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Problem solving

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## A-Lissauer's Cases

### ***1-Antenatal diagnosis***

***(Page 126)***

-A routine ultrasound scan at 15 weeks gestation indentified the following:

- .Lemon-shaped skull
  - .Abnormal appearance of the cerebellum
  - i.e (Arnold-chiari malformation associated with spina bifida)
  - .An extensive spinal defect
  - .Dilatation of the ventricles and talipes(indicates sever spinal lesion)
- After counseling the parents,they decided to terminate delivery



*Transverse section showing a 'lemon-shaped' skull on ultrasound instead of the normal oval shape. This is associated with spina bifida.*

### **Take Care**

-There are few conditions where therapy can be given to the fetus directly:

#### **1-Rhesus isoimmunization:**

-severly affected fetuses who became anemic and may develop hydrops fetalis+ascites+edema

-Identification of infants who are at risk:

- .Maternal antibody screening
- .Regular ultrasound of fetus to detect hydrops
- .Non invasive Doppler velocimetry of middle cerebral artery( to detect anemia)

-Management:

- .Fetal blood transfusion via umbilical vein from about 20 weeks of gestations
- N.B:Anti D immunization of mothers(-- incidence of rhesus hemolytic disease)

#### **2-prinatal isoimmune thrombocytopenia:**

-A rare condition affecting 1 in 5000 births,it is analogous to rhesus isoimmunization but involves maternal anti platelets antibodies crossing the placenta

-ICH secondary to fetal thrombocytopenia occurs in about 25 %

-The problem may be anticipated if there was a previously affected infant and repeated intrauterine platelets transfusion can be then performed

**N.B:Maternal glucocorticoid therapy before preterm delivery markedly reduces morbidity and mortality in the neonate.**

## 2-Microcephaly(growth chart)

( Page 179)

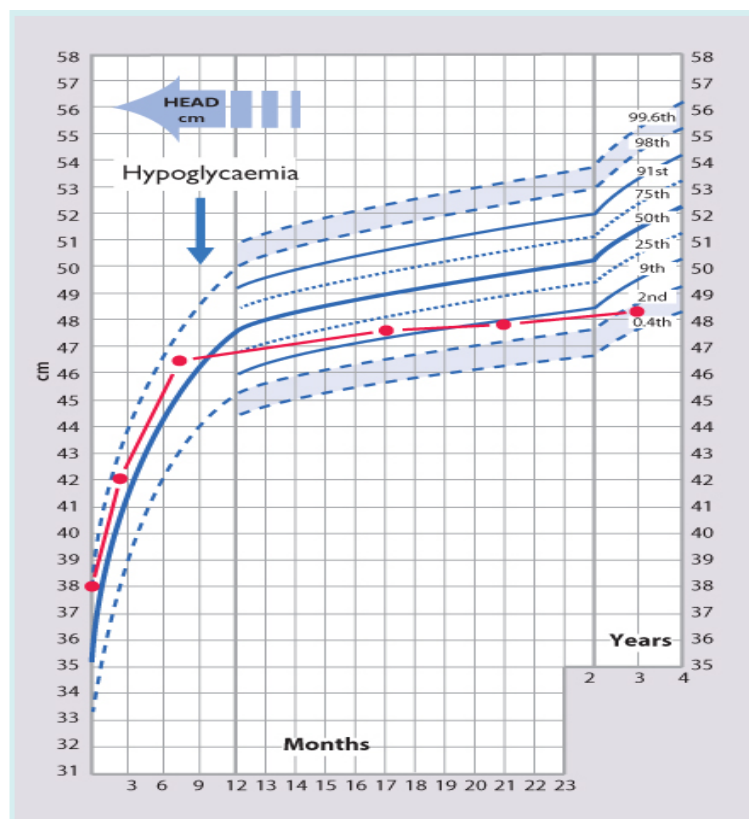
- Growth chart shows the head circumference of a child who was healthy and was developing normal
- At 9 months of age he was admitted to hospital as he was unrousable from hypoglycemia secondary to deliberate administration of insulin by his mother who had diabetes
- Although he was taken into care and had no further hypoglycemic episodes,his head circumference shows cessation of growth
- he had developed moderate learning difficulties and mild cerebral palsy

### -Remember:

### Causes of microcephaly

-A head circumference below the 3<sup>rd</sup>(5<sup>th</sup>) centile, may be:

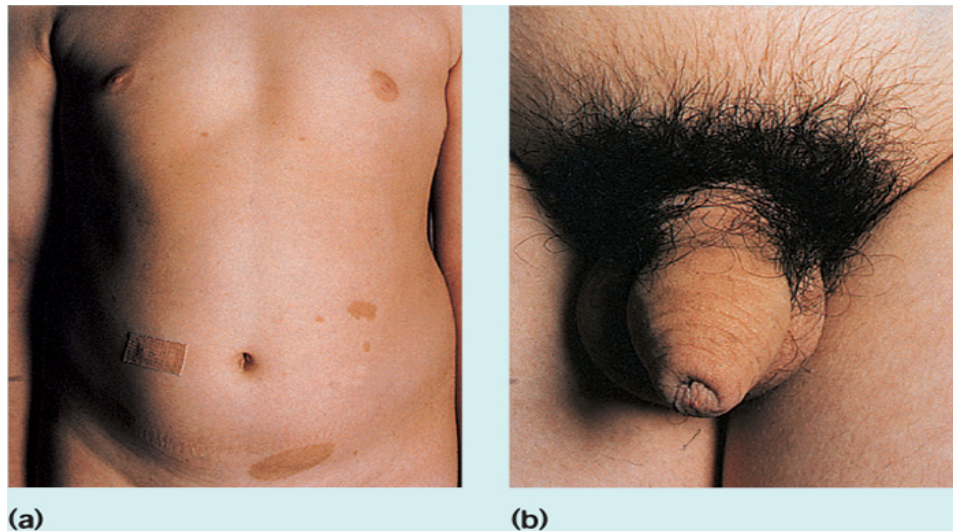
- familial - when it is present from birth and development is often normal
- an autosomal recessive condition - when it is associated with developmental delay
- caused by a congenital infection
- acquired after an insult to the developing brain, e.g. perinatal hypoxia, hypoglycaemia or meningitis, when it is often accompanied by cerebral palsy and seizures



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**3-Precocious puberty in a boy****(page 181)****Clinical Presentation:**

- 6 years old boy presented with precocious puberty
- He was noticed to have café-au-lait spots consistent with a diagnosis of neurofibromatosis type 1
- Genitalia showing stage 3 genitalia and pubic hair with 12 ml testicles bilaterally
- Adult body odour



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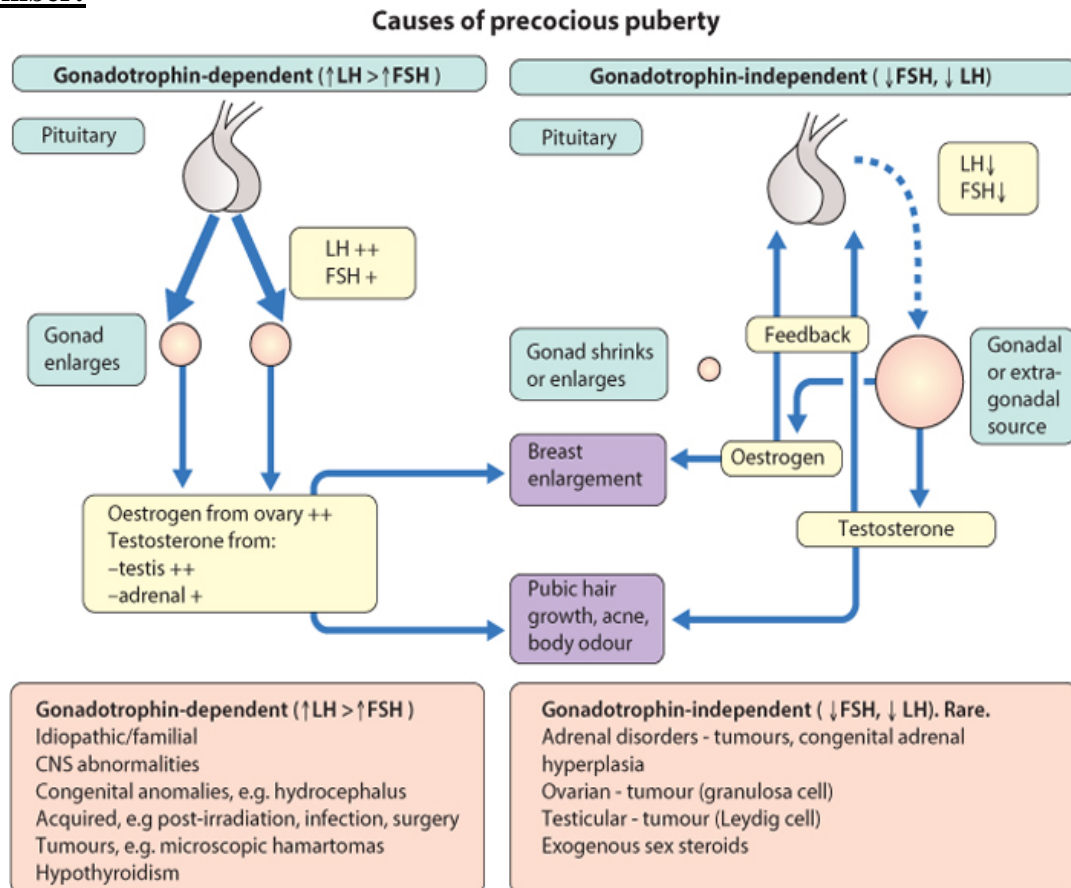
- (a) He has multiple café-au-lait spots. Neurofibromatosis type 1 was diagnosed
- (b) Genitalia showing stage 3 genitalia and pubic hair with 12 ml testicles bilaterally. He also had adult body odour.

**Investigation:**

- An MRI scan:  
showed a mass in the hypothalamus proved to be an optic glioma

**TTT:**

- Radiotherapy:  
(although full remission was not possible to achieve)
- IV Gonadotropin superagonist:  
to suppress his sexual development( site of injection was covered by plaster)

**-Remember:**

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**4-Premature thelarche = Premature breast development****(page 182)****Clinical presentation:**

- 18 months-old female, enlargement of both breasts
- No pubic hair growth, sweatiness or body odour and her height was in the mid-parental range
- bony age was only mildly advanced (21 months)
- Her subsequent growth rate was normal

**Investigations:(not usually required)**

- Pelvis ultrasound

Showed a prepubertal uterus

small volume ovaries with 2 cysts in the left one

**-TTT: no ttt >>>it is non-progressive and self limiting****N.B:**

- This usually affect females between 6 m and 2 y of age
- breast development may be a symmetrical
- it is differentiated from precocious puberty by the absence of pubic and axillary hair and of a growth spurt

**5-Non-organic failure to thrive****(page 196)**

-Jamie, aged 11 months, was causing concern to his health visitor as he was not putting on any weight .

-She arranged for him to be assessed by his general practitioner, who found that he was otherwise well. His mother was a single parent who left school at 16 years and had Jamie at the age of 18

-

-They lived in a high rise flat and Jamie's mother received income support. Her own mother lived on the other side of the city.

-On visiting the home, the health visitor found Jamie's mother to be tense and anxious. In particular, she was worried about making ends meet. She fed Jamie the same food as she ate herself, together with pasteurised milk which she had started at 6 months of age. The meals were chaotic.

- After a few mouthfuls, Jamie stopped eating and his mother did not coax him but became frustrated and angry.

-Jamie's health visitor suggested strategies for increasing Jamie's food intake. She continued to provide support and encouragement to his mother and arranged a nursery placement for Jamie.

-By 2 years of age he had caught up by one centile line, but still ate erratically.

**Strategies to increase food intake:****1-Dietary:**

.3 meals and 2 snacks each day

.increase no.and variety of food

.increase energy density of usual foods(e.g add cheese and cream)

.decrease fluid intake particularly squash

**2-Behavioural:**

.Have meals at regular times,eaten with other family members

.praise when food is eaten

.Gently encourage child to eat,but avoid conflict

.Never force-feed

**6- A case history of nutrition (seizures and rickets)****( page 201)****Presentation:**

-13 months-old boy

-presented with generalized seizures>>>per rectum diazepam

-after 20 mins>>>seizures again>>IV anticonvulsant

- term \_BW>>>3.1kg \_still breast feeding \_weaning starts at 7-8 m \_recently start to sit without support

-weight and head circumference on 2nd-9th centile

-frontal bossing-widened wrist-harrison sulcus-wide ant. fontanelle-rachitic rosary

**Investigations: what do you expect??**

-Ca , .phosphate and vit.D levels>>>>low

- alkaline phosphatase and parathormone levels >>>high
- wrist x-ray>>>clupping
- liver and renal function tests>>>>normal

SO it is a case of nutritional rickets

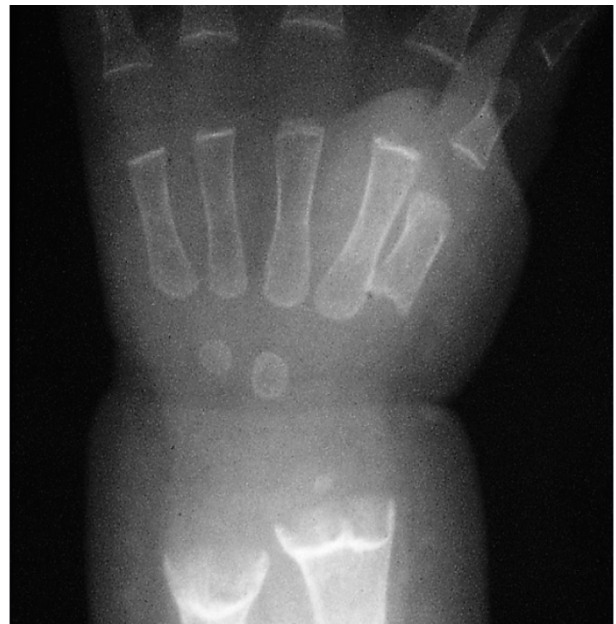
**Management:**

Best managment>>>dietetic( as dietetic history>>>deficient ca and vit.D)  
oral vit.D and sufficient ca and vit.D in diet



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A



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B

- Wrist expansion from rickets
- X-ray of the child's wrist showing rickets. The ends of the radius and ulna are expanded, rarefied and cup-shaped and the bones are poorly mineralised.

## 7-Sever Gastro-oesophageal reflux

page 209

**-Presentation:**

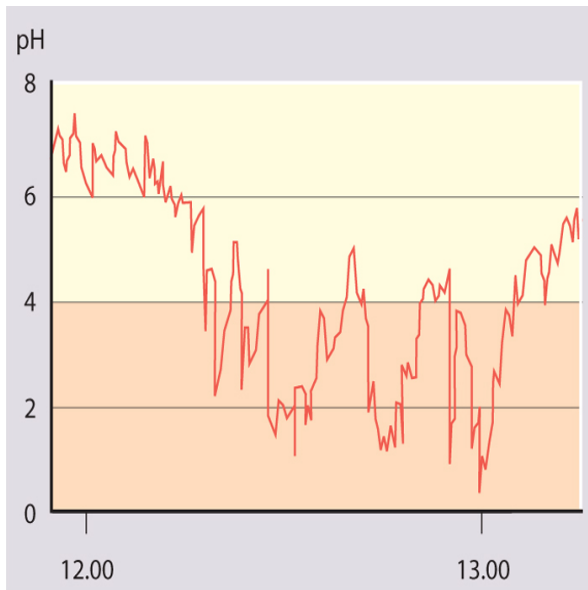
- History of frequent regurgitation from the frirst few days of life
- he developed 2 chest infection,Some of the vomits contained altred blood
- Had episodes of aspiration pneumonia
- Symptoms resolved on TTT
- Her parents commented on how much better he slept by night.

**-Investigations:**

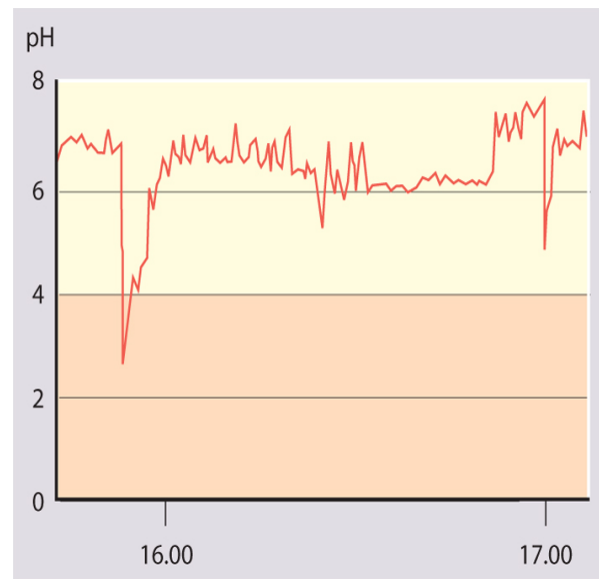
- A 24-hour oesophageal pH study:  
showed sever gastro-oesophageal reflux
- Endoscopy:  
showed oesophagitis

**-TTT:**

- Feeding thickeners and Omeprazole (Symptoms resolved on this ttt).
- ttt was reduced from 14 months of age and symptoms did not recure.



(a)



(b)

- a) Part of the 24-hour oesophageal pH study showing severe reflux, with frequent drops in pH below 4.
- b) Part of a normal oesophageal pH study. The lower oesophageal pH is above 4 for most of the time

### **-Remember:**

#### **Gastro-oesophageal reflux:**

- Physiological, asymptomatic reflux may occur in any child or adult but it is infrequent

-Measurement of lower oesophageal pH shows that in normal individuals there is acidity from reflux of stomach contents for less than 4% of a 24-hour period.

- Reflux occurring more frequently than this results from functional immaturity of the lower oesophageal sphincter leading to episodes of inappropriate relaxation.

- A short intra-abdominal length of oesophagus probably also contributes.

-It is common in the first year of life.

- By 12 months of age, nearly all symptomatic reflux will have resolved spontaneously, presumably due to a combination of maturation of the lower oesophageal sphincter, assumption of an upright posture and more solids in the diet.

-A sliding hiatus hernia is present in some symptomatic infants, but many children with a hiatus hernia are symptom-free.

-occurs in otherwise normal infants, but risk is increased if

neuromuscular problems or surgery to the oesophagus or diaphragm

-is treated if troublesome with upright positioning, feed thickening, medication and sometimes fundoplication

-investigations are performed if complications are suspected.

### Complications of gastroesophageal reflux:

- Pain, bleeding, iron deficiency
- Pulmonary aspiration leading to 'bronchitis' or pneumonia
- Peptic stricture - associated with oesophagitis
- Dystonic movements of head and neck (Sandifer's syndrome)
- Apnoea in preterm infants
- Apparent life-threatening events (ALTEs) or sudden infant death syndrome (SIDS) - controversial

## 8-Classic celiac disease

(page 219)

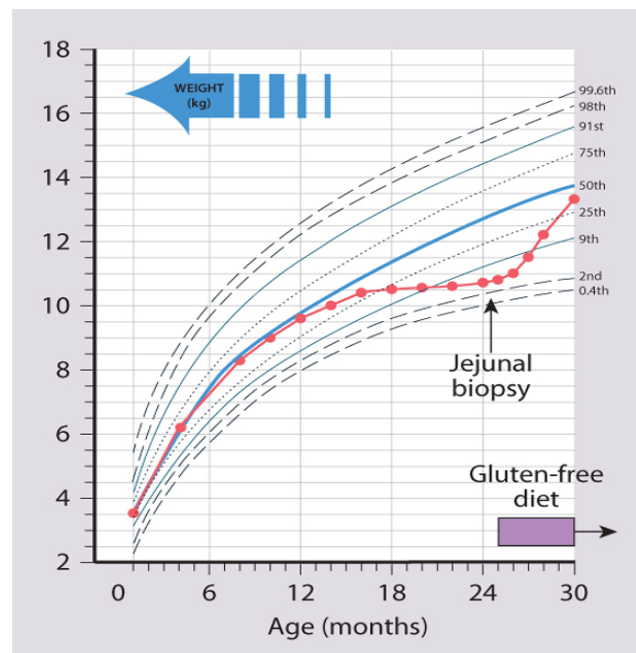
### Presentation:

-2 years old boy, had history of poor growth from 12 months

-His parents noticed that he tended to be crotchety and had three or four foul-smelling stools a day



A



B

A) Coeliac disease causing wasting of the buttocks and distended abdomen

B) Growth chart showing failure to thrive and response to a gluten-free diet

### Investigation:

-A jejunal biopsy at 2 years of age showed lymphocytic infiltration and subtotal villous atrophy

**Management:**

-he was started on a gluten-free diet. within a few days, his parents commented that his mood had improved and within a month he was a different child. he subsequently showed good catch-up growth

**N.B: For reading****Coeliac disease:**

- is a gluten-sensitive enteropathy
- classical presentation is at 8-24 months with abnormal stools, failure to thrive, abdominal distension and wasted buttocks, and irritability
- other modes of presentation - short stature, anaemia, screening, e.g. children with diabetes mellitus
- diagnosis - positive serology (tissue transglutaminase and anti-endomysial antibodies), flat mucosa on jejunal biopsy and resolution of symptoms and catch-up growth upon gluten withdrawal
- treatment - gluten-free diet for life.

**9-Meningococcal septicemia****(page 241)****.Presentation:**

- a 7 months old boy, 12 hour history of lethargy
- spreading purpuric rash
- Gross edema due to leakage of fluid from capillary into the tissues
- In hospital he required immediate resuscitation and transfer to ICU for multiple organ failure

**Management:**

- He required colloid and inotropic support
- Peritoneal dialysis for renal failure

N.B. meningococcal septicemia can kill a child in hours, Optimal outcome requires immediate recognition, prompt resuscitation and antibiotics

**10-Acute epiglottitis****(page 266)****.Presentation:**

- A 5 years-old girl developed severe sore throat, drooling of saliva
- High fever and increasing difficulty breathing over 8 hours

**Management:**

- Nasogastric and nasotracheal tubes for the patency of airway
- An indwelling canula for IV antibiotics
- prophylaxis with rifampicin is offered to close household contacts

**-Remember:****Acute epiglottitis**

- is a life-threatening emergency due to respiratory obstruction.
- It is caused by *H. influenzae* type b.
- the introduction of universal Hib immunisation in infancy has led to a decrease of over 99% in the incidence of epiglottitis and other invasive *H. influenzae* type b infections.-
- There is intense swelling of the epiglottis and surrounding tissues associated with septicaemia.
- Epiglottitis is most common in children aged 1-6 years but affects all age groups.

N.B:

It is important to distinguish between epiglottitis and croup as they require quite different treatment

Clinical features of croup (viral laryngotracheitis) and epiglottitis

	<b>Croup</b>	<b>Epiglottitis</b>
Onset	Over days	Over hours
Preceding coryza	Yes	No
Cough	Severe, barking	Absent or slight
Able to drink	Yes	No
Drooling saliva	No	Yes
Appearance	Unwell	Toxic, very ill
Fever	<38.5° C	>38.5° C
Stridor	Harsh, rasping	Soft, whispering
Voice, cry	Hoarse	Muffled, reluctant to speak

**The onset of epiglottitis is often very acute with:**

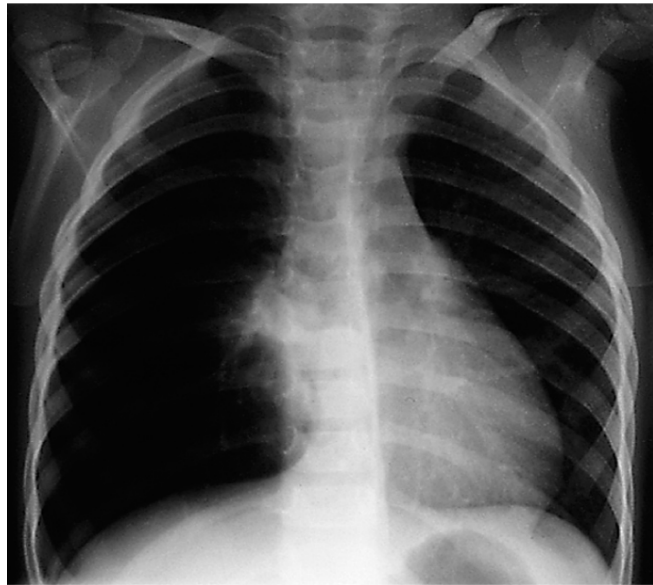
- high fever in an ill, toxic-looking child
  - an intensely painful throat that prevents the child from speaking or swallowing; saliva drools down the chin
  - soft inspiratory stridor and rapidly increasing respiratory difficulty over hours
  - the child sits immobile, upright, with an open mouth to optimise the airway.
- The child should be transferred directly to the intensive care unit or an anaesthetic room
  - The child should be intubated under controlled conditions with a general anaesthetic.
  - Rarely, this is impossible and urgent tracheostomy is life-saving.
  - Only after the airway is secured should blood be taken for culture and intravenous antibiotics such as cefuroxime started
  - The tracheal tube can usually be removed after 24 hours and antibiotics given for 3-5 days.
  - With appropriate treatment, most children recover completely within 2-3 days. As with other serious *H. influenzae*

**11-Foreign body inhalation****(page 279)****.Presentation:**

- A 3 years old boy presented with a 5-day history of severe cough and wheeze
- His symptoms developed after choking on some peanuts

**.Investigations:**

- A chest X-ray:  
revealed a hyperlucent right lung and mediastinal shift to the left
- Bronchoscopy:  
revealed a peanut wedged in the right main bronchus

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Hyperlucency of the right lung and mediastinal shift to the left

**.Management:**

- Bronchoscopy and removal

**-Remember:****Causes of recurrent or persistent cough**

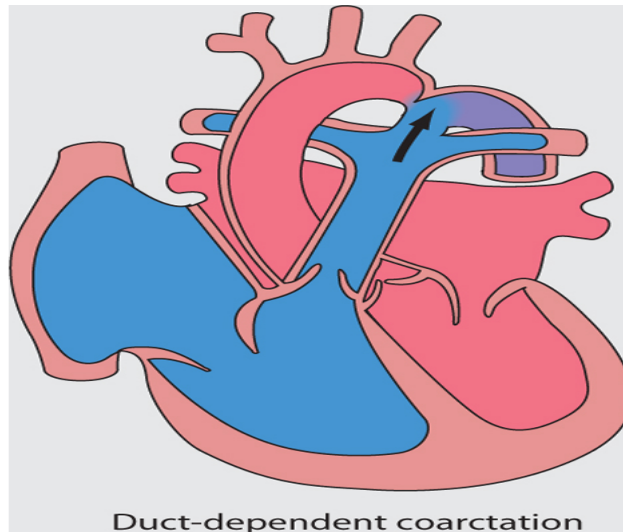
- Recurrent respiratory infections
- Asthma
- Allergic rhinitis
- Infection (e.g. pertussis, RSV, *Mycoplasma*)
- Recurrent aspiration ( $\pm$  gastro-oesophageal reflux)
- Cigarette smoking (active or passive)
- Inhaled foreign body
- Suppurative lung diseases (e.g. cystic fibrosis or ciliary dyskinesia)
- Tuberculosis
- Habit cough

**12-Shock****(page 289)****.Presentation:**

- A 2-day-old baby had been discharged home the day after delivery following a normal routine examination, he suddenly collapsed and was rushed to hospital
- He was pale with grey lips, the right brachial pulse could just be felt, the femoral pulses were impalpable, his liver was enlarged

**.Investigations:**

- ABG:  
( showed metabolic acidosis)
- Blood cultures
- blood and urine analysis (for amino acids and organic acids screening)
- Echocardiography:  
showed severe coarctation of the aorta



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The systemic circulation is maintained by blood flowing right to left across the ductus arteriosus - a duct-dependent systemic circulation.

**.Management:**

- Ventilation and IV volume support
- Antibiotics for possible sepsis (After culture results)
- PGs (impalpable femoral pulses)
- Within 2 hours he was pink and well perfused and the acidosis was resolving

.N.B. Maintaining duct patency is the key to early survival in neonates with duct-dependent circulation

**.Diagnosis:**

- Shock from left heart outflow tract obstruction once the arterial duct had closed

**.DD:**

- Congenital heart disease
- Septicemia
- Inherited disorder of metabolism

**13-Heart Failure****( page 289)****.Clinical presentation:**

- 5 weeks old female-Wheezing,poor feeding,poor weight gain during the previous 2 weeks
- befor this she had been well,her routine neonatal examination had been normal
- she was tachypneic(50-60 breaths/min),some sternal and intercostal recession,normal pulses
- A thrill,a loud pancystoloic murmur at the lower left sternal edge and a slightly accentuated pulmonary compenent of 2<sup>nd</sup> herart sound
- scattered whezzes.
- the liver was enlarged,palpable at 2 finger breadths below the costal margin

**.Investigation:**

-ECG

It was un Remarkable

-Chest X-ray

Cardiomegaly and increased PVMs

-Echocardiogram

Moderate-sized VSD

**.TTT**

-He was treated with diuretics and captopril

The VSD closed spontaneously at 11 months

**.Diagnosis:**

Heart failure from a moderately large VSD presenting at several weeks of of age when the pulmonary resistance fell,causing increased left to rright shnting of blood

**-Remember:****Heart failure**

Heart failure is difficult to define but in children is best summarised as a clinical syndrome.

**Symptoms**

- Breathlessness (particularly on feeding or exertion)
- Sweating
- Poor feeding
- Recurrent chest infections.

**Signs**

- Poor weight gain or 'failure to thrive'
- Tachypnoea
- Tachycardia
- Heart murmur, gallop rhythm
- Enlarged heart
- Hepatomegaly
- Cool peripheries.

**Causes of heart failure****1. Neonates - obstructed (duct-dependent) systemic circulation**

- Hypoplastic left heart syndrome
- Critical aortic valve stenosis
- Severe coarctation of the aorta
- Interruption of the aortic arch

**2. Infants**

- Ventricular septal defect
- Atrioventricular septal defect
- Large persistent ductus arteriosus

**Congenital heart disease presents with:**

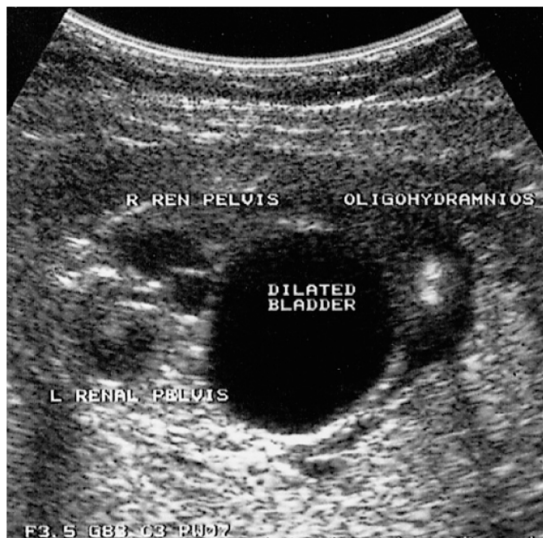
- antenatal ultrasound screening - increasing proportion detected
- detection of a heart murmur - need to differentiate innocent from pathological murmur
- cyanosis - if duct dependent, prostaglandin to maintain ductal patency is vital for initial survival
- heart failure - usually from left-to-right shunt when pulmonary vascular resistance falls, in neonate from left heart obstruction
- shock - when duct closes in severe left heart obstruction.

**14-Posterior urethral valve****(Page 312)****Clinical presentaion:**

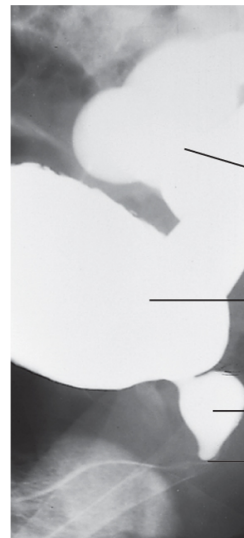
- Bilateral hydronephrosis was noted on antenatal ultrasound at 20 weeks gestational age in a male fetus
- poor renal growth,progressive hydronephrosis and decreased AF volume on repeated scans after birth

**Investigations:**

- An urgent ultrasonography  
Showed bilateral hydronephrosis with small dysplastic kidneys  
The bladder and ureters was grossly distended
- Plasma creatinine  
Was increased
- A micturating cystourethrogram(MCUG)  
Showed vesicoureteric reflux,a dilated post.urethera and post.urethral valve



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**A**

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**B**

A)Antenatal ultrasound scan in an infant with urinary outflow obstruction from a posterior urethral valve.

B)Micturating cystourethrogram (MCUG) in the same patient

**TTT:**

- Endoscopic correction of the valve
- Renal function initally improved but then progressed to chronic renal failure,He had renal transplant at 10 years of age

**N.B:**

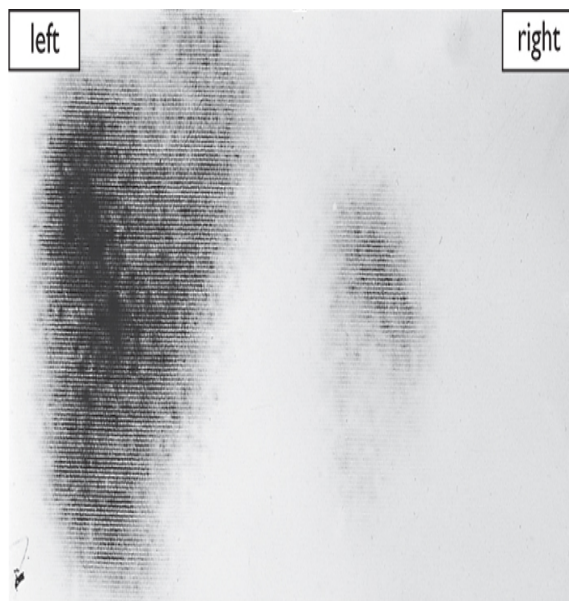
- Bilateral hydronephrosis in a male infant requires urgent investigations to exclude a posterior urethral valve

**15-Urinary tract infection****(page 315)****Clinical presentation:**

- a 2 month old infant.stopped feeding and had a high intermittent fever.
- He was referred to hospital where he had an infection screen.

**Investigations:**

- Urine analysis  
>100 WBCs and  $>10^5$  E.coli/ml.
- Ultrasound  
Small right kidney with dilated renal pelvis an a dilated ureter
- MCUG  
Bilateral vesicouretric reflux
- DMSA scan performed 3 months later  
Confirmed bilateral renal scarring with the right kidney contributing only 17% of renal function



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**A**

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**B**

A)DMSA scan showing a small scarred right kidney and scars at the upper and lower poles of the left kidney

B)Micturating cystourethrogram showing bilateral vesicoureteric reflux with ureteric dilatation and dilated, clubbed calyces on the right.

**TTT:**

- IV antibiotics after results of urine analysis

**N.B:** at 3 years of age the reflux had resolved and antibiotic prophylaxis was stopped,His blood pressure and renal growth and function was continue to be monitored

**16-Biliary atresia and Conjugated hyperbilirubinemia****(page 339)****Clinical presentation:**

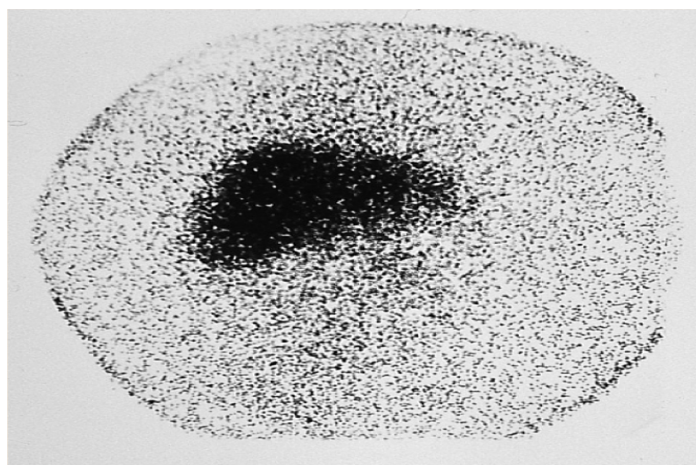
- A term infant was given oral vitamin k shortly after birth,he was breast-feed,he became mildly jaundiced on the 3<sup>rd</sup> day of life
- At 5 weeks of age he presented with poor feeding and vomiting and a history of bruising on the forehead and shoulders
- His urine had become dark and stools intermittently pale,he was pale,jaundiced ,had several bruises and hepatomegaly

**Investigations:****CBC:**

- Hb: 8.8gm/dl
- Platelets:  $465 \times 10^9/L$
- Prothrombin time:grossly prolonged
- Billrubin: 178mmol/L-80% conjugated
- .Liver biopsy

**Radioisotope scan(TBIDA) of liver:**

Show good hepatic uptake of isotope and no excretion into bowel at 24 hrs.this scan suggest extrahepatic biliary obstruction or atresia or sever intrahepatic cholestasis



-Radioisotope scan (TBIDA) of liver showing good hepatic uptake of isotope and no excretion into bowel. This scan suggests extrahepatic biliary obstruction or atresia or severe intrahepatic cholestasis

**Management:**

Hepatoportoenterostomy was performed at 6 weeks of age

**N.B:**

- In persistent neonatal jaundice,early diagnosis of biliary atresia improve the prognosis
- In persistent jaundice,always ask if the stools are pale-suggests duct obstruction

**Remember:****Causes of prolonged (persistent) neonatal jaundice****Unconjugated**

- Breast milk jaundice
- Infection (particularly urinary tract)
- Haemolytic anaemia, e.g. G6PD deficiency
- Hypothyroidism

High gastrointestinal obstruction

Crigler-Najjar syndrome

**Conjugated (>20% of total bilirubin)**

***Bile duct obstruction***

Biliary atresia

Choledochal cyst

***Neonatal hepatitis***

Congenital infection

Inborn errors of metabolism

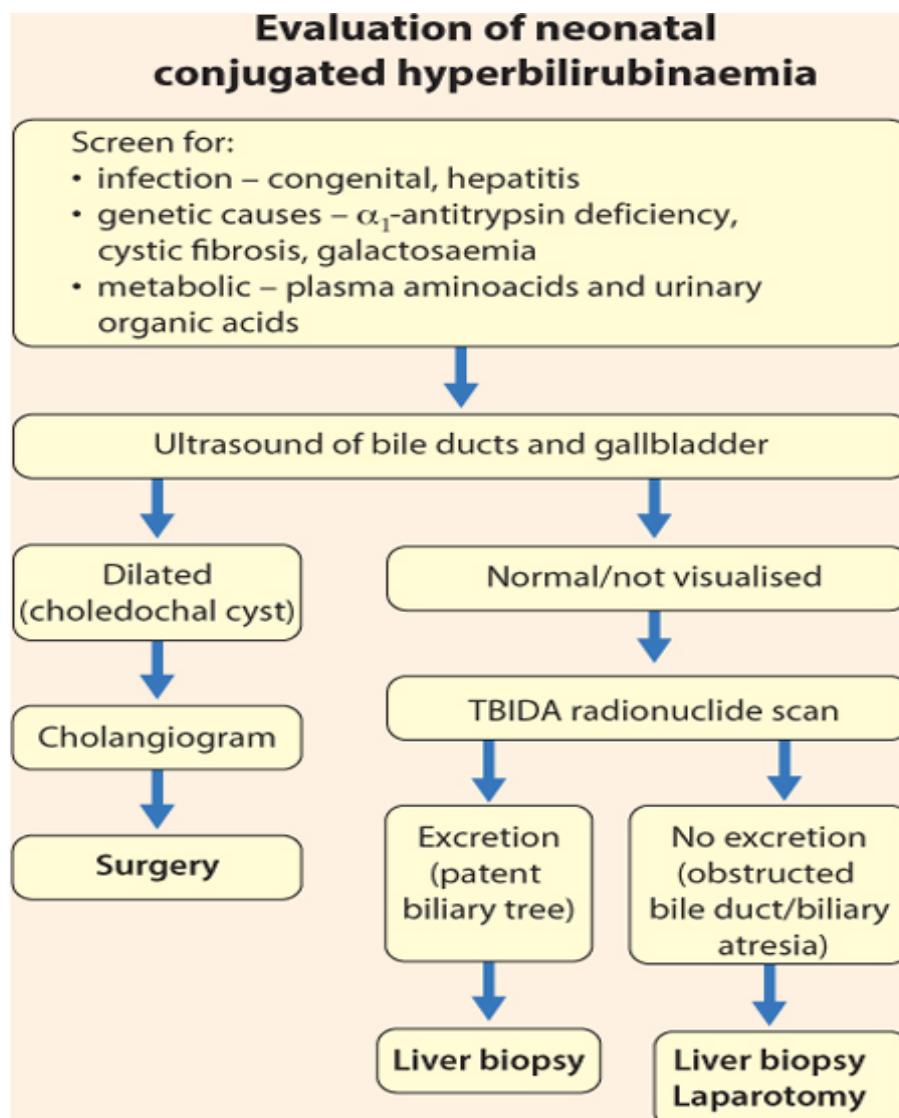
- $\alpha_1$ -Antitrypsin deficiency
- Galactosaemia
- Tyrosinaemia (type 1)

Cystic fibrosis

Total Parenteral Nutrition (PN) cholestasis

***Intrahepatic biliary hypoplasia***

Alagille's syndrome



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**17-Iron deficiency anemia****(page 367)****.Clinical presentaion:**

- A 2 years old female presented with upper respiratory tract infection,she looked pale.
- She was drinking 3 pints of cow's milk/day and she was a very fussy eater,refusing meat,she started eating soil when playing in the garden(pica)

**.Investigations:**

- CBC
- Hb 5gm/dl
- MCV 54fl (normal 72-85 fl)
- MCH 16pg (normal 24-39 pg)

**.TTT:**

- Replacing some of the milk with iron rich food
- Oral iron

Result:Hb rised to7.5 gm/dl within 4 weeks and pica stopped

**-Remember:****Dietary sources of iron****High in iron**

- Red meat - beef, lamb
- Liver, kidney
- Oily fish - pilchards, sardines, etc.

**Average iron**

- Pulses, beans and peas
- Fortified breakfast cereals with added vitamin C
- Wholemeal products
- Dark green vegetables - broccoli, spinach, etc.
- Dried fruit - raisins, sultanas
- Nuts and seeds - cashews, peanut butter, etc.

**Foods to avoid in excess in toddlers**

- Cow's milk
- Tea - tannin inhibits iron uptake
- High-fibre foods - phytates inhibit iron

**Diagnosis**

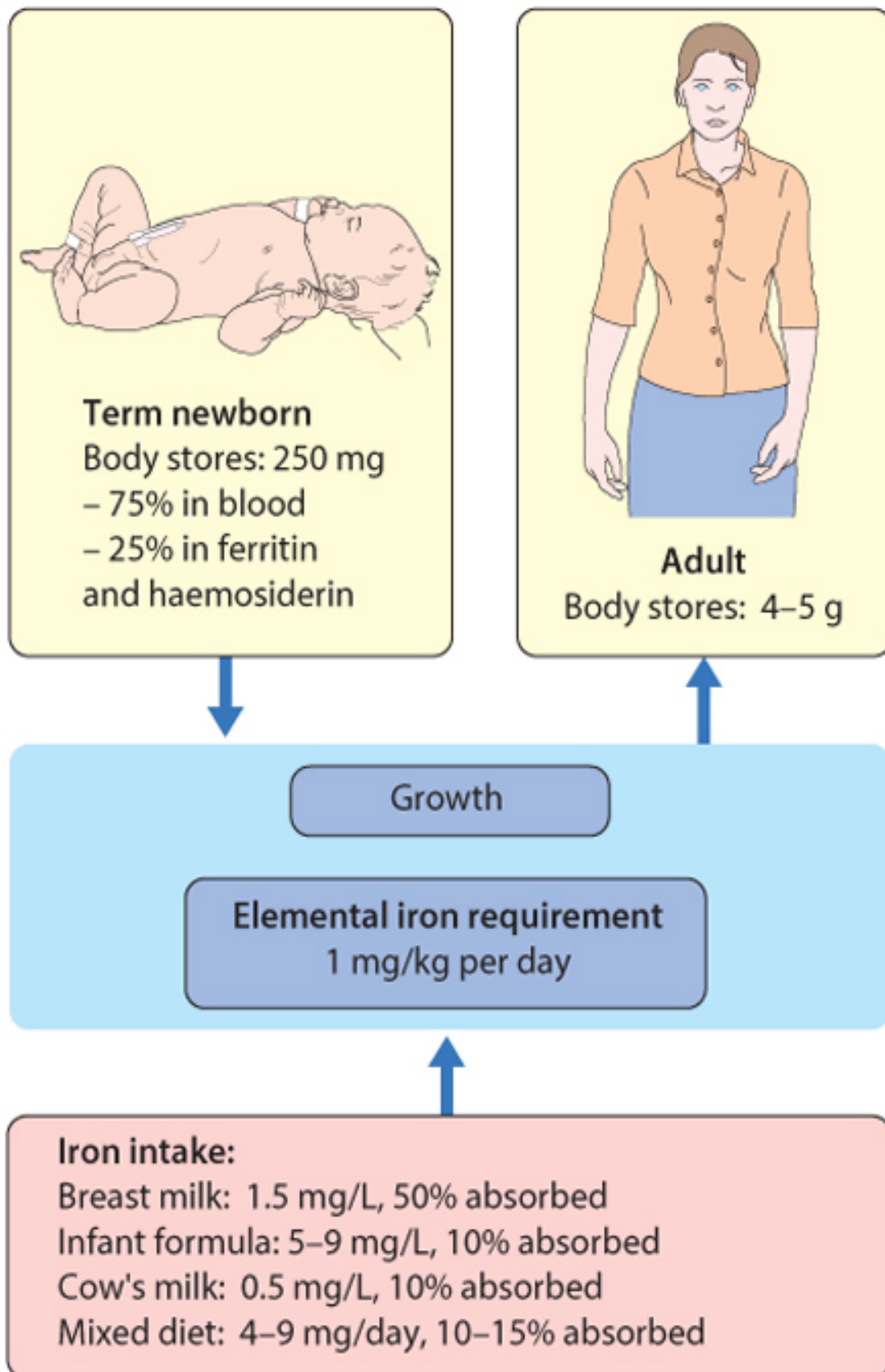
The diagnostic clues are:

- microcytic, hypochromic anaemia (low MCV and MCH)
- low serum ferritin.

The other main causes of microcytic anaemia are:

- -thalassaemia trait (usually children of Asian, Arabic or Mediterranean origin)
- -thalassaemia trait (usually children of African or Far Eastern origin)
- anaemia of chronic disease (e.g. due to renal failure).

## Iron requirements during childhood



**18-ITP****(page 383)****Clinical presentation:**

-5 years old boy developed bruising and skin rash over 24 hours,he had upper respiratory tract infection over the previous week

-She appeared well but had a purpuric skin rash with some bruises on the trunk and legs,there were three blood blisters on her tongue and buccal mucosa,but no fundal haemorrhages,lymphadenopathy or hepatosplenomegaly



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**Investigations:**

-urine examination:

Normal stix testing

-CBC:

Hb was 11.5gm/dl with normal indices

Platelets count was  $17 \times 10^9/L$

-Blood film

Normal but with large platelets' size

**Diagnosis:**

-ITP was diagnosed,her parents were counselled and given emergency contact names and telephone numbers.

-her parents were advised that she should avoid contact sports but should continue to attend school

-Over the next 2 weeks she continued to developed bruising and purpura but was asymptomatic.

-By the third week she had no new bruises and her platelet count was  $25 \times 10^9/L$ ,the blood film and count showed no abnormalities

-The following week,the platelet count was  $74 \times 10^9$  and a week later it was  $200 \times 10^9$ .She was discharged from follow-up

**Management:**

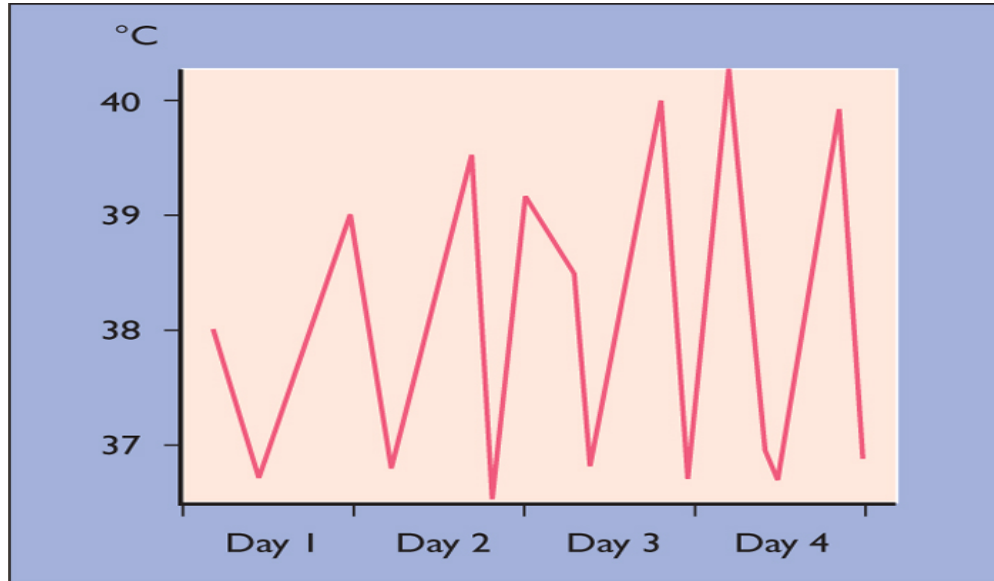
-In ITP in spite of impressive cutaneous manifestations and extremely low platelet count The outlook is good and most will remit quickly without any intervention

**-Remember:-****Causes of purpura or easy bruising:**

<b>Platelet count reduced, i.e. thrombocytopenia</b>	
<i>.1-Increased platelet destruction or consumption</i>	
Immune	a) ITP (immune thrombocytopenia) b) SLE (systemic lupus erythematosus) c) Alloimmune neonatal thrombocytopenia
Non-immune	a) Haemolytic uraemic syndrome b) Thrombotic thrombocytopenic purpura c) DIC (disseminated intravascular coagulation) d) Congenital heart disease e) Giant haemangiomas (Kasabach-Merritt syndrome) f) Hypersplenism
<i>2-.Impaired platelet production</i>	
Congenital	a) Fanconi anaemia b) Wiskott-Aldrich syndrome c) Bernard-Soulier syndrome
Acquired	a) Aplastic anaemia b) Marrow infiltration (e.g. leukaemia) c) Drug-induced
<b>Platelet count normal</b>	
<i><u>.1-Platelet dysfunction:</u></i>	
Congenital	Rare disorders, e.g. Glanzmann's thromboasthenia
Acquired	Uraemia, cardiopulmonary bypass
<i><u>2-.Vascular disorder</u></i>	
Congenital	Rare disorders, e.g. Ehlers-Danlos, Marfan's syndrome, hereditary haemorrhagic telangiectasia
Acquired	Meningococcal and other severe infections Vasculitis, e.g. Henoch-Schönlein purpura, SLE Scurvy

**18-Juvenile idiopathic arthritis: Systemic arthritis****Page 445****Clinical presentation:**

- A 2-year-old boy presented with a high fever and malaise.
- A salmon-coloured rash was present at times of fever



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Temperature chart.

**Investigations:**

- Showed markedly raised acute-phase reactants
- Shortly afterwards, he developed polyarthritic joint disease

**Management:**

- He required high-dose alternate-day corticosteroid therapy as well as other disease-modifying drugs.
- In his teens he required bilateral hip replacements.

N.B: He developed marked short stature, he is now at university, drives his own car and is fiercely independent

**Differential diagnosis of systemic arthritis:**

- Infection - bacterial/viral/protozoal (e.g. malaria), *Mycoplasma* and other (e.g. Lyme disease)
- Kawasaki's disease
- Rheumatic fever
- Reactive arthritis - post-streptococcal, post-enteric, post-viral
- Malignancy - leukaemia, neuroblastoma
- Connective tissue disorders - systemic lupus erythematosus (SLE), polyarteritis nodosa (PAN)

**. Causes of polyarthrititis:-**

<b>Infection</b>	a) Bacterial - septicaemia/septic arthritis, TB b) Viral - rubella, mumps, adenovirus, coxsackie B, herpes, hepatitis, parvovirus c) Other - <i>Mycoplasma</i> , Lyme disease, rickettsia d) Reactive - gastrointestinal infection, streptococcal infection e) Rheumatic fever
<b>Inflammatory bowel disease</b>	Crohn's disease, ulcerative colitis
<b>Vasculitis</b>	Henoch-Schönlein purpura, Kawasaki's disease
<b>Haematological disorders</b>	Haemophilia, sickle cell disease
<b>Malignant disorders</b>	Leukaemia, neuroblastoma
<b>Connective tissue disorders</b>	Juvenile idiopathic arthritis (JIA), systemic lupus erythematosus (SLE), dermatomyositis, mixed connective tissue disease (MCTD), polyarteritis nodosa (PAN)
<b>Other</b>	Cystic fibrosis

- 1) A 1 year old child presented with mild jaundice since birth. On examinaon the child was also seen to have anemia associated with a moderate splenomegaly. A peripheral blood smear showed that the red blood cells were spheroids in shape, abnormally small in size and lacked the normal central red zone of pallor.

<b>A)The child is suffering from:</b>	<b>B)Which of the following is true about diagnosis?</b>
a. Hereditary spherocytosis b. G6-PD deficiency c. Viral Hepatitis d. Iron deficiency anemia	a. Sulfonamide are better avoided b. Hemoglobin electrophoresis is indicated c. Splenectomy can be curative d. Oral iron is helpful

- 2) A newborn presents with an early onset of tachypnea with chest retractions, expiratory grunting and cyanosis following an uneventful normal preterm labor. On examination no cardiac murmurs are heard and the lungs appear clear. On plain X-Ray there is evidence of prominent pulmonary vascular markings and fluid lines in the fissures. The cyanosis improves with minimal oxygen.

<b>A)The most probable diagnosis is:</b>	<b>B)The followings are typical of the diagnosis EXCEPT:</b>
a. Meconium aspiration syndrome. b. Transient tachypnea of the newborn. c. Persistent fetal circulation. d. Hyaline membrane disease.	a. Onset of respiratory symptoms b. Improvement with minimal therapy. c. X-ray findings d. Moe of delivery

- 3) An eight years old girl with a history of congenital heart disease is found to be anemic and has a low grade fever. Physical examination reveals an enlarged spleen. Petechial hemorrhages are seen under the nails. Eye examination shows retinal hemorrhages with central area of clearing.

<b>A) This condition may cause all EXCEPT:</b>	<b>B) The heart disease she has is least likely to be:</b>
a. Heart failure b. Leukocytosis c. Hematuria d. Lymphadenopathy	a. Atrial septal defect b. Ventricular septal defect c. Patent ductus arteriosus d. Tetralogy of fallot

- 4) A junior doctor examines the first child of a 28 years old woman as a part of a routine “baby-check” prior to discharge from hospital. The baby is 20 years

old. The doctor notices that the baby is hypotonic and also finds a systolic murmur on auscultation of the heart. After further examination by a senior pediatrician the baby's chromosomes are analyzed and revealed an extra chromosome.

<b>A) One of the following is the most likely:</b>	<b>B) What is the most likely cardiac defect:</b>
a. Hypotelorism b. Brachycephaly c. Overlapping of fingers d. Cleft lip and palate	a. Patent ductus arteriosus b. Ventricular septal defect c. Transposition of great arteries d. Atrioventricular septal defect

- 5) A 4 month old, 6 kg girl is admitted to the PICU for respiratory failure. She is cyanotic and retracting. She is intubated due to worsening tachypnea, increasing work of breathing, and fatigue. Her oxygen saturation has been falling and her PCO<sub>2</sub> is 75 mmHg on an arterial blood gas analysis.

<b>A) An unlikely cause of her respiratory failure is:</b>	<b>B) Management would include all of the following EXCEPT:</b>
a. Pneumonia b. Sepsis c. croup d. Poliomyelitis	a. Using up to 100% oxygen initially b. Repeating blood gas analysis within 30-45 min. c. Giving naloxone d. I.V antibiotic therapy

- 6) A first-born baby girl has a non-traumatic normal delivery at 35 weeks gestation. She has no history of abortion or miscarriages. Routine antenatal care identified no problems or need for intervention.

<b>A) What is the likely cause of jaundice?</b>	<b>B) What is correct about this condition?</b>
a. Rhesus incompatibility b. ABO incompatibility c. Congenital hypothyroidism d. Pregnancy	a. Hepatomegaly is expected b. Birth weight has no effect on management c. Phototherapy may be needed d. The condition is preventable

- 7) An 11-year old girl presents with a 3-day history of being unwell, feverish and off her food. She has a rash which covers her entire body, her cheeks are red and she is pale around her mouth. Her tongue and lips are red and pus is noted on her tonsils. Fever is recorded up to 39.5 °C.

<b>A) What is the most likely</b>	<b>B) What is the most serious</b>
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<b>diagnosis:</b>	<b>complication?</b>
a. Measles b. Scarlet fever c. Meningococcal disease d. Herpangina	a. Encephalitis b. Bronchopneumonia c. Malnutrition d. Rheumatic fever

- 8) A 14-month old girl presents with cough and fever up to 39.4. Her parents say that she is preferring milk, and she often refuses to feed. She is not waking or pulling up to stand. She looks pale and her head appears large. She is found to have swollen wrists. Skeletal survey shows abnormal epiphyses.

<b>A) What is the most likely diagnosis?</b>	<b>B) What Is confirmatory for this diagnosis?</b>
a. Osteomyelitis b. Thalassemia c. Rickets d. Hypothyroidism	a. Hormonal profile b. Family history c. Hematological and bacteriological tests d. Response to therapy

- 9) A 5 year old boy presents with a 3 week history of polydipsia, polyuria and weight loss. On examination he is afebrile, dehydrated and unwell. Respiration is deep and rapid with peculiar mouth odor. Heart rate is 150/min. He is cold to the elbows with a capillary refill time 4 seconds.

<b>A) Which of the following is an expected finding?</b>	<b>B) What is the initial line of therapy?</b>
a. Metabolic alkalosis b. Hypoglycemia c. Glycosuria d. Generalized oedema	a. IV glucose 25% b. IV normal saline and insulin c. IV diuretic therapy d. IV dopamine

- 10) A 12 years old boy develops petechiae and papules, some of which become purpuric over his buttocks and legs, associated with painful swollen knees. There is microscopic haematuria on testing. The platelet count is normal.

<b>A) What is the most likely diagnosis?</b>	<b>B) What is the appropriate line of treatment?</b>
a. Acute lymphoblastic leukemia b. Poststreptococcal glomerulonephritis c. Meningococcal infection d. Henoch- schonlein purpura	a. Steroids b. Cytotoxic drugs c. Antibiotic d. Dialysis

- 11) A term infant weighs 2100 gm at birth. Physical exam reveals a small infant with a disproportionately large head. Mother has a history of smoking during pregnancy. Apgar score was 4 and 6 at 1 and 5 min respectively. 12 hours delivery the baby developed repeated episodes of frequent blinking and cycling movements of lower limbs.

<b>A) What is the most likely diagnosis?</b>	<b>B) This infant may develop all</b>
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	<b>EXCEPT:</b>
a. Neonatal meningitis b. Birth asphyxia c. Intracranial hemorrhage d. Nicotine withdrawal	a. Hypothermia b. Hypoglycemia c. Polycythemia d. Respiratory distress syndrome

12) A 15 month infant presents with a history of greenish, watery, loose stool for the past 4-5 days. The diarrhea occurs about 10 times per day and leaks out of the diaper. He has temperature of 38.5 C, heart rate, RR 40/m and BP 60/40 mmHg. On examination, he is irritable and has sunken eyes and anterior fontanelle. Lab values are: PH 7.1 and bicarbonate 10mEq/L.

<b>A) What is the most likely diagnosis?</b>	<b>B) This infant may develop all EXCEPT:</b>
a. Mild to moderate dehydration b. Sepsis c. Hypovolemic shock d. Respiratory acidosis	a. Seizures b. Oliguria c. Bleeding tendency d. Elevated serum creatinine

13) A 5 month old boy is seen because of failure to thrive. As part of the investigation the following blood tests are done: Hemoglobin is 4.2 g/dl, White cell count is  $12.3 \times 10^9/L$ , platelets are  $211 \times 10^9/L$ . Hemoglobin electrophoresis: Hb A<sub>2</sub> – 9% and Hb F - 91%

<b>A) One of the following is an expected finding?</b>	<b>B) What are the main treatment options?</b>
a. Heart murmur b. Skin rash c. Microcephaly d. Hypocellular bone marrow	a. Regular blood transfusion b. Iron chelation therapy c. Bone marrow transplantation d. All of the above

14) A 7-month- old infant presents to the physician with a 3-day history of upper respiratory tract infection, wheezy cough, and breathing difficulty. On examination, the infant has a temperature of 39 C, respirations of 60/m with nasal flaring and accessory usage. A CBC and differential are within normal and chest x-ray reveals hyperinflation of both lung fields.

<b>A) What is the most likely diagnosis?</b>	<b>B) The main treatment for uncomplicated cases:</b>
a. Heart failure b. Bronchial asthma c. Foreign body inhalation d. Acute bronchiolitis	a. Ribavirin b. Corticosteroids c. Inhaled salbutamol d. None of the above

15) A 3-years-old child is prone to episodes of restlessness, cyanosis, and gasping respirations. Symptoms resolve when he is placed in the knee chest position. Examination reveals an under built child, with a harsh holosystolic murmur and a single second heart sound.

<b>A) All of the following are expected EXCEPT?</b>	<b>B) What is the cause of the single second heart sound?</b>
a. Clubbing of fingers b. Cerebral abscess c. Lung plethora d. Right axis deviation	a. Overriding of aorta b. Right side aortic arch c. Pulmonary stenosis d. Anterior location of aorta

16) A 1 years old boy presented with history of flu and low grade fever for the last 2 days. He developed noisy breathing characterized by inspiratory sound for the last 6 hours. The sound increases on crying and decreases while sleeping.

<b>A) What is the most likely diagnosis?</b>	<b>B) Which of the following would be correct?</b>
a. Acute epiglottitis b. Acute asthmatic attack c. Acute laryngotracheobronchitis d. Foreign body inhalation	a. Hormone treatment is never appropriate b. Steroid therapy is indicated c. Chest x-ray is diagnostic d. Immunization is protective

17) A 4 year old boy presents with eye swellings and puffiness of the face. This has been worsening over the past few days, and is most prominent in the mornings. There is no previous history of note. On examination his respiratory rate 20/min, pulse 100/min; blood pressure is 80/60mmHg. He has edema around the eyes, with scrotal enlargement which transilluminates. His abdomen is distended and dull to percussion. Urine test shows 4+ proteinuria.

<b>A) What is the most likely diagnosis?</b>	<b>B) Which is the best treatment for the patient?</b>
a. Angio-oedema b. Cardiac failure c. Nephrotic syndrome d. Portal hypertension	a. Antihistamines b. Inotropic drugs c. Intravenous furosemide d. High dose corticosteroids

18) A 6 year old girl presents with vomiting, fever, anorexia and malaise. She has been unwell for a few days only. Her brother recently had jaundice. On examination she has a fever to 38.4 °C, she is well hydrated and there are no other abnormalities to find.

A) What is the most likely diagnosis?	B) What is the management of the girl
a. Hepatitis A	a. Interferon alpha
b. Hepatitis B	b. Ribavirin
c. Hepatitis C	c. Acyclovir
d. Hepatitis D	d. None of the above

19) A 12 year old boy presents in a confused state. He developed a fever 2 days previously, and had been complaining of headache, fever and photophobia. He had vomited once. On examination his temperature was 38.0 °C and has mild neck stiffness and photophobia.

A) What is the most likely diagnosis?	B) What treatment may be of help?
a. Cerebral abscess	a. Naloxone
b. Diabetic ketoacidosis	b. Acyclovir
c. Drug intoxication	c. Insulin
d. Viral encephalitis	d. Surgery

20) A 12 year old girl presents with fever, malaise, and joint pains of 3 months duration. She was previously well. On examination the temperature is 37.5 °C, respiratory rate 14/min, pulse 180/min and blood pressure is 100/70 mmHg. She has a scant rash over her cheeks. She has generalized joint tenderness on movement. Urine test shows 2+ hematuria and 2+ proteinuria.

A) What is the most likely diagnosis?	B) What is the most likely outcome?
a. Osteomyelitis	a. Variable and unpredictable
b. Septic arthritis	b. Persistent disease manifestations
c. Sickle cell crisis	c. Rapid recovery on treatment
d. Systemic lupus erythematosus	d. Recovery on long term treatment

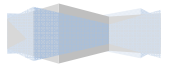
### Answers

- 1) A- a B- c      2) A- b B- d      3) A- d B- a      4) A- b B- d      5) A- d B- c
- 6) A- b B- c      7) A- b B- d      8) A- c B- d      9) A- c B- b      10) A- d B- a
- 11) A- b B- d      12) A- c B- d      13) A- a B- d      14) A- d B- d      15) A- c B- c
- 16) A- c B- b      17) A- c B- d      18) A- a B- d      19) A- d B- b      20) A- d B- a ?..

## **C ) Problem Solving For Medical Students**

### **Problem Solving For Medical Students (1)**

- 1- A 10 months old infant presents with a day history of blanching confluent rash which started on his face and now covers his entire body. He is miserable with conjunctivitis and fever of 38 C. the illness started with runny nose and cough 5 days previously. What is the most likely diagnosis?
- A. Scarlet fever
  - B. Sweat rash
  - C. Chicken pox
  - D. Measles
- A) Points against: Fever is followed in 2 days by rash + sore throat  
B) Points against: the disease is obviously of infectious condition  
C) Points against: presents with fever of low grade followed 1 day later by rash
- 2- A mother brings to the clinic her 4 years old son who began complaining of Rt knee pain 2 weeks ago, is limping slightly, is fatigued and has had a fever 38.2C What is the important diagnostic Lab test to perform?
- A. CBC with differential
  - B. Sedimentation rate
  - C. EBV titre
  - D. Rheumatoid factor
- Choice A: Points with: important to be done in the beginning to exclude major problems like Leukemia and to give hints on other diseases as viral infection, rheumatoid, acute infection.  
Choice B: Points against: not very useful as it is non-specific  
Choice C: Points against: better do CBC first for the previous causes above  
Choice D: Points against: same as C + rheumatoid is mainly in small joints
- 3- A 12 months old boy presents to the emergency department with a 6 hour history of vomiting, colicky abdominal pain, and irritability. On physical examination a sausage like mass is palpable in the right upper quadrant of the abdomen What is the most appropriate next step in management?
- A. Order a CT scan of the abdomen
  - B. Order a barium swallow
  - C. Obtain a surgical consultation
  - D. Follow up examination after 4 hours
- Choice A : Points against: time and money wasting + not method of choice, ultrasound is better.  
Choice B: Points against: shows till duodenum while obstruction is in upper Rt quadrant + baby suffers from vomiting  
b. If we were to use this method, we'd use barium enema  
Choice C: (the right choice)  
a. Points with:  
1. Age of boy, intussusception usually occurs between 6 months to 3 y.o. (usually



after gastroenteritis)

2. Sausage like mass ( CANT possibly be liver)

3. Since known intussusception, early management is very easy  
[reduction by pressure] using air

Choice D: it is emergency , no need to waste time

- 4- A 2 week old infant develops **fever, 38.9 C, vomiting, and irritability**. His heart rate is 170/min, and RR is 40/min. The infants anterior **fontanelle is full**, but there is no nuchal (neck-related) rigidity. The rest of examination is unremarkable.

What is the appropriate management?

- A. Oral fluid and follow up in 24 hr
- B. Oral amoxicillin and follow up in 1 week
- C. Admission to hospital for investigation and ttt
- D. IM Ceftriaxone and follow up in 1 week

Full fontanelle = increased ICT. Fever, vomiting and irritability = infection

There isn't neck rigidity because this sign and others like brudzinski's..etc.. are absent in small infant because of the open fontanelle which offers a relief of the increased tension.

- Choice A: can never be a choice in anyway
- Choice B and C and D : home management is unacceptable in this case
- Choice C: [the right answer] , the case may be septicaemia with meningitis, so the infant needs to be admitted for CT, CBC, culture, IV antibiotics, follow up for complications

- 5- A 2 month old boy with a 3 day history of mild fever and runny nose suddenly develops high fever, cough and respiratory distress. Within 48 hours, the patient deteriorated and has developed a pneumatocele and a left sided pneumothorax.

What is the most appropriate first action?

- A .I.V. antibiotics
- B. Blood gases
- C. Chest tube
- D. Antipyretics

Mild fever and runny nose = common cold

Suddenly develops high fever, cough and respiratory distress indicates that common cold progress to lower respiratory tract infection, then pneumonia.

The patient develops pneumothorax which is very dangerous as it compresses the lung and may lead to cyanosis and shock.

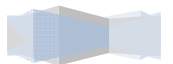
1st action to be done is to treat pneumothorax

choice (1): point against: it takes 48 hs to start ⇒ action and this case is emergency

Choice (2): point against: it diagnoses acidosis, but this is not the 1st action.

Choice (3): point with: chesttube is needed to drain air and must be done immediately.

Choice (4): point against: part of the ttt but not the 1st action.



- 6- A 2 week old infant has had no immunization, sleeps 18 h a day, weight 3.5 kg, and takes 60 ml of standard infant formula four times a day, but no solid food and no iron or vitamin supplements. What should be of most concern about this infant?

- 1- Immunization state
- 2- Caloric intake
- 3- Iron levels
- 4- Circadian rhythm

Choice (1): infant of 2 weeks has no immunization

choice (2) : average feeding is 8-10 times  $\Rightarrow$  per day, this infant has low caloric intake)

Choice (3): 2 weeks infant doesn't need iron at this age.

Choice (4): unrelated

- 7- A 7 year old boy was limping for 3 days presented to the surgical department with severe acute colicky abdominal pain. The surgery resident asked for medical consultation for a rash on the back of both lower limbs of the child.

The acute abdomen is due to

- A. Rheumatic fever
- B. Appendicitis
- C. Henoch-schonlein purpura
- D. Rheumatoid arthritis

Choice (A): Points with: age + limping

Points against: rash, no other signs of the criteria of rheumatic fever, rheumatic fever will not cause the other associations as acute abdomen.

Choice (B): Points against: other findings (other than acute abdomen) are not related

Choice (C): the right answer Points with: purpura on back of both lower limbs + acute abdomen + limping (This is a vasculitic)

Choice (D): Points against: other findings (other than limping) are not related

- 8- A 10 month old female infant is brought to a clinic for routine health evaluation. Her diet consists of ordinary food and a lot of fresh whole milk. On examination, she is pale, hemoglobin is 7.5 gm% otherwise there are no abnormalities. The most likely diagnosis:

- A. Thalassemia
- B. Iron deficiency anemia
- C. Sickle cell anemia
- D. Anemia of chronic illness

• Hemoglobin is 7.5 gm%  $\rightarrow$  anemia

• No abnormalities  $\rightarrow$  not hemolytic anemia

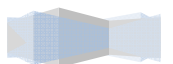
• Fresh whole milk : allergy or iron deficiency anemia ( which is very common)

Choice (1) : point against: there's no abnormalities

Choice (2) : the right choice

Choice  $\Rightarrow$  (3) : point against: there's no abnormalities

Choice (4): point against: no  $\Rightarrow$  history of chronic illness.



## **Problem Solving for Medical Students (2)**

- 1- An infant can move his head from side to side while following moving object, can lift his head from prone position 45 degrees off the examination table, and smiles when encouraged. he can sit with support The most likely age of this infant is:

A. 1 month  
B. 5 months  
C. 9 months  
D. 12 months

*Move from side to side=1month*

*Smiles=2 months*

*Lift his head 45 degrees=3rd month*

*Sit without support= 4th/5th month*

- 2- A 3 week old baby, who was full term, Is brought to the hospital. He has recently been having problems completing his feeds and today appears short of breath. On examination, his HR was 180/min, RR 72/min, rectal temperature 37.4, BP 80/50, and he had a 4 cm hepatomegaly. All blood tests were normal. What is the most likely diagnosis?

A. Neonatal hepatitis  
B. Respiratory distress syndrome  
C. Heart failure  
D. Congenital infection

*Infant is recently short of breath + high heart rate not in proportion with age nor temperature + high RR + hepatomegaly = heart failure Heart failure triad: Tachypnea - Tachycardia -Tender hepatomegaly*

*Choice (A): will not cause all these signs*

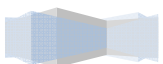
*Choice (B): points against: it is more in premature*

*Choice (C): points with: Heart failure triad is present*

*Choice (D): points against: Normal blood tests, no other symptoms associated*

- 3- A 3 day old infant presents with the complaint of yellowish skin. Both the mother and the baby have O +ve blood. The baby's direct serum bilirubin is 0.2 mg/dl. With a total serum bilirubin of 11.8 mg/dl. The hemoglobin is 17 gm/dl. Platelete count is 278,000/ul. Reticulocyte count is 1.5%. the peripheral smear doesn't show abnormalities. The most likely diagnosis:

A. Rh or ABO incompatibility  
B. Physiologic jaundice  
C. Sepsis  
D. Congenital spherocytic anemia  
E. Biliary atresia



3 days old: physiologic jaundice occurs at this age. Both mother and baby have O+ve blood: not incompatibility . Blood picture completely normal (not hemolytic cause).Peripheral smear shows no abnormality: normal shape of blood cells, so no spherocytosis.

Choice (A): points against: no hemolysis evident by hemoglobin and reticulocyte count

Choice (B): points with: age, indirect hyperbilirubinemia ( total less than 15 mg/dl, exclusion of other causes.

- 4- A 15 months old infant presents to the emergency department with a 4-day history of high fever without any localizing sign. She suffers self limiting convulsion and is admitted for observation. The next day the fever subsides, but a red popular rash develops over her trunk and abdomen. What is the most likely diagnosis:

A. Measles

B. Rubella

C. Roseola infantum

D. Chicken pox

Choice (A): points against :In measles, there should be localizing sign (3Cs), and the fever should rise markedly with appearance of rash on the 4th/5th day of fever, rash starts on the face

Choice (B): points against: Fever should increase with appearance of rash.

Choice (C): the right answer Prodroma is 4 days showing high fever (may be febrile convulsions) , rash appears after 4 days, first on trunk, fever subsides

Choice (D): in chickenpox the rash is vesicular.

- 5- An 18 months old boy came to the emergency department with rapid respiration, drowsiness. He had a history of vomiting and diarrhea for 3 days before the onset of his condition. By examination HR was 160, RR was 60, Temp. was 38.5 and Bp was 60/40. He had delayed capillary refill. What is the most likely action to be done?

A- Chest x-ray.

B- Giving oral ttt and follow up.

C- Administration of IV fluids.

D- Blood gas analysis.

Vomiting and diarrhea = ongoing losses of fluids and electrolytes

Increased HR (out of proportion with age and fever), RR, and decreased BP, delayed capillary refill= shock

Choice 1:points against: it is an emergency + no need for it

Choice 2:points against: it is an emergency

Choice 3(the right choice):points with: shock is an emergency with dramatic response to IV fluids

- 6- A 4week-old, fullterm, breast fed girl has worsening yellowish discolouration of the skin, that the parents first noticed 15 days ago. On her examination, she is well appearing with good suckling and reflex activity, and is noted to have a liver edge4cm below her costal margin. Her total bilirubin is 12 and direct bilirubin is 9.

What is the most likely diagnosis

A. Biliary atresia

B. Cholecystitis

C. Sepsis

D. Breast milk jaundice

*15 days = persistent jaundice .Appears good = not lethargic/septic .Hepatomegaly, direct bilirubin is more than 20% of total bilirubin , therefore cholestatic jaundice not breast milk*

*Choice (A): [the right choice]*

*Points with: Direct bilirubin is more than 20% of total bilirubin + hepatomegaly .Biliary atresia as it's the most appropriate choice in the choices given in this case, but it could be any other cause of cholestasis.*

*Choice (B): not related to the case at all*

*Choice(C): points against: she's appearing good with good activity*

*Choice (D): if breast milk jaundice, it is (unconjugated hyperbilirubinemia).*

- 7- A 7-week old baby is referred with a 2-week history of vomiting. He is being formula fed (160 ml)every 2-3 hrs. On examination he is well thriving, on the 90<sup>th</sup> percentile and has a normal examination. What is the most likely diagnosis:**

A -Pyloric stenosis

B -Gastro-oesophageal reflex

C -Over-feeding

D- Gastroenteritis

*Choice (A):points against:The baby is thriving, on the 90th percentile = growing well, in the high normal. If it was pyloric stenosis, there should be vomiting and malnutrition*

*Choice (B):points against: occurs on the second week, the child would not be on the 90th percentile,*

*Choice (C):[the right choice] : points with: high dose formula, high amount(every 2-3 hours).*

*Choice (D):points against: there is no inflammatory symptoms or signs, no diarrhea.*

- 8- A 5-month-old girl presented with history of constipation and delayed developmental milestones. She had prolonged physiological jaundice. On exam, she is hypoactive, has an open mouth with large tongue. Other systemic examinations are within normal.**

**What is the next step in management?**

A. Checking T4 and TSH

B. Checking serum bilirubin

C. Doing CT scan of head

D. Follow up after 4 weeks

*Constipation, delayed developmental milestones, being hypoactive open mouth with large tongue, prolonged physiological jaundice = hypothyroidism*

## **Problem Solving for Medical Students (3)**

- 1- A 7 year old boy arrives at the emergency department, complaining of rapid breathing and vomiting, dating 3 days ago, he has been receiving IM antibiotics for 3 days with no improvement. On examination, he has rapid deep breathing with RR 60/min, HR 90/min. chest x-ray was normal. What is the next investigation to do?**

- A. CT chest
- B. Upper GIT endoscopy
- C. Echocardiography
- D. Blood gases

- Normal X ray = normal lungs and heart
- Tachypnea with no auscultatory findings, no fever, no abnormality, rapid DEEP breathing, most probably a case of acidosis with compensatory hyperventilation.
- Vomiting is due to irritation from acidosis (may be diabetic ketosis)

A: No history of Pneumonia \ take a time

B: For severe vomiting & Sometime blood tinged vomiting "hematemesis"

C: as HR is Normal \ No symptoms of Heart failure

- 2- A 9 year old child comes to the hospital with an acute onset of generalized convulsions and disturbed conscious level. the parents did not report any similar neurological trouble beforehand. On examination, HR was 70/min, RR is 20/min  
What is the first action to do after control of convulsions?**

- A. Blood gases
- B. Blood pressure measurement
- C. CT brain
- D. Fundus examination

*A 9 years old child with normal HR and RR, suffers from acute onset of convulsions and disturbed consciousness, you have to make sure it is not hypertensive encephalopathy as it is a very common cause so the right answer is choice (2) BP measurement.*

*So in any case of convulsions in a child specially if without similar history, the first action is to give anticonvulsant, then measure BP, then do the other investigations.*

A: Not the first choice \ Acidosis & Tachycardia

B: Done first as it is Easy, simple, for diagnosis of Hypertensive encephalopathy\ Not to miss it " Vital Sign"

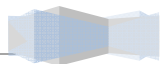
C: For Tumors or Meningitis or Epilepsy

-Tumors not present early, also not the first presentation is convulsions

-Meningitis by CSF analysis

-Epilepsy by EEG

D: For Papilledema



- 3- An 8 year old boy comes complaining of bedwetting for the past 2 weeks. He has previously been continent. On examination, his height is below 5th percentile. His Hb is 6.5% what is the most important next step

A. Check blood sugar  
B. Give oral iron  
C. Try fluid restriction and rewarding for dry nights  
D. Check Blood urea and creatinine

*Chronic renal failure is one of the most common causes of stunted growth and anemia*

*A: No DM as his growth will not under weight as this baby.*

*B: Not very imp for ttt of anaemia. \for Hb less than 6.5%*

*C: Done if it is a primary incontinence.*

*D: To make sure of CRF "Chronic Renal Failure"*

- 4- A 1 year old infant is complaining of delayed sitting and repeated chest infection, on examination there is prominent costochondral junction, he is exclusively breast fed, He received multiple injections for treatment of his condition. All of the following are expected complication for his condition except:

1. Anorexia  
2. Vomiting  
3. Oliguria  
4. Nephrocalcinosis

*Multiple injections of vit. D caused hypervitaminosis D, that presents with polyurea not oliguria*

*1 & 2: GIT Compilcations*

*4: Due to Hypervitaminosis & increase the serum calcium .*

- 5- The mother of a 4 months old boy complains her child still cant support his head. On examination the child has a flat occiput, and a transverse plamar crease.local examination of the heart shows a hollow systolic murmur over the left parasternal area. One of the common complications of this condition is:

1. ITP  
2. G6PD deficiency  
3. Leukemia  
4. Pyloric stensis

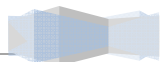
*The child shows signs of down's syndrome ( leukemia incidence 10 times more than normal population)*

*Leukemia is The Commonest for this age & this Baby "Preterm Baby"*

- 6- A 9 year old child suffers from an acute onset weakness which initially started in the lower limbs and was preceeded 3 weeks earlier by a respiratory tract infection. On examination there is hypotonia and hyporeflexia of both lower limbs. There is no history of convulsions.

The most likely diagnosis is;

A. Brain tumour  
B. Poliomyelitis



C. Guillan-barre syndrome

D. Werding hoffman syndrome

- Initially started = there is progression

- Hypotonia + hyporeflexia = lower motor neuron lesion

- Both LLs = symmetrical disease

Choice (1): Points against: it is an acute disease, no signs of increased ICT, preceded by viral infection.

Choice (2): Points against: it is symmetrical, ascending unlike polio

Choice (3): the right answer Points with: viral infection followed by symmetrical ascending hypotonia and hyporeflexia.

Choice (4): Points against: werding hoffman syndrome is an autosomal recessive syndrome that present at birth.

**7- An infant weighing 1400 gm is born at 32 weeks. HR:140, RR:80, temp:35 C. the lungs are clear with bilateral breath sounds, there is no murmur.**

**Which of the following is the most important first step in evaluating this infant:**

1. Obtain CBC and differential

2. Perform lumbar puncture

3. Chest x-ray

4. Place infant under warmer

5. Administer oxygen

Premature, low birth weight, high HR, RR low temperature with normal lungs and heart, hypothermia which is a common presentation in prematures causes all these findings.

1. Done Later on

2. Most invasive\ Done if all trials are failed\ No CNS manifestations

3. No need for X-ray as Lungs are Clear.

4. Is The First Choice.

5. Later on.

**8- A previously well 1 year old infant has had a runny nose and has been sneezing and coughing for 2 days. Two other members of the family had similar symptoms. Four hours ago, his cough became much worse. On physical examination, he is in moderate respiratory distress with nasal flaring, hyperexpansion of the chest and easily audible wheezing without rales (crepitations) by auscultation. Which of the following is the most likely diagnosis?**

A. Bronchitis

B. Viral croup

C. Asthma

D. Epiglottitis

A. Viral (RSV)

B. Acute Bronchitis associated with stridor.

C. Not Previously well except if it is the first attack.\ +ve family history for Asthma

D. With Cyanosis & Asphyxia.

