Deceleration injury to the aorta

Damages the isthmus of aorta (connection between ascending/descending aorta after the L subclavian aka 3rd branch off of the aorta)

Genetic causes of Down's Syndrome

95%: Trisomy 21
2-3%: Roberstonian translocation: extra part of 21 on a normal 21
Other: Mosaicism
Uniparental disomy is when two copies from same parent to the child -> hydatidiform mole

Cause of Left sided varicocele

Backlog of blood in L testis = blockage of L testicular vein or L renal vein via thrombosis

S. aureus + hepatic abscess

S. aureus can hematogenously seed into the liver to cause a hepatic abscess

Zenker's diverticulum

Dysphagia, chocking, aspiration pneumonia
Upper part of esophagus (vs middle due to traction diverticula caused by esophageal scarring)
False diverticulum (vs traction diverticula which is true)

Acute atrial fibrillation

Starts acutely -> decrease LV preload + acute pulmonary congestion

Carotid baroreceptors

BP/carotid massage -> increases baroreceptor firing -> increase PS and dec S

Empysema pathogenesis

Oxidative injury via smoke is chemotactic to neutrophils -> elastase release -> damage

Adenovirus disease in kids

Self-limiting pharyngitis, conjunctivitis and cervical lymphadenopathy

Jaundice Causes and Bilirubin Values

Type	Hyperbilirubinemia	Urine bilirubin	Urine urobilinogen
Hepatic injury	Direct/indirect	Increased	Decreased/ Normal
Obstruction	Direct	Increased	Decreased
Hemolysis	Indirect	Decreased	Increased

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Ludwig's Angina

Caused by streptococcus + Eikenella causing cellulitis involving submandibular/lingual space

Acalculous cholecystitis

Found in hospitalized individuals (not associated with gall stones) and presents with fever and RUQ pain

Anti-hepatitis virus IgG failure

Due to antigenic variation in envelope proteins of hepatitis viruses

Hepatitis A clinical course

Hepatitis A is an oral-fecal transmitted disease associated with developing countries that can present as an anicteric disease in children. In adults, it presents more like a normal acute hepatitis. IgM antibodies signify active infection while IgG signify recovery. It is a self limiting disease that does not cause chronic hepatitis, cirrhosis.

Formation of cholesterol gall stones

Cholesterol gall stones are formed from 1) increased cholesterol levels and 2) decreased bile salt levels. The decreased amphiphatic bile salt levels prevents detergent like solubilization of cholesterol

Cataract formation in galactosemia

Classic galactosemia is caused by a deficiency of galactokinase, preventing galactose metabolism. Excess galactose is metabolized via aldol reductase to galactitol which accumulates to form cataracts

Carnitine Deficiency

Carnitine is used in the enzyme CAT I and II, to shuttle acyl-CoA produced from FAO into the mitochondrial matrix for conversion into acetyl-CoA. Therefore a carnitine deficiency will decrease levels of acetyl-CoA downstream products (TCA cycle and ketogenesis). This presents with: myoglobinemia, weakness after exercise, elevated muscle TGs, and hypoketonemia.

Acyl-CoA dehydrogenase deficiency

Acyl-Coa dehydrogenase converts the shuttled acyl-Coa from FAO into acetyl-Coa in the mitochondrial matrix. Deficiency presents with hypoglycemia and hypoketonemia.

Hepatitis D virus

This delta virus can only infect with hepatitis B. This is because it needs to be coated by HBsAg.

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Hepatitis C virus
Hepatitis C causes chronic hepatitis in > 70% of cases

Enzymes in the cytosol

Of the urea cycle, only ornithine transcarbamoylase and carbamoyl phosphate synthetase are in the mitochondria. Transketolase is part of the pentose phosphate pathway and is in the cytosol.

Primary biliary cirrhosis

This is an autoimmune disease first presenting with pruritis and later with pale stools and xanthlasmas. It is due to autoimmune destruction of intralobular bile ducts w/ lymphocytic invasion and granulomatous inflammation.

Thiamine as a cofactor

Thiamine deficiency will lead to inhibition of the pyruvate dehydrogenase complex and the alpha ketoglutarate dehydrogenase complex as it has similar cofactor activities in each.

Metastatic liver cancer

Metastatic liver cancer often presents with multiple, well circumscribed nodules in the liver. The most common causes are: lung, GI, and breast.

Cori's disease

Cori's disease is a glycogen storage disease that is due to a defective debranching enzyme. It presents with similar symptoms as other glycogen storage diseases: hypoglycemia, hypertriglyceridemia, ketoacidosis, and hepatomegaly but is differentiated due to accumulation of dextrin like molecules in hepatic cytosol.

Herpes virus envelope

All herpes viruses have an envelope that is derived from host nuclear membrane.

Hepatitis B histology

Hepatitis B infection presents with ballooning hepatocytes with eosinophilic granular molecules (HBsAg) that gives a ground glass appearance

Gall bladder contraction

GB contraction is caused by CCK. Progesterone decreases response to CCK and this can cause biliary sludge, a precursor to gallstones.

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