antibodies in hepatitis :

- LKM - 1 : Chronic HCV, Type 2 AIH
- LKM - 2 : Drug induced hepatitis
- LKM - 3 : Hepatitis D
- LC - 1 : Type 2 AIH

Interface hepatitis :

- HBV
- Primary biliary cirrhosis
- Primary sclerosing cholangitis

HEPATITIS

Autoimmune :

Features :

- Hypergamma globinemia (IgG ↑)
- ↓ A : G
- Waxing waning of jaundice
- Circulating autoantibodies
- Lupoid : A/w SLE, RA, T₁DM, Hashimoto

Antibodies (Type I AIH) :

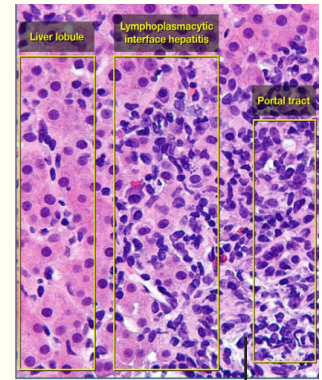
- AAA (Anti-actin) : Specific (Good prognosis)
- Anti-SLA
- Anti - Ro/La
- SMA

Biopsy :

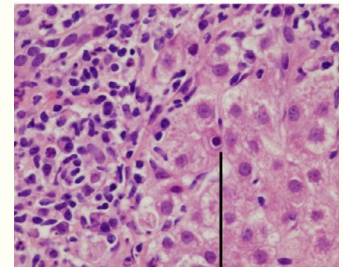
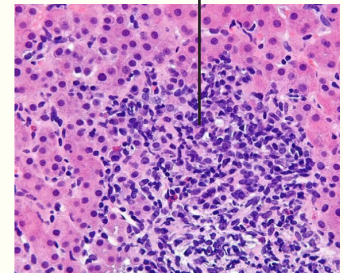
- Piecemeal necrosis/interface hepatitis
- Rosette formation
- Emperipolesis

Treatment :

Steroids : 0.5 mg/kg/day then tapered off
+
Azathioprine or mMF
↓ Remission
maintenance : Azathioprine



Piecemeal necrosis

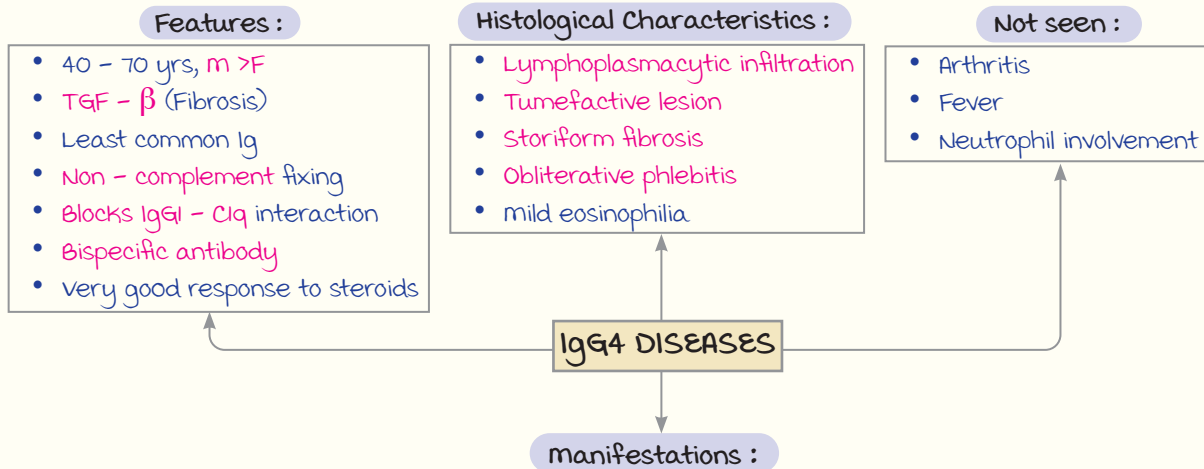


Emperipolesis

IgG4 Related Diseases

00:21:30

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Organ	manifestation
Pancreas	Type I autoimmune pancreatitis (MRI : Diffuse sausage appearance)
Salivary gland	Submandibular gland involvement (Steroid responsive sicca)
Orbit	Inflammatory pseudotumour
Lacrimal gland	Dacryoadenitis
Retroperitoneum	Fibrosis
CNS	<ul style="list-style-type: none"> • Lymphocytic hypophysitis (Central part) • Pachymeningitis without brain parenchymal involvement
Lung	<ul style="list-style-type: none"> • Thickening of bronchovascular bundle • ILD : NSIP (m/c)
CVS	Aortitis with paravertebral mass.
Liver	Primary sclerosing cholangitis
Renal	<ul style="list-style-type: none"> • Tubulointerstitial nephritis (Steroid responsive) • membranous nephropathy (Rare)



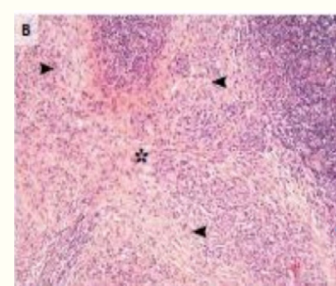
Pancreas : Diffuse sausage appearance



Submandibular gland involvement



Orbit : Inflammatory pseudotumor

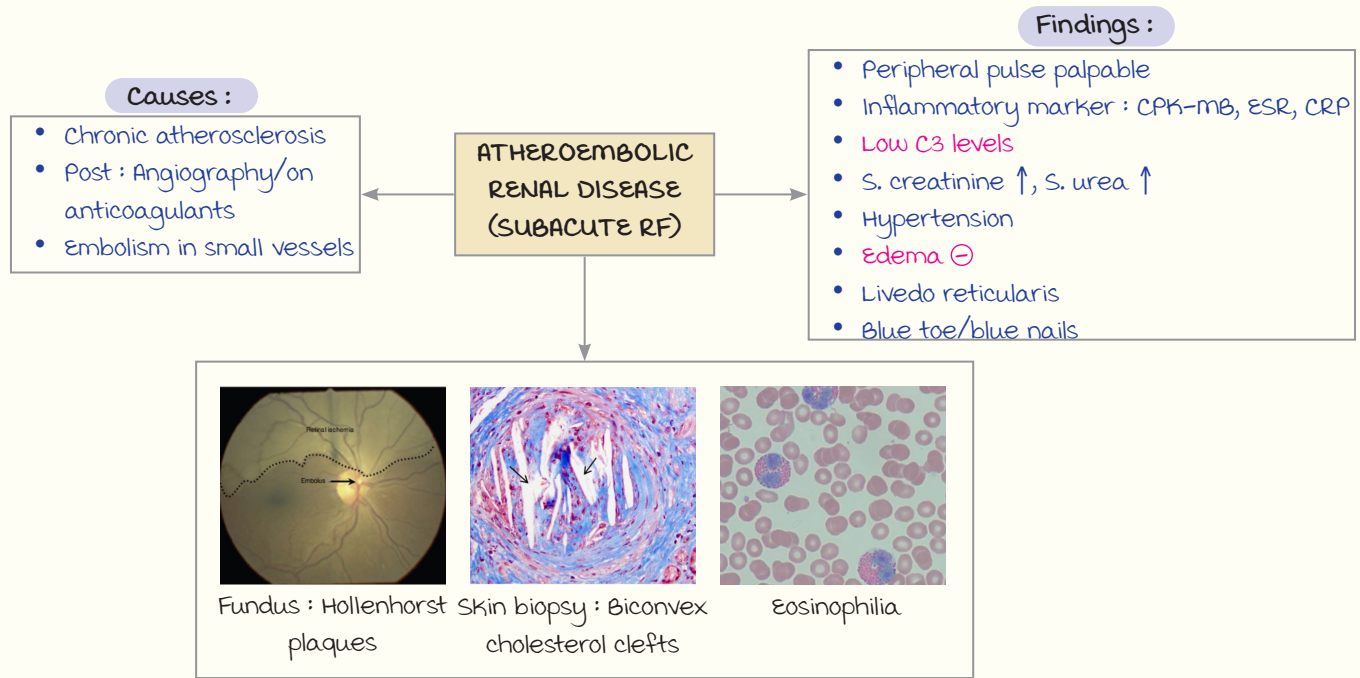


Storiform fibrosis

Atheroembolic Renal Disease/Cholesterol Embolism

00:33:00

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Renal conditions with ↓ C3, ⊖ C4 :

- IRGN, PSGN.
- C3 GN.
- Atypical HUS.
- Atheroembolic renal disease.

Oliguric AKI

00:38:36

Causes :

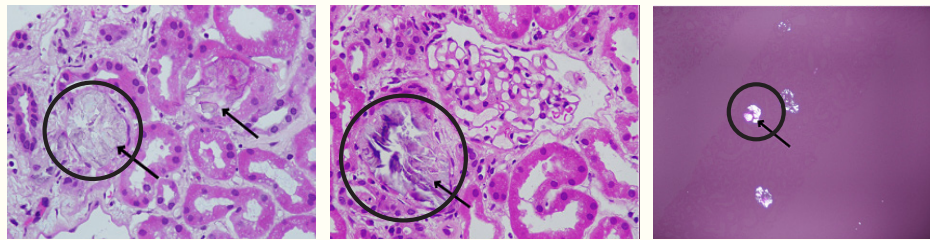
- Thrombotic microangiopathic (RPRF m/c)
- Ischemic ATN

Intratubular obstruction/crystal AKI

uric acid induced :
Tumor lysis syndrome

Oxalate induced :

- **Genetic primary hyperoxaluria**
- **Enteric malabsorption** (LCFA high, Ca²⁺ → ↑ Oxalate)
- Excess Vit C
- Ethylene glycol poisoning



Drug induced :

Mnemonic : **MITARS**

- Hydroxylmethotrexate ALL/osteosarcoma
- Indinavir
- Triamterene
- Hydroxy acyclovir
- Sulphonamide

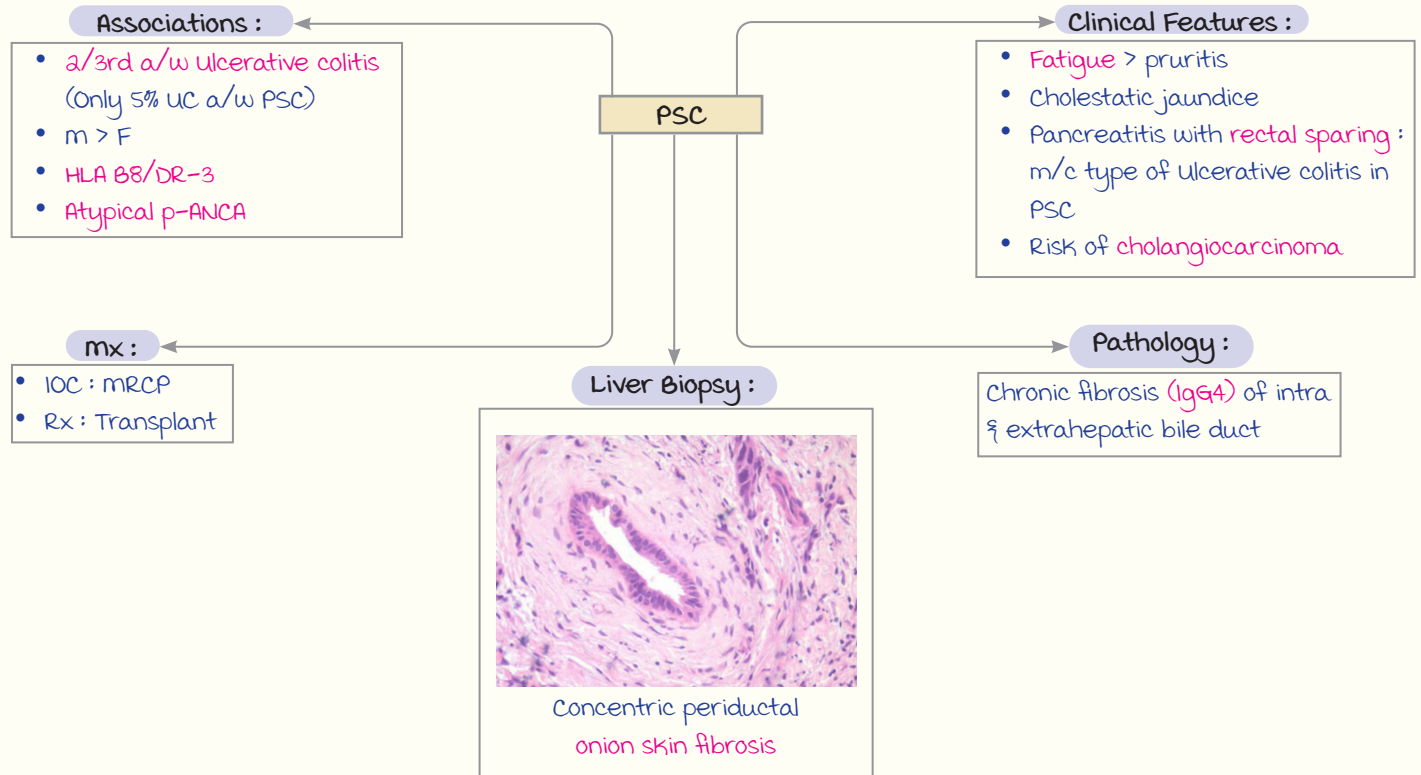
Chronic calcific pancreatitis : malabsorption (Diarrhea) → Non-responsive oliguric AKI.

----- Active space -----

Lithium : Chronic tubulointerstitial fibrosis (Asymptomatic, non-oliguric).

Primary Sclerosing Cholangitis (PSC)

00:45:40



Primary biliary cholangitis :

- F > m.
- Anti - mitochondrial Ab.
- A/w Sjogren's disease & Smoking.

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Allergic Bronchopulmonary Aspergillosis

00:50:40

Criteria :

Predisposing criteria :	Obligatory criteria :	Supportive criteria :
<ul style="list-style-type: none"> Cystic fibrosis Long standing asthma (Recurrent exacerbation despite regular nebulization) 	<ul style="list-style-type: none"> IgE levels > 500 IU/mL Positive immediate skin test or ↑ IgE Ab to aspergillus 	<ul style="list-style-type: none"> Eosinophilia > 500/μL Precipitants : IgG Lung opacities

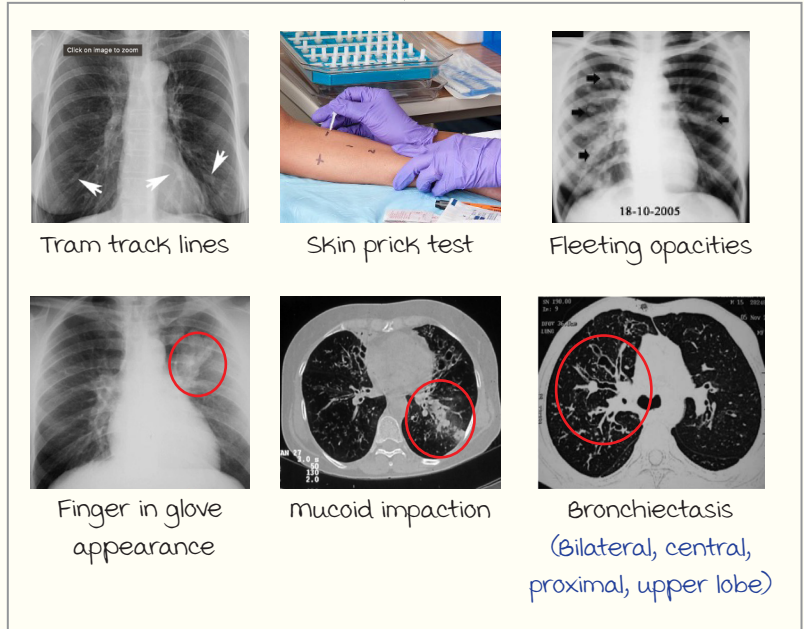
Pathology :

- Aspergillus fumigatus
- Type 1 > Type 3 HS reaction (Eosinophil predominant : IgE)
- Brownish mucus plugs

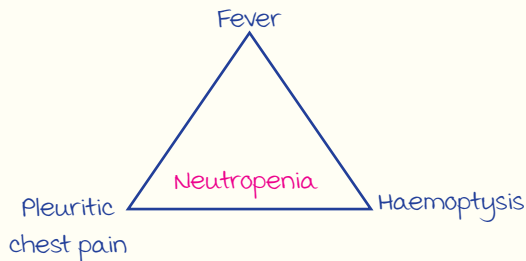
Treatment :

Steroids : 0.5 mg/kg/day taper over time
 ↓ Non-responsive
 Itraconazole / voriconazole

ABPA



Invasive Aspergillosis :



Ix : Galactomannan, 1,3, β-D glucan assay

CT :

- Nodules & consolidation.
- Halo sign (Nodule surrounded by GGO).
- Air crescent sign (During recovery).

Rx : voriconazole + Echinocandin.

Hypersensitivity Pneumonitis :

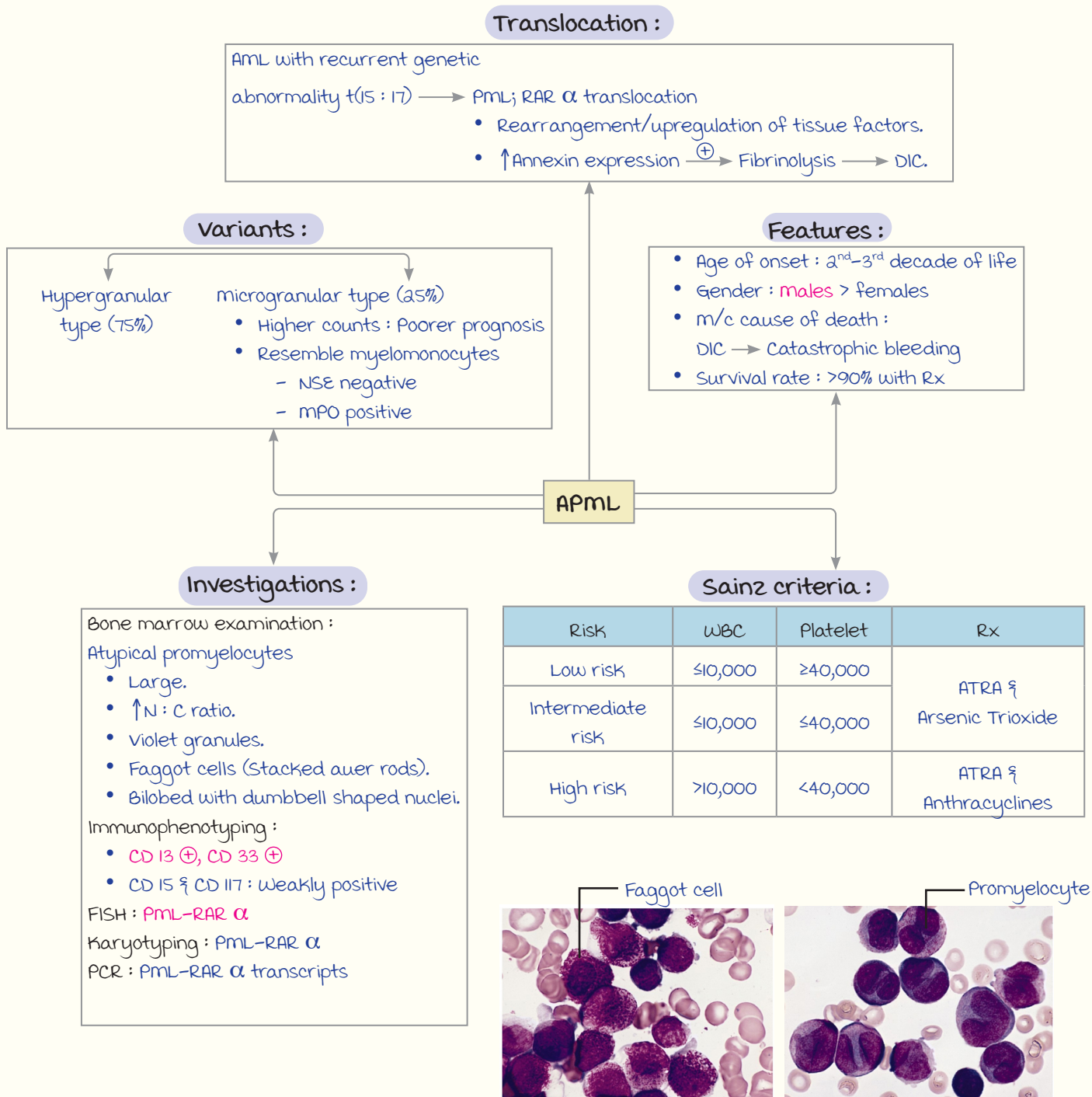
- Organic dust exposure.
- Type 4 > Type 3 HS.
- Lymphocytic.

INTEGRATED MEDICINE : PART 4

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APML (Acute Promyelocytic Leukemia)

00:00:21



----- Active space -----

ADVERSE EFFECTS OF ATRA (ALL TRANS RETINOIC ACID)**1. Differentiation Syndrome :**

Onset : 2-21 days after starting ATRA.

C/F :

- Fever.
- Serositis.
- Edema.
- Lung infiltrate : Hypoxia.
- Hypotension.

Rx : **Dexamethasone.****2. Idiopathic Intracranial Hypertension :**

C/F : Headache, vomiting, ↑ICT, papilledema

Note :

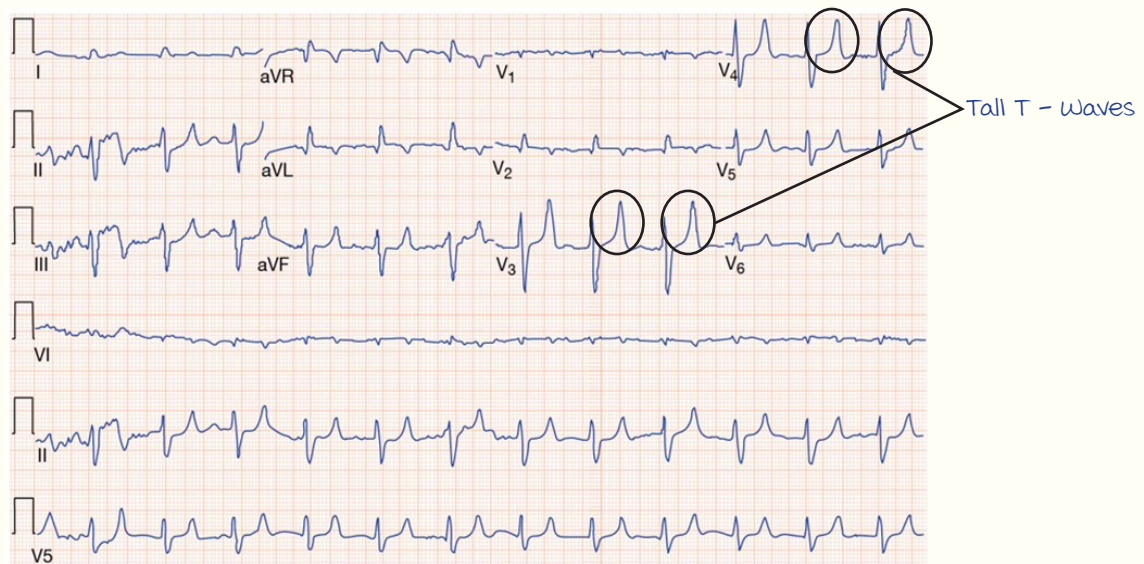
Bone marrow examination :
mandatory in all cases of pancytopenia.

Hyperkalemia

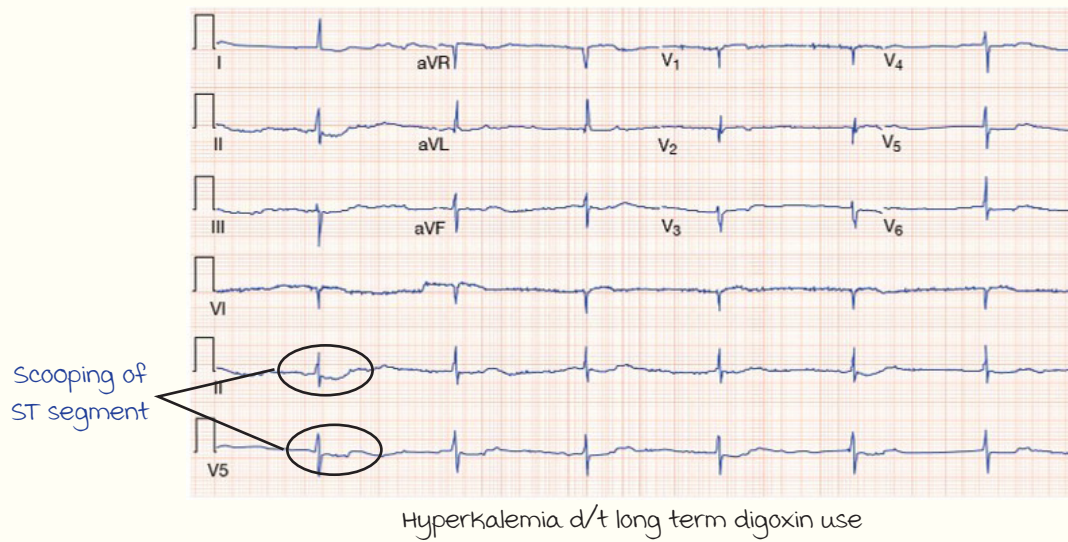
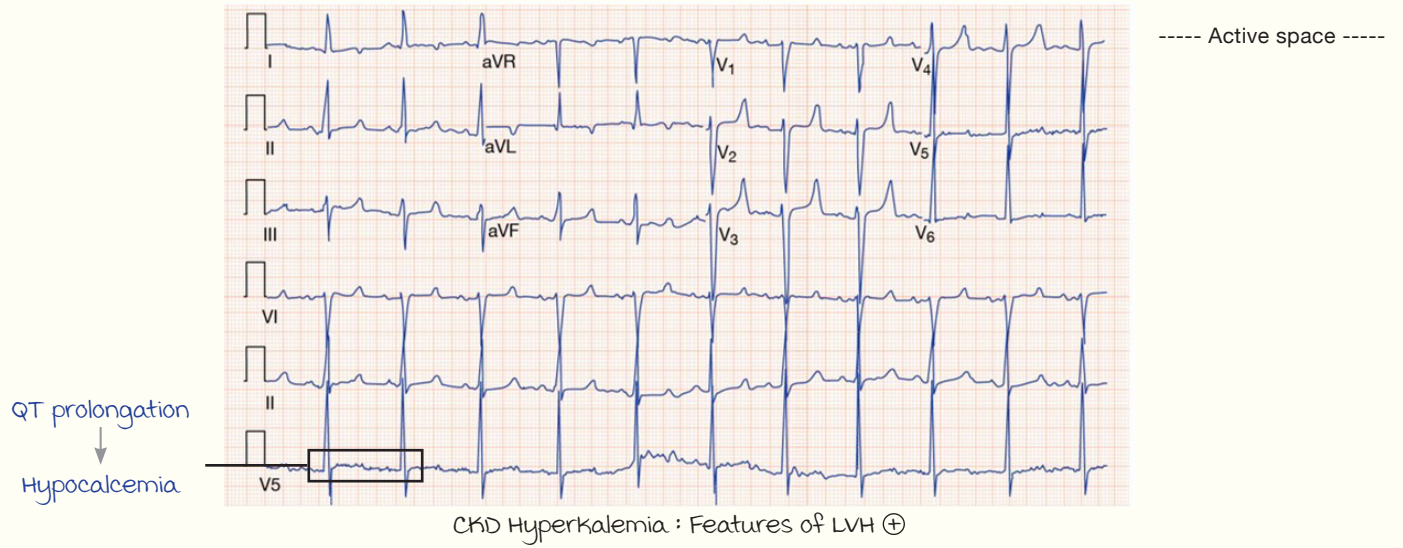
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Clinical Features :

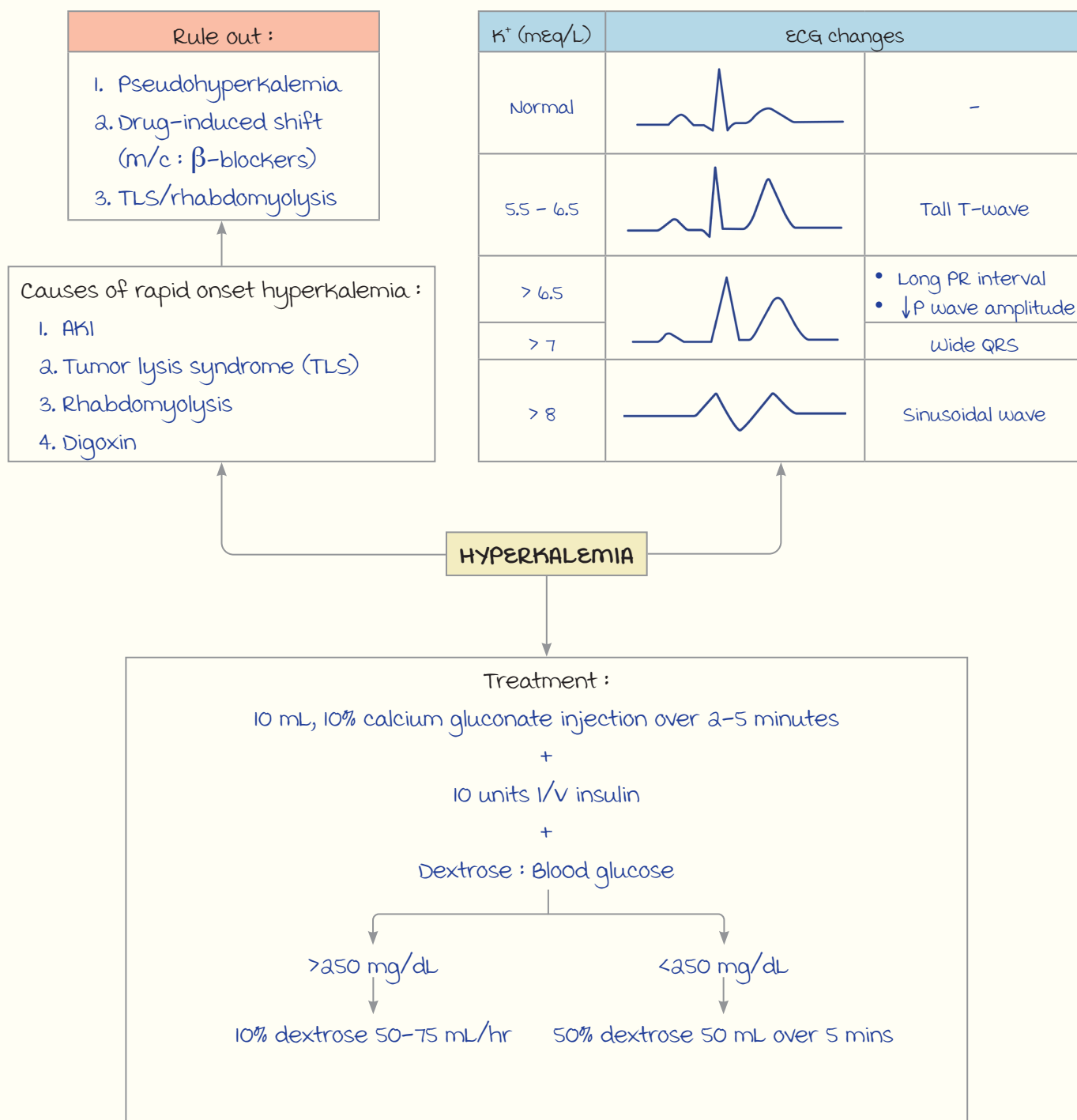
- muscle weakness.
- Arrhythmias.

ECG Findings :

Rapid onset hyperkalemia : Post chemotherapy for lymphoma (Burkitt's)



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Hypoaldosteronism

00:24:40

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Features :

- Corresponds to RTA type 4
- Normal/mildly impaired RFT.
- Hyperkalemia disproportionate to degree & duration of renal failure.
- Cortisol \ominus \rightarrow ADH \rightarrow Low risk of hyponatremia.

HYPOALDOSTERONISM

True Hypoaldosteronism :

	Renin	Aldosterone	Causes
Hyporeninemic	↓	↓	<ul style="list-style-type: none"> • Diabetic kidney disease • NSAIDs • β-blocker • Aliskiren • Calcineurin inhibitors (CNI)
Hyperreninemic	↑	↓	<ul style="list-style-type: none"> • Addison's disease • ACE \ominus • ARB • Heparin • Ketoconazole

Pseudo Hypoaldosteronism (PHA) :

Genetic : PHA type 1 & 2.

Acquired :

Chronic tubulointerstitial disease

↓

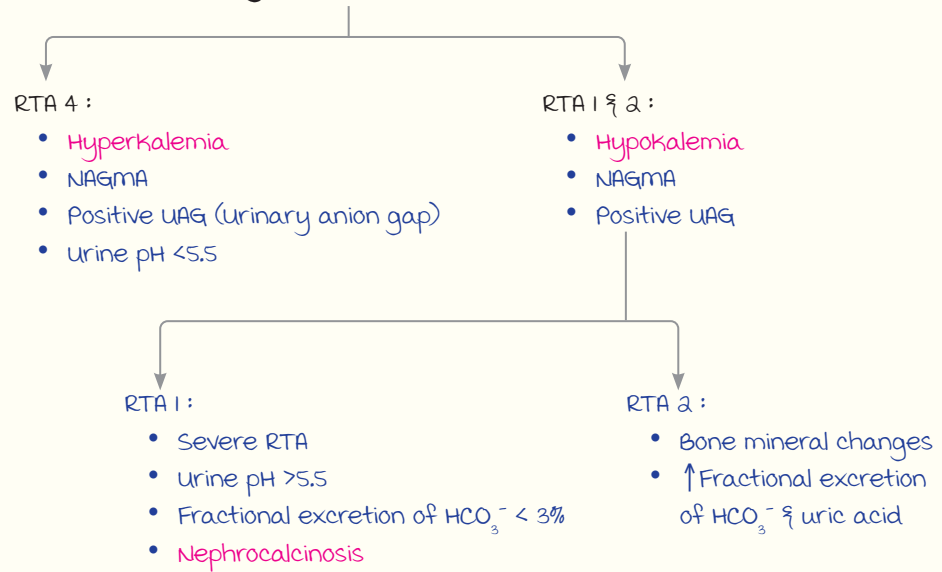
Fibrosis of mineralocorticoid receptor

↓

RTA-4

- Reflux nephropathy.
- SLE.
- Obstructive nephropathy.
- Drugs :
 - Spironolactone.
 - Eplerenone.
 - Triamterene.
 - Amiloride.
 - Trimethoprim.
 - Pentamidine.
 - CNI.

Types of RTA :

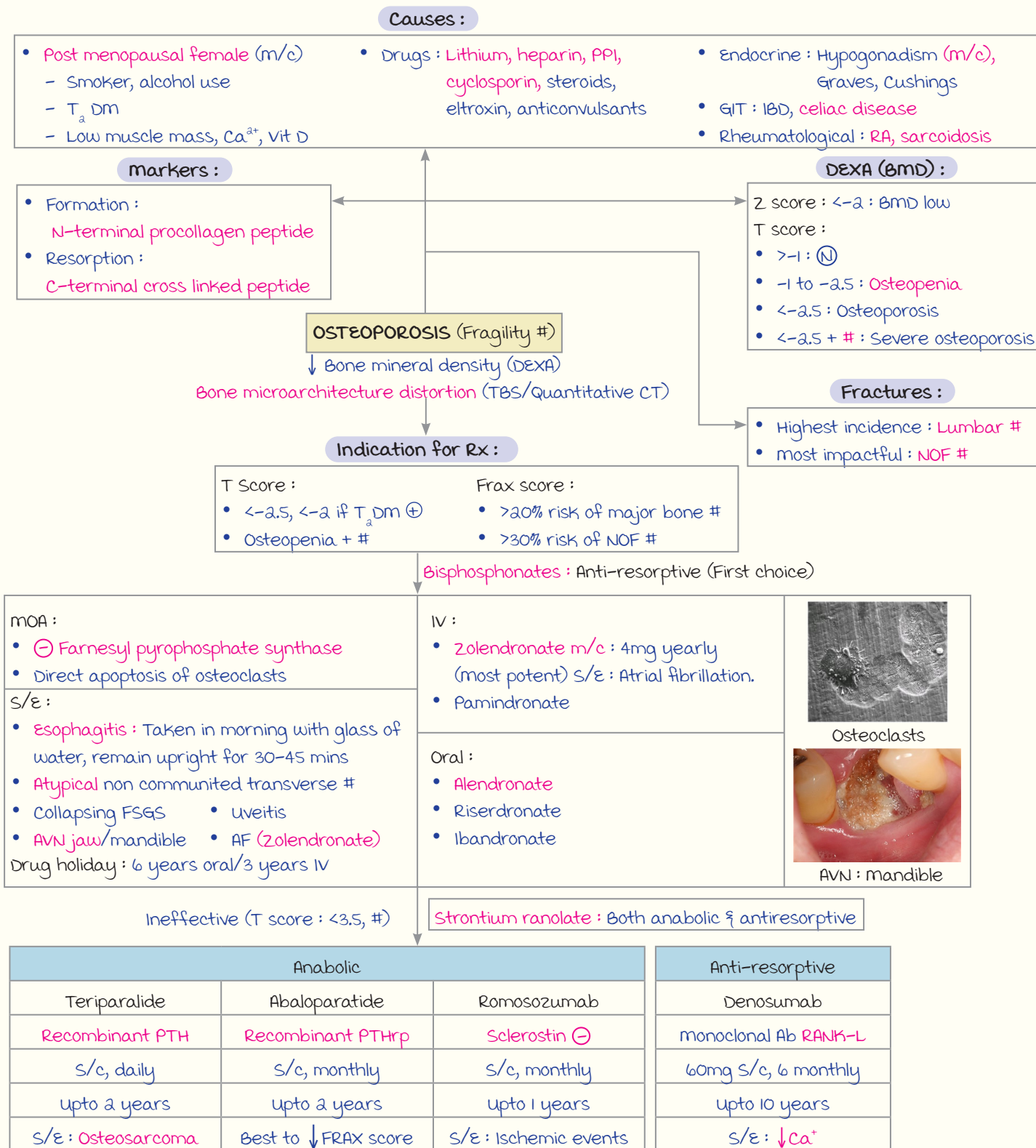


INTEGRATED MEDICINE : PART 5

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Osteoporosis

00:15:32



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Annexure :

Bone formation → Promoters (WNT β -catenin pathway) : LRP-5, osteoprotegerin
 LRP-5 mutation : m/c/c juvenile/child osteoporosis
 → Inhibitors (Resorption) : Sclerostin, DKK-1, RANK-L

Renal failure markers for bone :

Formation : Bone specific alkaline phosphatase.

Resorption : TRAP_{sb}

DEXA :

	T score	Z score
Done for	<ul style="list-style-type: none"> • male >50 years • Postmenopausal female 	<ul style="list-style-type: none"> • Children, males <50 years • Premenopausal female
Compared to	BMD of 25-29 year olds	Same age & sex

Screening :

- Females >65 years.
- males >70 years.
- Young :
 - H/o fragility.
 - Any risk factors.

Flourosis : ↑BMD.

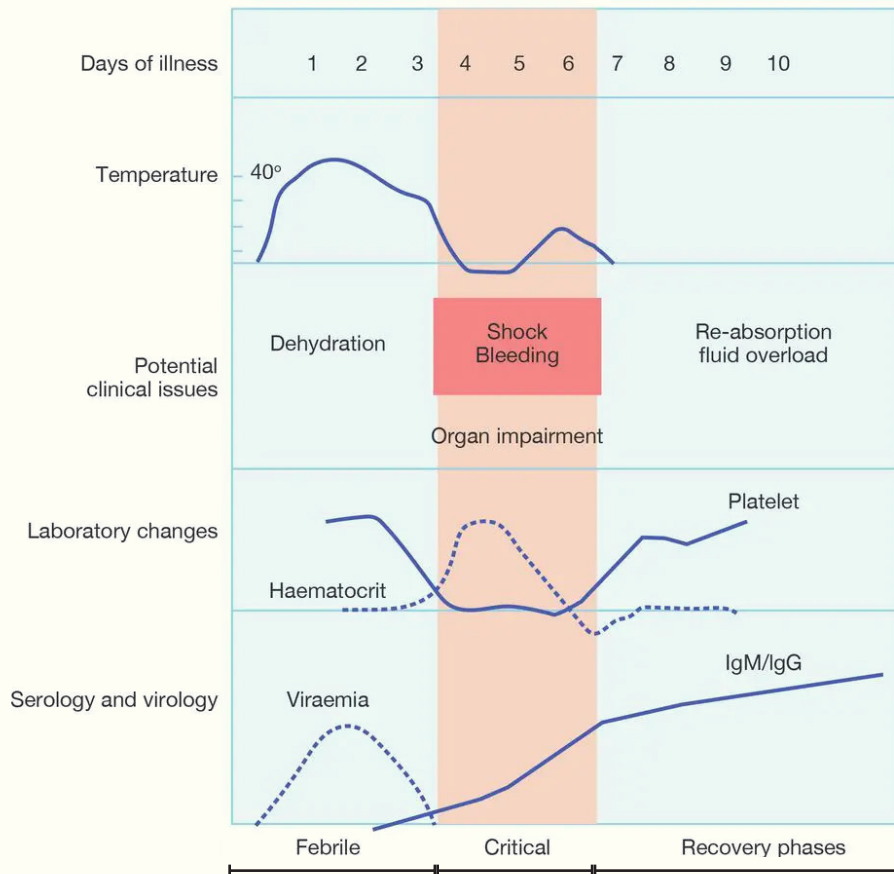
Dengue

00:37:02

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- Organism : Flavi virus.
- Vector : Aedes.

Course of illness :



- Retro-orbital pain
- Break bone fever
- NS Ag : +ve

Antibody dependent enhancement (ADE) :

- Day 5 : Check for platelets
- Severe dengue :
- Significant thrombocytopenia : <30,000 platelet
 - Capillary leak : ↑ Hematocrit, IVC collapsability
 - Organ failure : Derranged LFT, disorientation
- mx : IVF
- Stable BP : 5-10 mL/kg/hr
 - unstable BP : 15-20 ml/kg bolus added, ICU

Annexure :

Transfusion when platelets :

- <10,000.
- <20,000 + bleeding/symptoms.

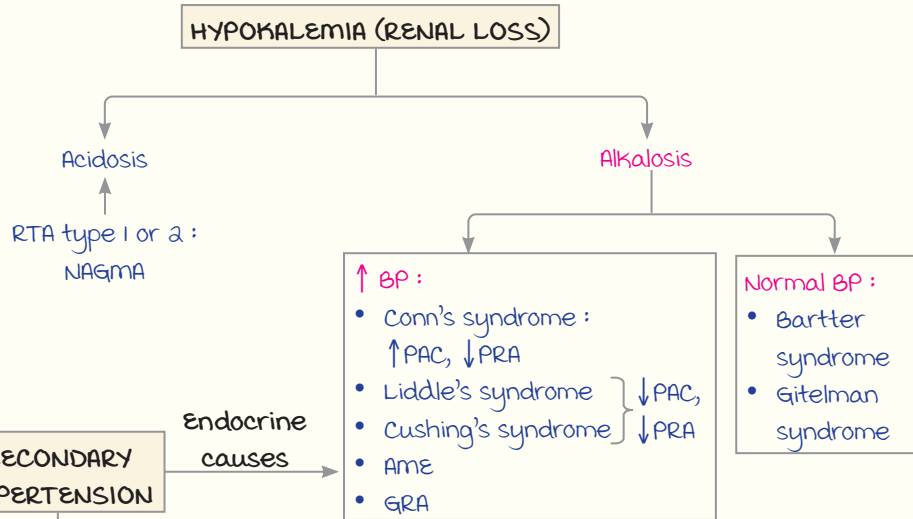
Hematocrit : most important prognostic factor.

INTEGRATED MEDICINE : PART 6

Metabolic Alkalosis with Hypertension

00:00:30

Note :
 Causes of HAGMA :
 • DKA
 • Starvation ketoacidosis
 • Alcoholic ketoacidosis
 • Ethylene glycol poisoning
 • Uremic acidosis
 • Salicylate toxicity



Renal causes
 • RAAS (m/c)
 • TMA
 • Chronic glomerulonephritis

SECONDARY HYPERTENSION

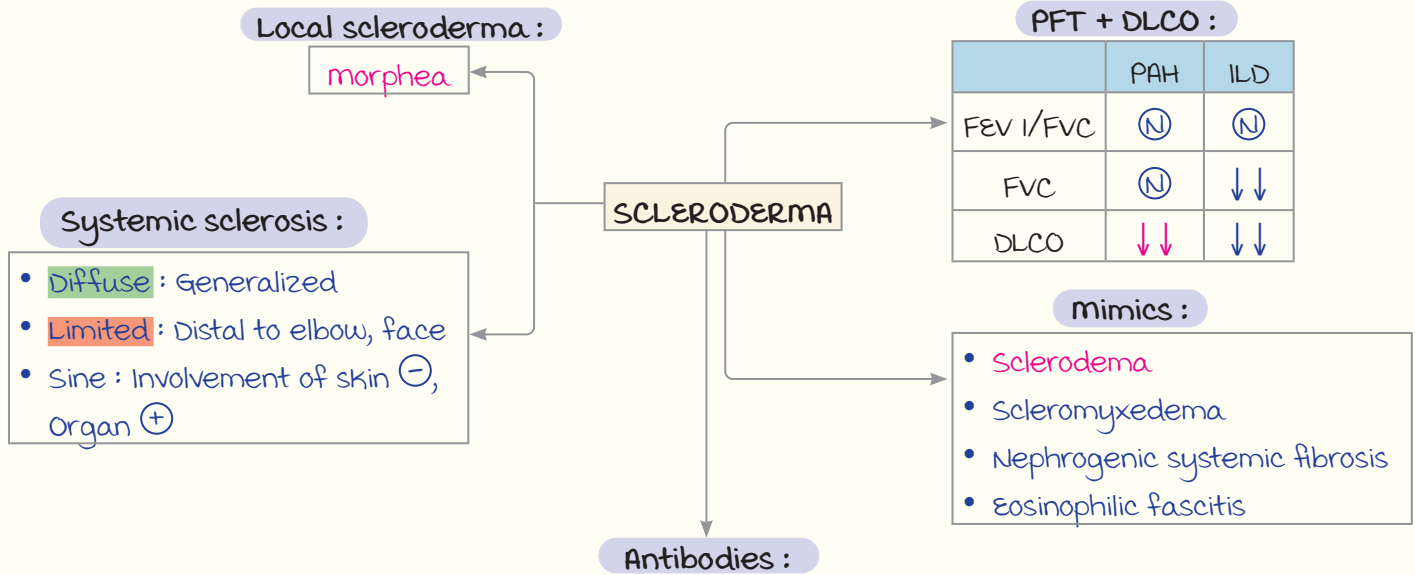
Endocrine causes

• Hypertension in young } Always secondary hypertension,
 • Hypertensive emergency } unless proven otherwise
 • Secondary hypertension will have renal/endocrine causes

Scleroderma

00:09:40

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Ab	Conditions
Anti Scl 70/ Anti topoisomerase I	<ul style="list-style-type: none"> Risk for NSIP/ILD Restrictive cardiomyopathy Tendon friction rubs Renal TMA
Anti RNA Polymerase 3	<ul style="list-style-type: none"> most specific for renal involvement (Scleroderma renal crisis : SRC) Rapidly progressing skin lesions/contractures malignancy Gastric antro vascular ectasia (GAVE) : Watermelon stomach
Anti centromere Ab	<p>CREST :</p> <ul style="list-style-type: none"> Calcinosis Raynauds : Long standing, critical limb ischemia Esophagitis : <ul style="list-style-type: none"> ↓ LES tone ↓ motility : Small intestinal bacterial overgrowth Sclerodactyly Telangiectasia : Risk for pulmonary artery hypertension
Anti Pm. Scl 70 (Associated Ab)	<p>Polymyositis scleroderma overlap</p> <ul style="list-style-type: none"> ↑ Risk of ILD Indirect IF : Nucleolar pattern
Anti Ku (Associated Ab)	-

CURB 65

00:21:10

Score :

- CURB 65**
- Confusion
 - Urea >7 mmol/L (BUN ≥21 mg/dL or blood urea ≥42 mg/dL)
 - Respiratory rate >30/minute
 - BP <90/60 mmHg
 - Age : 65 years

CURB 65

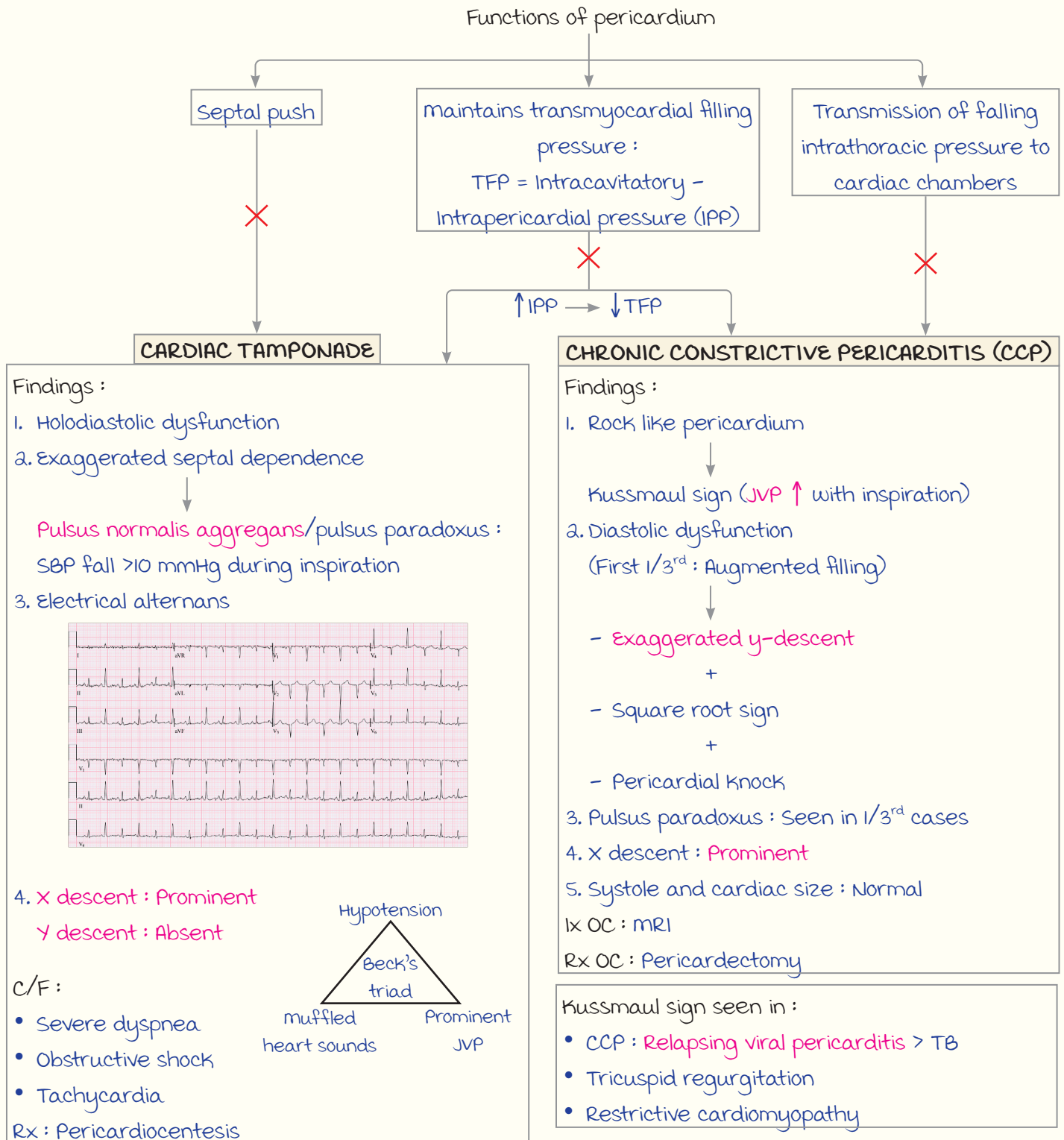
management :

Score	0-1	2	3
mortality	< 3%	>9-10%	>9-10%
Hospital admission	Not mandatory	Required	ICU admission
Rx	<ul style="list-style-type: none"> • Amoxicillin 1 g TDS + Azithromycin 500 mg on D1 <li style="margin-left: 40px;">↓ f/b <li style="margin-left: 40px;">250 mg on D2-5 • Comorbidities/resistance (+) : Amoxiclav 625 mg TDS + Azithromycin 	<ul style="list-style-type: none"> • BL+ BLI (Ampicillin sulbactam/ Piperacillin tazobactam) + macrolide (Azithro 500 mg OD / Clarithro 500 mg BD) • or Levofloxacin 750mg OD 	<ul style="list-style-type: none"> • BL + BLI + macrolide or BL+BLI + Levofloxacin

Cardiac Tamponade v/s CCP

00:30:28

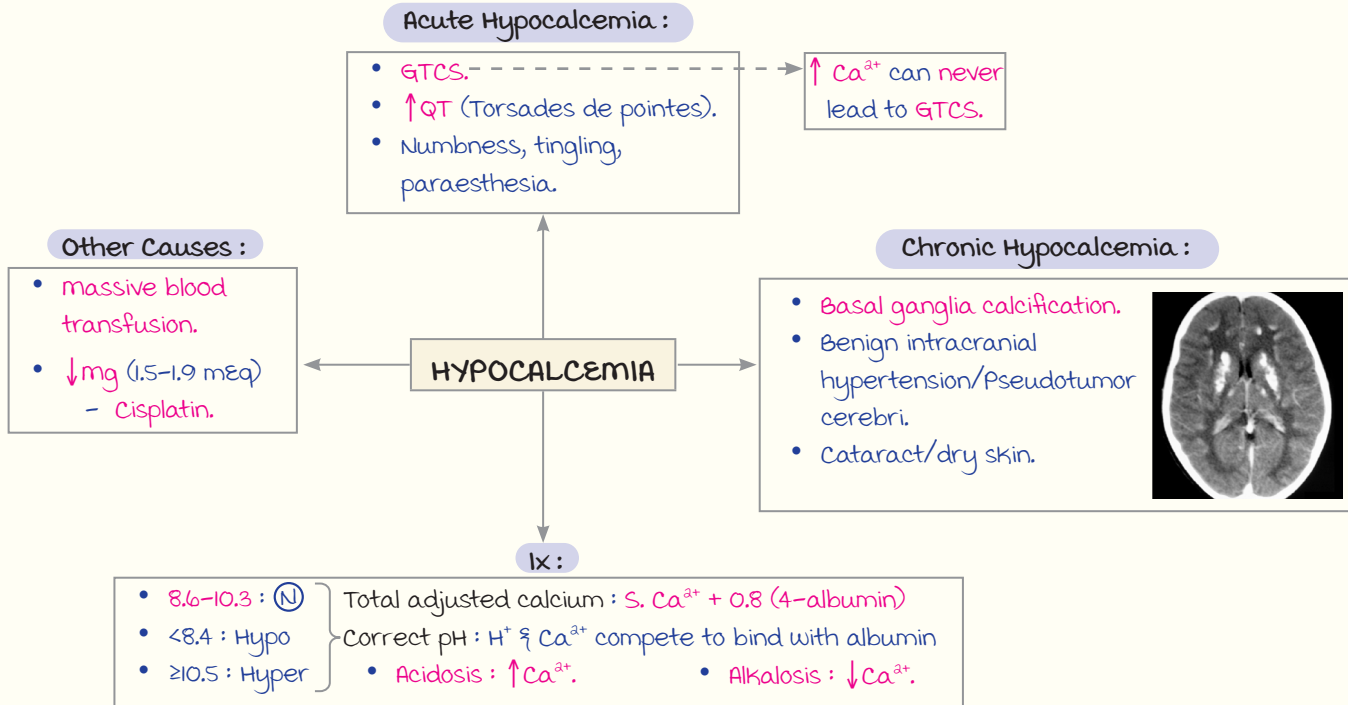
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INTEGRATED MEDICINE : PART 7

Calcium, Phosphorus and PTH Abnormalities

00:00:30



Annexure :

Polyglandular autoimmune syndrome/Autoendocrine polyendocrine syndrome type I :

- Graves > Hashimoto's disease.
- Hypoparathyroidism.
- Addison's disease.
- T₁DM.
- **APECED** gene mutation :
 - A/w recurrent candidiasis.
 - Ectodermal dystrophy (Skin, nail changes).

Knuckle (K) & Dimple (D) :

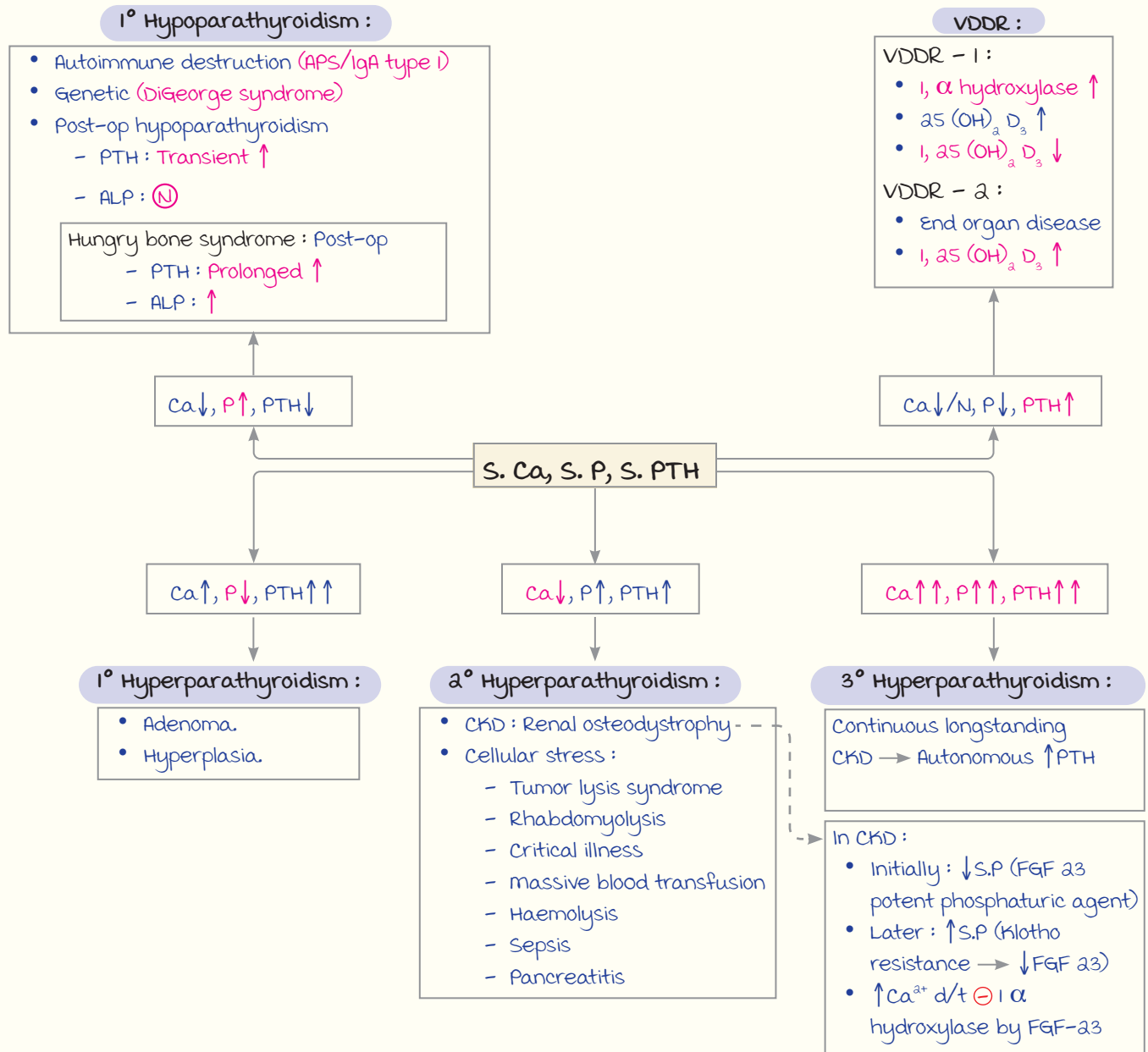
- K K D D : Pseudohypoparathyroidism.
- K D K K : Down's syndrome.
- K K D K : Turner's syndrome.

- Ca : 2.5 mmol/L = 5 meq/L = 10 mg/dL.
- mg : 1 mmol/L = 2 meq/L = 2.4 mg/dL.
- S. Phosphorus : 2.5-4.5 mg/dL.
- S. PTH : 50-100 pg/mL.

Parathyroid

00:15:10

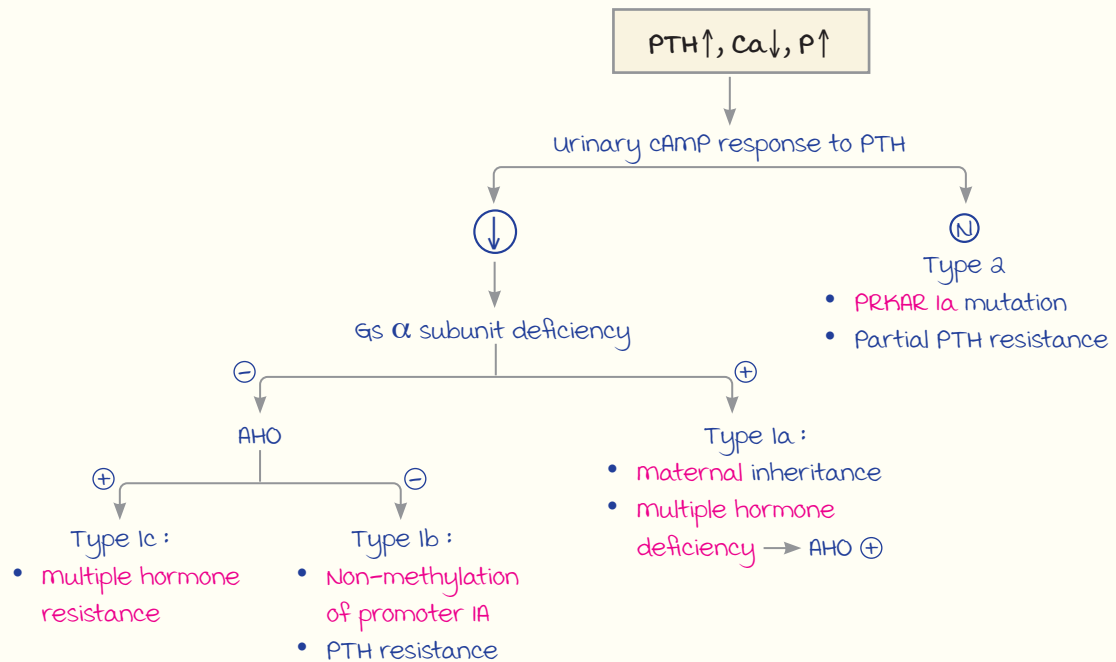
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Pseudohypoparathyroidism

00:24:40



Pseudopseudohypoparathyroidism :

- Genomic imprinting, **paternal inheritance.**
- **Gs α subunit deficiency (\oplus).**
- **AHO (\oplus).**
- **Biochemically : Normal.**

Albright's hereditary osteodystrophy (AHO) :

Bone mineral changes :

- Short stature.
- Round facies.
- mental retardation.
- Short $4^{th} > 5^{th}$, **metacarpal** $>$ metatarsal.

Albright's rule : $\uparrow Ca^{2+}$ + palpable mass \rightarrow Indicates parathyroid malignancy.

Note :

Hashimoto : Anti-TSHrAb $<$ Anti-Thyroglobulin $<$ **Anti-TPO.**

Total $T_3, T_4 \uparrow$: Euthyroid hyperthyroxinemia.

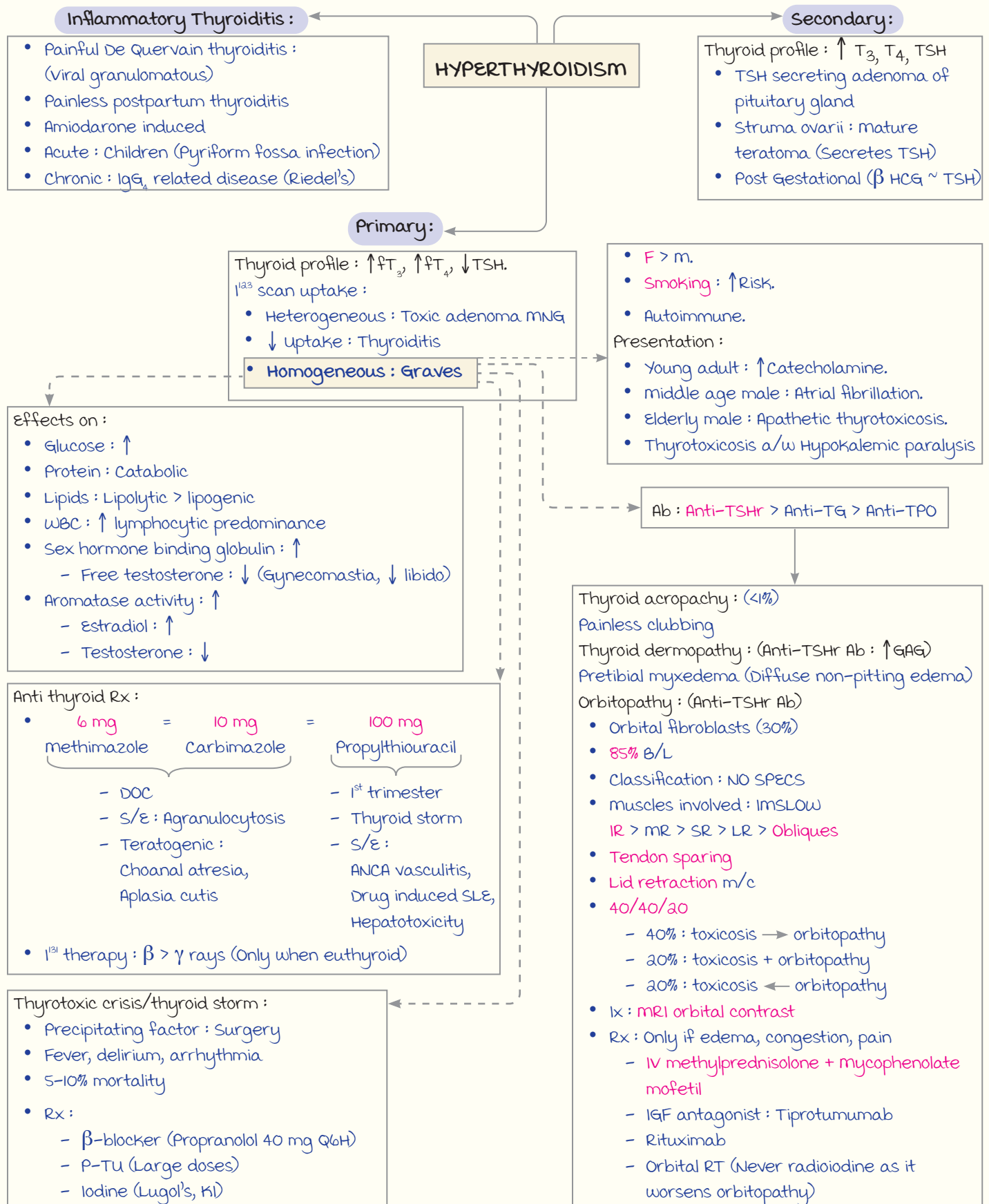
\uparrow TSH conditions :

- 2° hyperthyroidism.
- 1° hypothyroidism.
- T_3, T_4 resistance.

Grave's Disease

00:34:58

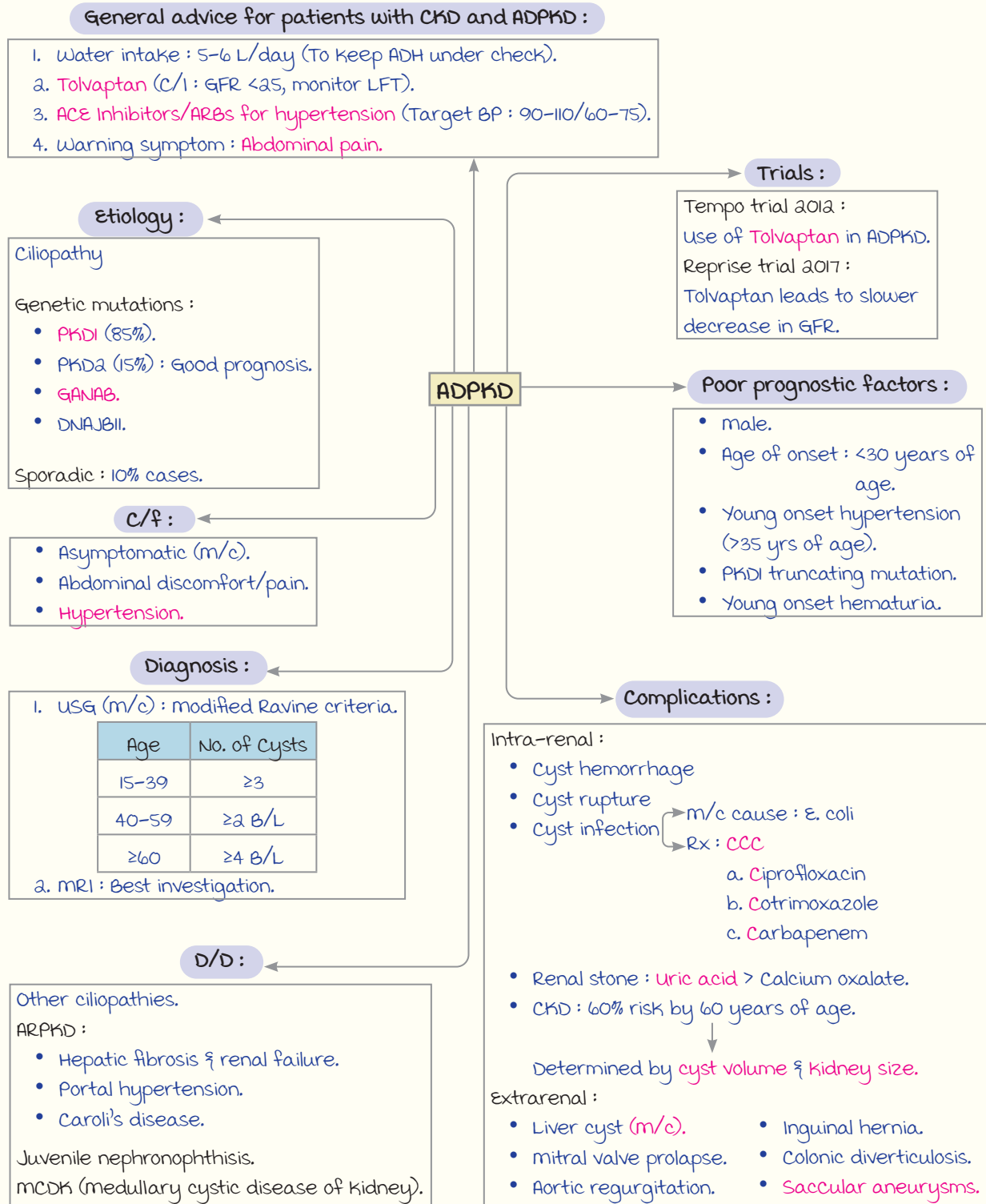
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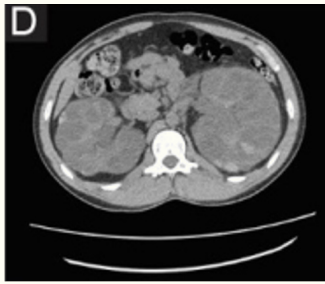


INTEGRATED MEDICINE : PART 8

Autosomal Dominant Polycystic Kidney Disease (ADPKD)

00:00:05





Renal cysts



Hepatic cysts

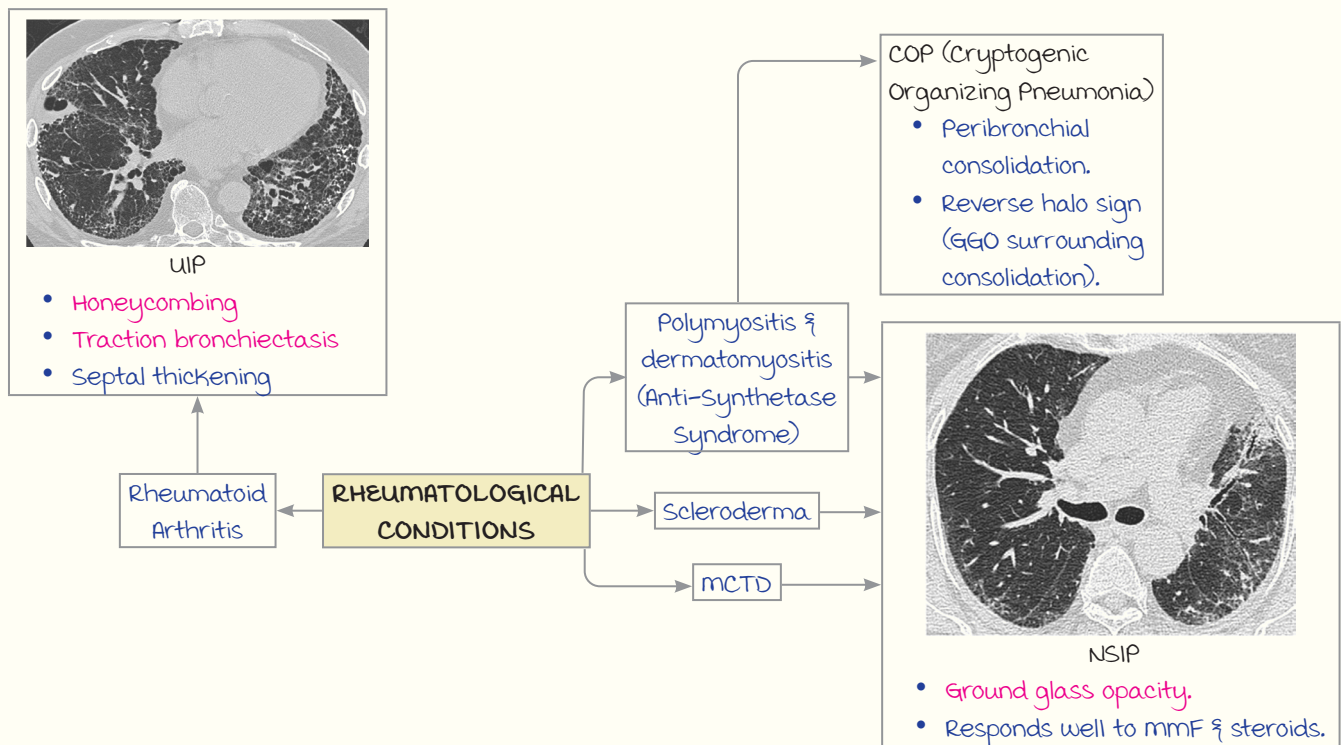


Seminal vesicle cysts :
Cause of male infertility

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Respiratory Manifestations in Rheumatology

00:11:00



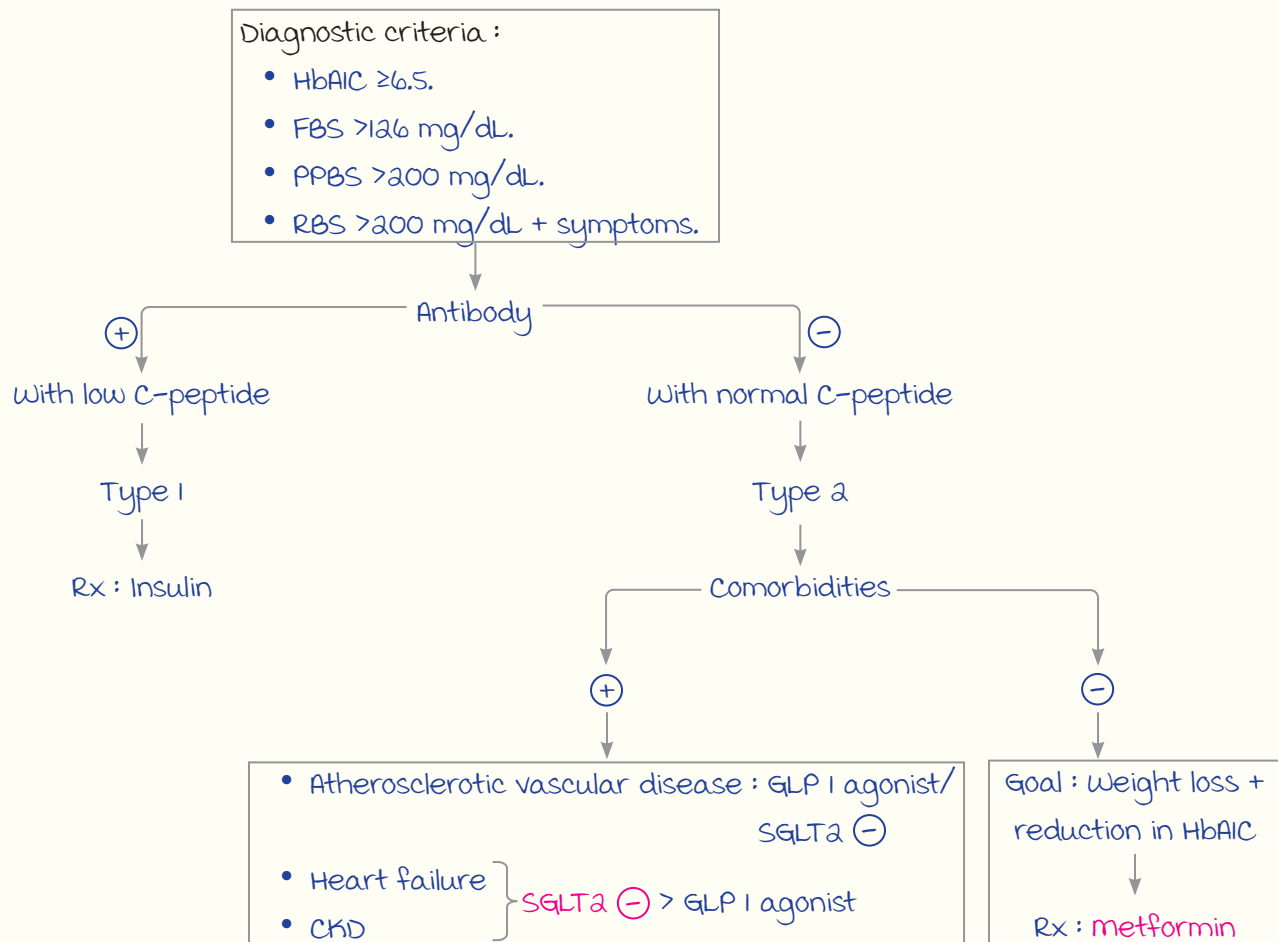
Annexure :

- LIP (Lymphocytic interstitial pneumonia) : ↑ Cystic lesions.
 - HIV.
 - Sjögren's syndrome.
- Sarcoid, ankylosing spondylitis : upper lobe ILD.
- Smoking is a risk factor in ILD with :
 - Langerhans cell histiocytosis.
 - Respiratory bronchiolitis.
 - DIP.
 - RA.

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Comorbidity Driven Management of Diabetes

00:16:54

**Annexure :**

1. Reserve options :

- Gliptins : Nominal HbA1C reduction, cardiac/renal neutral, weight gain neutral, no hypoglycemia.
- Gliclazide : Anti-platelet, anti-thrombotic.

2. Tirzepatide : Dual GIP & GLP-1 agonist.

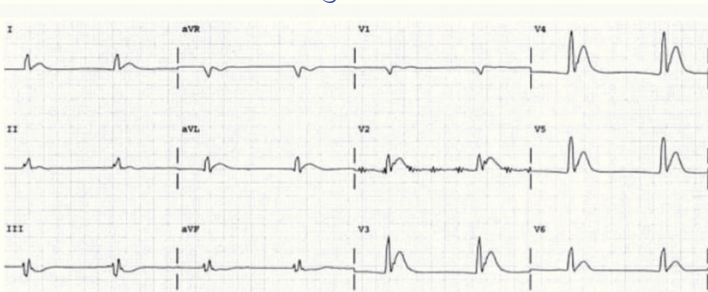
Hypercalcemia

00:26:46

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Clinical features :

- myopathy/myalgia.
- Renal stones, recurrent UTI, hematuria.
- Abdominal pain.
- Psychotic symptoms.
- Fatigue.
- ECG : ↓QT interval, arrhythmias.



Response to hypercalcemia :

Calcium sensing receptor

- ↳ Immediate action : Inhibit parathyroid gland.
- ↳ Delayed action : Hypercalciuria (>4 mg/kg/24 hrs).

HYPERCALCEMIA

Etiology :

- Genetic mutations :
 - Familial Hypocalcemic hypercalcemia (FHH) : LOF mutation of Ca^{2+} sensing receptor.
 - Type 5 Bartter (Hypocalcemic hypercalciuria) : GOF mutation of Ca^{2+} sensing receptor.
- ↑PTH (>20-35 pg/mL) :
 - Adenoma > Hyperplasia > Carcinoma
 - Hyperplasia → MEN I syndrome
 - Carcinoma → HPT-JT syndrome : Parafibromin (CDC 73) (MEN1 Syndrome)
- Drugs : Lithium (↑ Ca^{2+} , ↑PTH).
- PTH-rp related paraneoplastic hypercalcemia : SCC (↓↓PTH).
- Hypervitaminosis : ↑ $25(OH)D_3$, ↑ $1,25(OH)_2D_3$ (Sarcoidosis/lymphoma).
- Osteolytic metastasis : multiple myeloma (Anemia, ↑ESR, ↑protein:creatinine, renal failure)
- Miscellaneous causes :
 - Thiazides
 - milk alkali syndrome
 - Pheochromocytoma
 - Addison's
 - Thyrotoxicosis
 - Acromegaly

Note :

Sarcoidosis/lymphoma : Only $1,25(OH)_2D_3$ ↑.