GASTROENTEROLOGY
AN APPROACH TO PROLONGED JAUNDICE

HISTORY

- DURATION OF JAUNDICE
- COLOUR OF URINE
- COLOUR OF STOOLS
- FAILURE TO THRIVE
- SWELLING
- ITCHING
- FAMILY HISTORY OF E.G. METABOLIC OR HEPATIC DISEASE
- EXPOSURE HISTORY (E.G. TOXINS, DRUGS, AND INFECTIOUS AGENTS)
YELLOW DISCOLOURATION OF SKIN, SCLERA AND MUCOUS MEMBRANES
HEPATOMEGALY
HEPATOSPLENOMEGALY
DARK URINE
PALE OR YELLOW STOOLS
FAILURE TO THRIVE
SIGNS OF CHRONIC LIVER DISEASE I.E. CLUBBING, EASY BRUISING, ASCITES
SIGNS OF CONGENITAL INFECTION E.G. CATARACTS, MICROCEPHALY, RASHES
DYSMORPHIC FEATURES
JAUNDICE

- CONJUGATED HYPERBILIRUBINAEMIA
- UNCONJUGATED HYPERBILIRUBINAEMIA
UNCONJUGATED HYPERBILIRUBINEMIA

HAEMOLYSIS & RETICULOCYTOSIS

- COOMB’S POS
  - ABO INCOMPATIBILITY
  - RH INCOMPATIBILITY
  - AUTOIMMUNE
  - SLE
  - DRUG INDUCED
  - IDIOPATHIC, ACQUIRED

- COOMB’S NEG
  - G6PD DEFICIENCY
  - SICKLE CELL DISEASE
  - RBC MEMBRANE DEFECT (SPHEROCYTOSIS)
  - HUS
  - WILSON’S DISEASE

NO HAEMOLYSIS

- PHYSIOLOGICAL JAUNDICE OF THE NEWBORN
- BREASTMILK JAUNDICE
- HYPOTHYROIDISM
- INTERNAL HAEMORRHAGE
- PYLORIC STENOSIS
- GILBERT SYNDROME
- CRIGLER NAJJAR
CONJUGATED HYPERBILIRUBINAEMIA

- OBSTRUCTIVE
- INFECTIVE
- METABOLIC
- TOXIC
- IDIOPATHIC
- AUTOIMMUNE
OBSTRUCTIVE

- BILIARY ATRESIA
- CHOLEDOCAL CYST
- CHOLELITHIASIS
- BILE DUCT STENOSIS
- TUMOUR/NEOPLASM
- SPONTANEOUS BILE DUCT PERFORATION
- BILE MUCOUS PLUG
BILIARY ATRESIA

Typ 1: 3%
Typ 2: 6%
Typ 3: 19%
Typ 4: 72%
CHOLEDODHAL CYST

Normal

Type I

Type II

Type III

Type IV

Type V

Form fruste

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INFECTIOUS

- HEPATITIS A, B, C, D, E, G
- HERPES 1, 2, 6
- CYTOMEGALOVIRUS
- EPSTEIN BARR VIRUS
- MEASLES
- VARICELLA
- COXSACKIE VIRUS
- ECHO VIRUS
- PARAMYXOVIRUS
- HUMAN PARVOVIRUS B19
- TOXOPLASMOSIS
- SYPHILIS

- BACTERIAL SEPSIS (UTI)- GRAM NEG
- CHOLECYSTISIS
- LEPTOSPIROSIS
* GALACTOSAEMIA
* CYSTIC FIBROSIS
* ALPHA – 1 ANTITRYPSIN DEFICIENCY
* NIEMANN PICK DISEASE
* WILSON’S DISEASE
* MITOCHONDRIAL LIVER DISEASE
* GAUCHERS DISEASE
* TYROSINAEMIA
* FRUCTOSAEMIA
* GESTATIONAL ALLOIMMUNE DISEASE
* ZELLEWGER SYNDROME
* WOLMAN DISEASE
* DEFECTS IN BILE ACID SYNTHESIS
TOXIC

- TPN
- ACETAMINOPHEN
- ISONIAZID
- RIFAMPICIN
- HAART
- SALICYLATES
- IRON
- VALPROIC ACID
- PHENYTOIN
- OESTRADIOL
- METHYLDOPA
- HALOTHANE
- CYCLOPHOSPHAMIDE
- VOLATILE HYDROCARBONS
- HERBALS TEAS
- POISONOUS MUSHROOMS
IDIOPATHIC NEONATAL HEPATITIS
ALAGILLE’S SYNDROME
NON-SYNDROMIC PAUCITY OF INTRAHEPATIC BILE DUCTS
PROGRESSIVE FAMILIAL INTRAHEPATIC CHOLESTASIS
FAMILIAL BENIGN RECURRENT CHOLESTASIS
CHOLESTASIS WITH HYPOPITUITARISM
LYMPHOEDEMA WITH CHOLESTASIS (AAGENAES SYNDROME)
HAEMOPHAGOCYTIC LYMPHOHISTIOCYTOSIS
FAMILIAL HAEMOPHAGOCYTIC LYMPHOHISTIOCYTOSIS
AUTOIMMUNE

- AUTOIMMUNE HEPATITIS
- SCLEROSING CHOLANGITIS
- OVERLAP
- GRAFT VS HOST DISEASE
INVESTIGATIONS

* TOTAL BILIRUBIN, CONJUGATED BILIRUBIN
* LIVER FUNCTIONS
* FULL BLOOD COUNT
* PERIPHERAL BLOOD SMEAR
* CLOTTING
* BLOOD GROUP
* COOMBS TEST
* HEPATITIS SCREEN, TORCH, VDRL, CMV, EBV, HIV
* ALPHA-1- ANTITRYPSIN
* THYROID FUNCTION TESTS
* COPPER, CAERULOPLASMIN, 24 HR URINARY COPPER
* PROTEIN ELECTROPHORESIS
* ANA, ALK, ASMA, ANCA, ANTI-SSDNA
URINE

* BILIRUBIN +VE - CONJUGATED HYPERBILIRUBINAEMIA
* BILIRUBIN –VE - UNCONJUGATED HYPERBILIRUBINAEMIA
* EXCLUDE UTI
* REDUCING SUBSTANCES
* AMINO AND ORGANIC ACIDS
INVESTIGATIONS

- STOOL – “BAKKIE TEST” FOR A LEAST 3 DAYS
- ACHOLIC STOOLS – TOTAL BILIARY OBSTRUCTION
- PIGMENTED STOOLS – BILE DRAINAGE

- ULTRASOUND ABDOMEN – NORMAL ULTRASOUND DOES NOT EXCLUDE BILIARY ATRESIA
INVESTIGATIONS

- NUCLEAR MEDICINE SCANS
- MERBROFININ- EXCRETION OF BILE
- COLLOID - UPTAKE BY RETICULOENDOTHEIAL SYSTEM
- LIVER BIOPSY
- INTRA-OPERATIVE CHOLANGIOGRAM
TREATMENT

- ANTIBIOTIC TREATMENT FOR SEPSIS - CEFOTAXIME AND NOT CEFTRIAXONE
- SURGERY FOR BILIARY ATRESIA AND CHOLEDOTAL CYST, PORTOENTEROSTOMY (KASAI) FOR BILIARY ATRESIA BEFORE 3 MONTHS OF AGE.
- GALACTOSE FREE DIET FOR GALACTOSSAEMIA
- THYROID REPLACEMENT THERAPY
- GANCYCLOVIR FOR CMV AND EBV
- URSODEOXYCHOLIC ACID FOR CF, IDIOPATHIC, TPN AND POST KASAI
- CHRONIC LIVER DISEASE - FAT-SOLUBLE VITAMIN REPLACEMENT
  - DIETARY INTERVENTION EARLY ON
  - VACCINATIONS
  - CLOSE FOLLOW-UP
1. INFLAMMATION: Abnormal liver function tests

* 1.1 Infection
  1.1.1 Neonatal and Congenital: CMV, herpes simplex virus, toxo, rubella, syphilis, listeriosis
  1.1.2 Viral hepatitis: EBV, HIV
  1.1.3 Parasitic infection: Hydatid dx, amoebiasis, biharzia
  1.1.4 Fungal: histoplasmosis/coccidomycosis

* 1.2 Autoimmune hepatitis
* 1.3 Toxic and drug interactions
* 1.4 Biliary tract obstruction
2. RETICULOENDOTHELIAL HYPERPLASIA: (Kupffer cells comprise 10% of the normal liver). Blood cultures, CXR and biopsy may be needed.

2.1 Septicaemia

2.2 Malignant disease: lymphoma, leukaemia,
neuroblastoma, Langerhans cell histiocytosis,
haemophagocytic lymphohistiocytosis (HLH)

2.3 Granulomatous response e.g. TB
3. VENOUS CONGESTION

3.1 Congestive heart failure
3.2 Pericardial effusion or constrictive pericarditis
3.3 Budd Chiari
3.4 IVC valves
4. SPACE OCCUPYING LESIONS: abscess,
primary and secondary neoplasms

5. INFILTRATIONS

5.1 Lymphoma
5.2 Leukaemia
5.3 Histiocytosis syndrome
5.4 Connective tissue disorders
5.5 Sarcoid, Amyloidosis
6. STORAGE DISORDERS

6.1 Carbohydrate storage dx:
   Glycogen storage dx, galactossaemia

6.2 Mucopolysaccharidosis

6.3 Lipid: Gauchers, Niemann Pick,
   Tay Sachs

6.4 Tyrosinaemia
7. FAT ACCUMULATION

7.1 Malnutrition
7.2 Hyperalimentation
7.3 Cystic Fibrosis
7.4 Galactosaemia
7.5 Uncontrolled Diabetes Mellitus: Mauriac Syndrome
7.6 Hepatotoxic drugs
7.7 Reyes Syndrome