

CONGENITAL AND ACQUIRED HEART DISEASES.

DR Manori Gamage
MBBS MD DCH MRCPCH

congenital heart diseases

Factors responsible for congenital heart Diseases are:

1. Prenatal factors:

- ▶ Mothers suffering from infectious diseases: rubella.
- ▶ Mother's alcoholism.
- ▶ Maternal age over 40 years.
- ▶ Mothers suffering from diabetes mellitus who require insulin.
- ▶ Mothers taking sedative drugs or herbs.

2. Genetic factors

- ▶ Children born before suffering from CHD.
- ▶ Father / mother suffering from CHD.
- ▶ Chromosomal abnormalities eg Down syndrome.
- ▶ Born with other congenital abnormalities.

CONGENITAL HEART DISEASES.

2 Types.

1. Acyanotic heart diseases.
2. Cyanotic heart diseases.

Acyanotic heart diseases.

- ▶ VSD.
- ▶ ASD.
- ▶ PDA.
- ▶ Coarctation of aorta.

Cyanotic heart diseases.

- ▶ TOF.
- ▶ TGA.
- ▶ Complex heart diseases.

Ways of presentation.

- Detection of murmur.
 - Neonatal examination.
 - SMI.
 - When visit for other illnesses.
- Heart failure.
- Cyanosis.
 - Neonatal.
 - Later

- Failure to thrive.
- Recurrent respiratory tract infections.
- SABA.

Nursing Diagnosis for Congenital Heart Disease

- ▶ Risk for decreased cardiac output
- ▶ Altered Growth and Development due to inadequate oxygen and nutrients to the tissues.
- ▶ Risk for infection
- ▶ Poor physical status.
- ▶ Altered family processes due to children with heart disease.
- ▶ Risk for injury (complications) due to the heart condition and therapy.

Nursing interventions

- ▶ Deliver oxygen and prevent hypoxia
- ▶ Give afterload lowering medications as instructed.
- ▶ Give diuretic as instructed.
- ▶ Provide frequent rest periods and periods of uninterrupted sleep.
- ▶ Encourage quiet activities.
- ▶ Give a balanced diet high in nutrients, to achieve adequate growth.
- ▶ Monitor height and weight.
- ▶ Encourage the family to participate in the care process.
- ▶ Teach families to recognize the signs of complications

Acquired heart diseases

Rheumatic heart disease

Pathophysiology : Autoimmune condition

- ▶ Triggered by Group A beta haemolytic streptococcus infection
- ▶ Auto antibodies act against heart(Pancarditis)

Diagnosis : Modified Jones criteria.

Symptoms : Fever
Arthralgiarditis:
Carditis
Polyarthritis

Investigation :

- ▶ Prolonged PR interval on ECG
- ▶ Increased erythrocyte sedimentation rate [ESR]
- ▶ Presence of C-reactive protein
- ▶ Leukocytosis

Complications : SABE

Heart failure

Management :

Short term - Eliminate streptococcal infection
(oral Penicillin for 10 days)
High dose Aspirin to reduce inflammation
Bed rest

Long term - Prophylaxis against SABE
(monthly IM Benzathine penicillin)
Surgical correction of damaged valves

Prevention- Reduce overcrowding.
Prompt treatment with antibiotics in Pharyngitis

Kawasaki disease

Vasculitis affecting the coronary arteries

Diagnosed by using clinical criteria

- a. Fever >5 days
- b. Skin rash
- c. Red lips and red tongue
- d. Pedal oedema
- e. Conjunctivitis

Complications

Coronary artery aneurysm

Management

IV immunoglobulin

Asprin (initially - high dose - later low dose)

Infective endocarditis

Infection of the endocardium

Risk factors

- Neonates
- Congenital heart lesions
- Acquired heart lesions (valve)
- Cardiac prostheses

Clinical features

Persistent fever
Changing murmurs
Pallor
Spleen enlargement
Clubbing
Arthritis

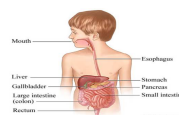
Diagnosis

2 D echo
Blood culture

Management

1. IV antibiotics - 6 weeks
2. Manage any complications develop
3. Prevention - when there are risk factors start on prophylaxis

Medical and Surgical problems of the Gastrointestinal tract



Dr Manori Gamage
MBBS MD DCH MRCPCH

Medical problems.

- ▶ Vomiting.
- ▶ Loose stool.
- ▶ GORD.
- ▶ Constipation.
- ▶ Gastritis.
- ▶ Hepatitis
- ▶ IBD

Vomiting.

- ▶ Forceful ejection of stomach content through mouth is known as vomiting.

CAUSES -

- Infants- GORD
- Feeding problems.
- Infections.
- Intestinal obstruction.
- Inborn errors of metabolism.

- ▶ Pre school children
 - Infection.
 - Appendicitis.
 - Intestinal obstruction.
 - Testicular torsion.
- ▶ School age and adolescents
 - Gastroenteritis.
 - Systemic infections.
 - PUD.
 - testicular torsion.

- ▶ Hx : Find out the cause
 - ▶ Ex : Assess the level of dehydration
 - ▶ Mx : Treat the underlying cause
 - Symptomatic treatment with antiemetics and proper rehydration
- (depending on the level of dehydration, water, ORS, 0.9% NaCl)

Loose stools

Watery diarrhoea

- Acute gastroenteritis.
- Food poisoning.
- Systemic infections.
- IBS
- Toddlers diarrhoea.

- ▶ Acute gastroenteritis
- Commonest cause
- Viral - Rota virus
- Bacterial
- E. Coli

Mainly presents with severe watery diarrhoea

Blood and mucus diarrhoea

Dysentery. (Shigella, e-coli)

IBD.

Intussusception.

- ▶ Hx : Assess frequency, severity, associated features, complications (hydration level, electrolyte imbalance), look for a possible cause.
- ▶ Ex : level of dehydration.
- ▶ Ix : Serum electrolytes.
- Stool full report.

Level of dehydration

- a. No dehydration
- b. some dehydration
- c. Severe dehydration

Depending on history and examination we categorize them in to each.

ASK
LOOK
FEEL

- ▶ Mx : Rehydration(ORS, IV fluid)
- Antibiotics (If needed)
- Avoid anti motility drugs.

► Rehydration
 Depending on the degree of dehydration
 No dehydration- maintenance+ on going losses
 Some dehydration- maintenance +on going+ deficit
 Severe dehydration - maintenance + on going + deficit

GORD

► Is the involuntary passage of gastric content in to the oesophagus.

CAUSES : Functional immaturity of LOS.
 Hiatus hernias.

► Hx : Recurrent regurgitation, Vomiting.
 Heart burn.
 Recurrent chest infections.
 Neuro developmental disorders.

► Ex : Adequate growth except in very severe cases.

► Ix : 24 hour oesophageal pH monitoring (gold standard)

► Mx : Uncomplicated - Reassurance and positioning after feeds.
 Significant - Acid suppression with PPI or H2 receptor blockers.
 Surgical management.

Constipation.

► Less frequent bowel opening with hard consistency.

CAUSES : Functional
 Hirsch sprung disease.
 Hypothyroidism.
 Anorectal abnormalities.

Precipitated by : low fluid and fiber intake.

► Hx : Frequency, consistency, features of underlying cause, involuntary soiling, toilet habits.

► Ex : Anal fissures.

► Mx : life style modifications. (toilet training)
 dietary advices (high fluid and fiber intake)
 Laxatives.

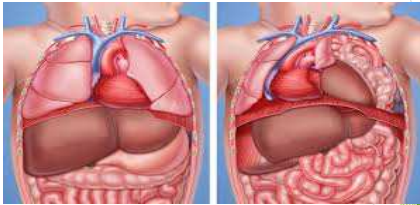
Gastritis.

CAUSES : Autoimmune.
 H-pylori infection.
 Drugs (NSAID, Steroids)

▶ Hx : Regurgitation.
 Heart burn.
 Epigastric pain.
 Nausea , Vomitting.
 Drug history.

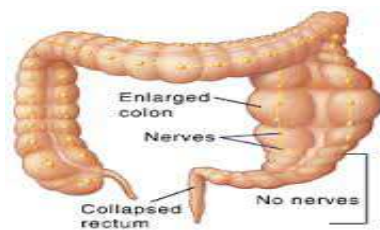
- ▶ Ex : Nothing significant
 look for associated factors.
- ▶ Ix : UGIE and biopsy.
- ▶ Mx : PPI
 H-pylori eradication therapy.

Diaphragmatic hernia.



- ▶ Hx : Difficulty in breathing.
 Ex : Respiratory distress.
 Scaphoid abdomen.
 Mediastinal shift.
 Audible bowel sounds in chest.
- ▶ Ix : Chest and abdominal x ray.
- ▶ Mx : Large NG tube insertion and suction to prevent distension of intrathoracic bowel.
 Surgical repair.

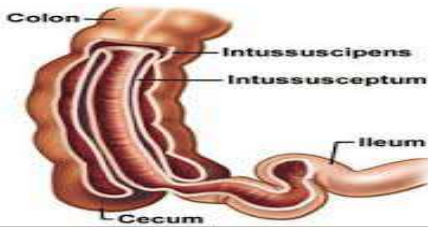
Hirschsprung disease.



- ▶ Hx : Constipation.
 Abdominal distention.
 Delayed passage of meconium.
 Bile stained vomiting (later).
- ▶ Ex : Distended abdomen.
 DRE (narrowed segment)
- ▶ Ix : Suction rectal biopsy.
- ▶ Mx : Surgical management.

Acquired.

Intussusception.



- ▶ Hx : Insolvable crying.
Severe colicky pain.
Red current jelly stool.
Refused feeding.
Vomiting.
- ▶ Ex : sausage shaped mass palpable in the abdomen.
Abdominal distention and shock.
- ▶ Ix : USS abdomen.
- ▶ Mx : Rectal air/ hydro insufflation.
Surgical management.

Hypertrophic pyloric stenosis

Hypertrophy of the pylorus cause gastric outlet obstruction.

Clinical features

- Present during 2-7 weeks of life
- Projectile vomiting
- Poor weight gain
- Visible peristalsis

Diagnosis

- US Scan of the abdomen

Management

- ▶ Stabilize the baby
- ▶ Correct hydration
- ▶ Correct electrolyte imbalances
- ▶ Surgical correction

Appendicitis.

- ▶ Hx : Abdominal pain (umbilical area RIF)
Vomiting.
Fever.
Anorexia.
- ▶ Ex : Febrile.
RIF rebound tenderness and guarding.

- ▶ Ix : USS abdomen.
FBC, CRP.
- ▶ Mx : Appendectomy.
Conservative management.

Intestinal obstruction.



- ▶ Hx : Vomiting.
Abdominal distention.
Constipation.
- ▶ Ex : Distended abdomen.
Exaggerated bowel sounds.
- ▶ Ix : Supine abdominal x ray.
Serum Electrolytes.
- ▶ Mx : Nil by mouth.
NG tube decompression.
Hydration and electrolyte correction.
Surgical or conservative management.

Viral hepatitis
Occur due to
Hepatitis virus A ,B, C, or E
Clinical features
Nausea
Vomiting
Abdominal pain
Jaundice
Dark colour urine

- ▶ Hepatitis A
Feco oral route
Self limiting
- Management
Isolate
Symptomatic management
Nortification
Health education

Musculoskeletal system Abnormalities

DR Manori Gamage
MBBS MD DCH MRCPCH

Musculoskeletal abnormalities in children

- ▶ Congenital
 - ▶ Club foot
 - ▶ Developmental dysplasia of the hip
 - ▶ Myopathies
- ▶ Acquired
 - ▶ Fractures
 - ▶ Transient synovitis
 - ▶ Septic arthritis
 - ▶ osteomyelitis

Club foot

- ▶ 2 types
 - ▶ Positional talipes
 - ▶ can be corrected to neutral position with passive manipulation
 - ▶ Talipes equinovarus
 - ▶ A complex deformity. Entire foot is inverted, supinated
 - ▶ Forefoot is adducted
 - ▶ Heel rotated inwards and plantar flexion



Diagnosis is by clinical examination
 Exclude any associated hip anomalies
 examine spine to see any associated anomaly

Management:

If positional
 Reassurance
 physiotherapy

If severe
 POP cast
 surgical correction


During management

Relieve maternal anxiety is very important

If Baby has a POP cast
 look after the cast and look after the limb with the cast is very important

Developmental dysplasia of the hip

- ▶ Spectrum of disorders of the hip joint
- ▶ Ranging from dysplasia to subluxation to frank dislocation of the hip from acetabulum



normal subluxation dislocation

- ▶ **Diagnosis**
 Early detection is important.
 Neonatal screening is performed by
 Barlow's manaeuver- to check whether hip is dislocable
 Otolani manaeuver -to relocate the dislocated hip into acetabulum
 Confirmed by USS
- ▶ **Management :**
 Respond to conservative management
 Harness, Splinting to keep hip flexed and adducted
 if not responding - corrective surgery

Fractures

- ▶ Complete or incomplete break on a bone resulting from the application of excessive force
- ▶ commonest sites:
 - ▶ Clavicle
 - ▶ Humerus
 - ▶ Femur
 - ▶ Supracondylar fracture of the humerus
 - ▶ Forearm fractures of radius, ulnar

Causes for fractures

- ▶ Birth trauma
- ▶ Shoulder dystocia
- ▶ Fallen on outstretched hand
- ▶ Direct blow on bone
- ▶ Inherited diseases of bones -osteogenesis imperfecta
- ▶ Tumours of bones

Clinical features of fractures

- ▶ Pain and swelling at the fracture site
- ▶ Tenderness close to the site
- ▶ Deformity of the affected limb
- ▶ Bleeding and bruising at the site
- ▶ Loss of pulse distal to the fracture
- ▶ Numbness, tingling or paralysis distal to the fracture site

Diagnosis

- ▶ Clinical examination
- ▶ X ray

Management

- ▶ Pain relief
- ▶ Immobilization
 - ▶ Splints
 - ▶ POP casts
- ▶ Reduction
 - ▶ Traction reduction
 - ▶ Manipulation under anaesthesia
- ▶ rehabilitation

Transient synovitis(irritable hip)

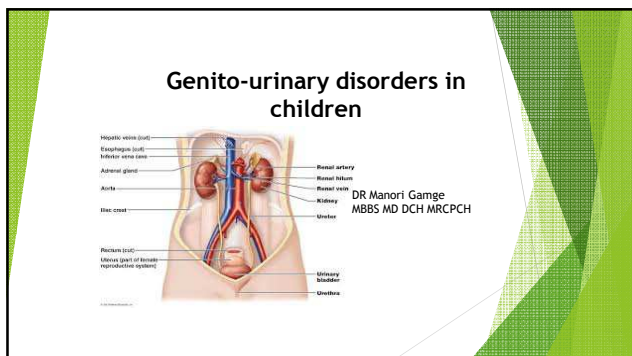
- ▶ Most common cause of acute hip pain
- ▶ Commonest between 2-12 years
- ▶ Follows/accompanies by a viral infection
- ▶ Sudden onset pain in hip or limp
- ▶ Limited internal rotation and reduced range of movements
- ▶ Diagnosis
 - ▶ USS
- ▶ Management
 - ▶ Rest
 - ▶ Pain relief

Septic arthritis

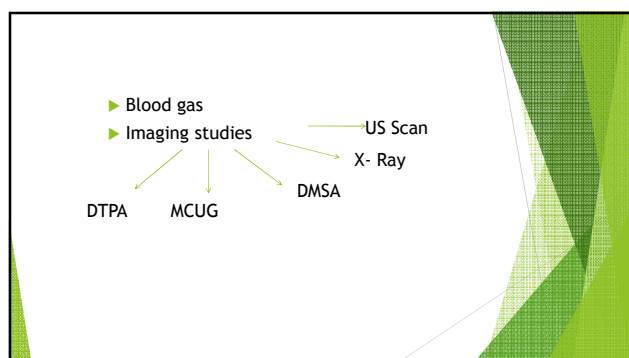
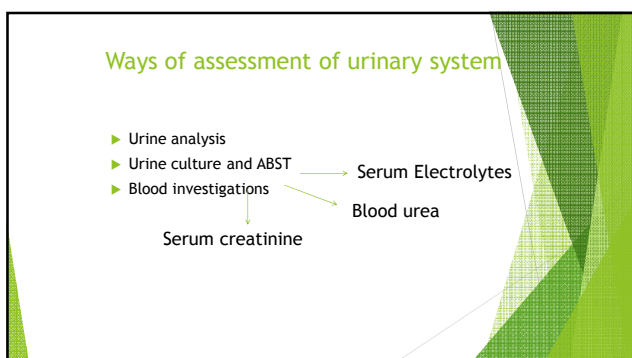
- ▶ Serious infection of the joint space
- ▶ Can lead to bone destruction if not treated
- ▶ Early diagnosis is important
- ▶ Can give rise to infection of the underlying bone= Osteomyelitis
- ▶ Joint is, erythematous, warm, tender joint, reduced movements

- ▶ Diagnosis
 - ▶ WBC
 - ▶ CRP
 - ▶ BLOOD Culture
 - ▶ USS
 - ▶ Xrays

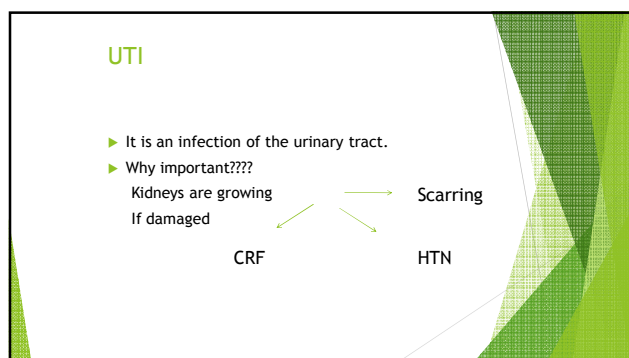
- ▶ Management
 - ▶ Pain relief
 - ▶ Antibiotics- should give a prolonged course



- ### Ways of presentation...
- ▶ Oedema
 - ▶ Reduced urine output.
 - ▶ Haematuria
 - ▶ Polyuria
 - ▶ Hypertension
 - ▶ Other urinary symptoms



- ### Common problems seen among children
1. UTI
 2. Nephrotic syndrome
 3. Nephritic syndrome
 4. Haematuria



Ways of presentation

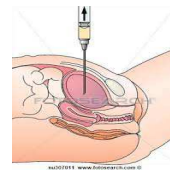
- ▶ Depending on the age, presentation will vary
- Neonate/Infant Older children
- Fever -Fever
- FTT -Urinary symptoms
- Irritability -Vomiting
- Jaundice -Abdominal pain
- Vomiting

How to diagnose ?

- ▶ UFR - Supportive
 - ▶ Urine culture- Gold standard
- How to collect U.Culture is very important

- ▶ Method of collection
- MSU - Clean catch
- Catheter
- Suprapubic aspiration
- Bag - Not available

Suprapubic aspiration



Treatment

Acute

- Do investigations
- Short course of antibiotics -7 to 10 days
- Post treatment culture ABST
- Long term plan will be discussed, depending on
- Age
- way of presentation
- Underlying other problems

Nursing interventions

- ▶ Assessment
- ▶ Support investigations
- ▶ Administer medication as prescribed
- ▶ Health education (Very important)

Nephritic Syndrome

Features

- Oliguria
- Hypertension
- Haematuria

Following Streptococcal infection.

Ix

- ▶ UFR
- ▶ Urine culture
- ▶ Renal functions
- ▶ US scan KUB

Complications

- Acute renal failure
- Hypertensive encephalopathy
- Heart failure

Mx

- ▶ Input/ Output chart
- ▶ Daily weight
- ▶ Daily urine protein test
- ▶ BP chart
- ▶ Oral Penicillin - 10 days
- ▶ Antihypertensive (If BP high)

Nursing intervention

1. Assessment - Oedema
 - BP
 - UOP
2. Supportive treatment
3. Administer medications prescribed
4. Input/Output
5. Urine ward test daily
6. Health education/Psychological support

Nephrotic syndrome

- ▶ Features
 - Gross oedema
 - Proteinuria
 - Reduced serum Albumin
 - Increased serum Cholesterol

Presentation

- ▶ Oedema
- ▶ Frothy urine

Ix

- ▶ UFR
- ▶ Serum protein
- ▶ Serum Cholesterol
- ▶ Renal functions
- ▶ Urine culture & ABST

Complications

- ▶ Hypovolemic shock
- ▶ Renal vein thrombosis
- ▶ Peritonitis
- ▶ Increased risk of other infections

Mx

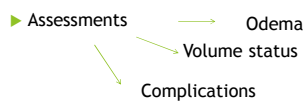
General

- Isolate
- Input / Output
- Daily weight
- U. ward test
- BP chart

Specific

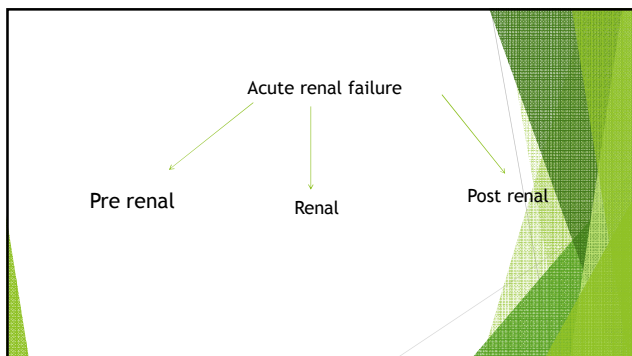
- O. Prednisolone
- O. Penicillin
- If ascitis present

Nursing interventions



- Health education

- ▶ Supportive treatment
- ▶ Medications on prescribe
- ▶ Monitor the vitals/ other parameters



- ### Pre renal causes
- ▶ Hypovolaemia
 - Gastroenteritis
 - Burns
 - Sepsis
 - Haemorrhage
 - Nephrotic syndrome
 - ▶ Circulatory failure

- ### Renal causes
- ▶ Vascular
 - HUS
 - Vasculitis
 - Embolism
 - ▶ Tubular
 - Acute tubular necrosis
 - Toxic
 - Obstruction
 - ▶ Glomerular - Glomerulonephritis
 - ▶ Interstitial nephritis

- ### Post renal causes
- ▶ Obstruction
 - Congenital (PUV)
 - Acquired (Blocked urinary catheter)

- ### Associated problems
- ▶ Increased Blood urea
 - ▶ Increased Potassium
 - ▶ Acidosis
- } •Dialysis
•NaHCO₃

- ### CKD
- ▶ When GFR is <15ml/min per 1.73m²
 - ▶ Causes
 - Structural malformations
 - Glomerular nephritis
 - Unknown

Mx

- ▶ Nutrition
- ▶ Treat acidosis
- ▶ Treat anaemia
- ▶ Dialysis
- ▶ Transplantation

ANY QUESTIONS ?

Thank you !