- Difficulty swallowing or breathing
- Painful throat
- Halitosis
- Fever
- Loss of appetite
- Hoarse voice
- Enlarged bright red tonsils
- Pus

Diagnosis

- Throat culture
- Assess for Group A beta-hemolytic streptococcus

Untreated streptococcal infection may contribute to rheumatic heart disease.

Possible Nursing Diagnoses

- Acute pain related to inflammation of tonsils
- Deficient fluid volume related to inadequate oral intake secondary to painful swallowing

Therapeutic Management

If viral, treatment focuses on comfort and fever reduction. If bacterial, antipyretics, analgesics, and antibiotics are administered as prescribed. The full antibiotic course must be completed.

Tonsillectomy

Tonsillectomy is the surgical removal of the palatine tonsils, usually done for chronic tonsillitis.

Postoperative Nursing Care

After tonsillectomy, assess for hemorrhage:

- Frequent swallowing
- Throat clearing
- Increased pulse
- Increased respiratory rate
- Anxiety or restlessness
- Metallic taste

Nursing care includes:

- Elevating the head
- Offering clear fluids, popsicles, or ice chips
- Avoiding red-colored fluids
- Providing soft foods
- Avoiding acidic juices
- Restricting strenuous activity until healing occurs
- Avoiding aspirin or ibuprofen due to bleeding risk

B. Epistaxis

Epistaxis means nosebleed.

Causes

- Trauma
- Nose picking
- Scarlet fever
- Sinusitis
- Allergic rhinitis
- Nasal polyps
- Medications
- Dry environment

Management

Place the child upright with the head tilted slightly forward. Apply pressure to the sides of the nose. Avoid placing the child in a hot area. If bleeding continues, epinephrine may be applied or nasal packing may be needed.

Health Teaching

Teach parents to calm the child because crying increases pressure in the blood vessels and may prolong bleeding. Humidification may help prevent drying and cracking of the nasal mucosa.

C. Sinusitis

Sinusitis is inflammation or infection of the sinuses.

Assessment

- Fever
- Purulent nasal discharge
- Headache
- Tenderness over the affected sinus

Diagnosis

- Nose and throat culture

Management

- Warm compresses to sinus area
- Antipyretics
- Analgesics
- Antibiotics if prescribed
- Nasal drops or spray

Nasal sprays should be administered in an upright position and sprayed away from the septum.

Complications

Untreated sinusitis may lead to:

- Osteomyelitis of facial bones
- Otitis media
- Chronic pain affecting school and social activities

D. Bronchitis

Bronchitis is inflammation of the bronchi. It is common among preschool and school-age children.

Causes

- Adenovirus
- Influenza
- Mycoplasma pneumoniae

Assessment

- Mild upper respiratory infection for 1–2 days
- Fever
- Dry, hacking, nonproductive cough
- Cough worse at night
- Cough becomes productive in 2–3 days
- Rhonchi and coarse crackles

Diagnosis

Chest radiograph may show diffuse alveolar hyperinflation and markings at the hilus of the lung.

Management

- Relieve respiratory symptoms
- Reduce fever
- Maintain hydration
- Encourage breastfeeding or oral fluid intake
- Expectorants if mucus is thick
- Antibiotics for bacterial infection
- Deep breathing exercises and coughing exercises if child can follow instructions

Health Teaching

Coughing is important to remove sputum. Cough suppressants are rarely indicated.

E. Influenza

Influenza is a viral respiratory infection. Prevention includes vaccination, mask use, cough etiquette, hydration, and immune support.

Assessment

- Cough
- Coryza
- Fever and chills
- Fatigue
- Body aches
- Sore throat
- Vomiting or diarrhea

Diagnosis

Diagnosis is usually based on presenting signs and symptoms.

Management

- Tepid sponge bath
- Antipyretics as ordered
- Comfort measures
- Rest
- Hydration
- Yearly influenza vaccine
- Droplet precautions for hospitalized patients

Health Teaching

Teach infection control measures and advise prompt evaluation because influenza may progress to bronchitis or pneumonia.

F. Primary Complex / Tuberculosis in Children

Primary complex is considered tuberculosis in children and is transmitted through droplets.

Assessment

Many children are asymptomatic and are only diagnosed after testing. Possible findings include:

- Low appetite
- Poor weight gain

Diagnosis

- Tuberculin skin test or PPD
- Chest radiography
- Sputum test after positive PPD

For sputum collection:

- Collect early morning specimen
- Do not use mouthwash
- Gargle with water only

- Deep breathe, hold, and cough

Management

Treatment depends on drug resistance. Drugs may include:

- Isoniazid
- Rifampicin
- Ethambutol

Important Drug Cautions

- Isoniazid may cause peripheral neurologic symptoms
- Rifampicin may discolor urine
- Ethambutol may cause optic neuritis

Health Teaching

- Strictly follow the treatment regimen
- Encourage high-protein, calcium, and pyridoxine-rich diet
- Avoid symptomatic coughing individuals
- Practice cough etiquette
- Include household members in screening
- Prompt treatment prevents progression to active tuberculosis

Unit 7: Children and Adolescents with Alterations in Cardiovascular Systems

Most cardiovascular disorders in children are congenital. Many occur because the heart fails to develop properly during embryonic development.

A. Left-to-Right Shunts / Acyanotic Heart Disease

In left-to-right shunts, oxygenated blood from the left side of the heart flows back to the right side. The blood returns to the lungs instead of going to the body.

Result

- No cyanosis because blood remains oxygenated
- Increased pulmonary blood flow
- Increased workload of the heart
- Possible heart failure

Common examples include:

- Ventricular septal defect
- Atrial septal defect
- Atrioventricular septal defect
- Patent ductus arteriosus

B. Right-to-Left Shunts / Cyanotic Heart Disease

In right-to-left shunts, deoxygenated blood bypasses the lungs and enters systemic circulation.

Result

- Low oxygen level in blood
- Cyanosis or bluish discoloration

C. Ventricular Septal Defect

VSD is one of the most common congenital heart defects. It occurs when the ventricular septum does not completely close.

Pathophysiology

Oxygenated blood flows from the left ventricle to the right ventricle due to higher left-sided pressure. This increases pulmonary blood flow and may cause left-sided dilation.

Assessment

- Harsh holosystolic murmur at the left lower sternal border
- Tachypnea
- Poor feeding
- Failure to thrive
- Possible palpable thrill

Diagnosis

Confirmed by echocardiogram or 2D echo.

Management

- Furosemide
- Increased caloric density of formula or breast milk
- Bottle or nasogastric tube feeding if feeding is tiring
- Surgical or catheter closure depending on defect size
- Digoxin to strengthen and slow heartbeat

D. Atrial Septal Defect

ASD occurs when the atrial septal tissue does not completely form. The most common type is the **secundum defect** located in the center of the atrial septum.

Assessment

- May be asymptomatic
- May not have a murmur
- Wide, fixed splitting of S2
- Pulmonary overcirculation
- Rales
- Congestion
- Tiring with activity
- Frequent respiratory tract infections
- Poor weight gain
- Systolic murmur at the left upper sternal border

Diagnosis

Confirmed by echocardiogram.

Management

- Based on age and defect size
- Diuretics
- Catheter device closure for most secundum ASDs
- Surgical closure for sinus venosus, primum, or very large secundum ASDs

E. Atrioventricular Septal Defect

AVSD involves a hole between heart chambers and abnormal valve formation. It is the most common congenital heart disease in children with Down syndrome.

Pathophysiology

Blood flow is mainly left to right, causing increased pulmonary blood flow and heart failure. The main problem involves the valves.

Assessment

Signs of heart failure include:

- Difficulty of breathing
- Rapid or labored breathing
- Excessive sweating during feeding
- Easy fatigability
- Abdominal or ankle swelling
- Poor weight gain
- Increased pulmonary vascular resistance

Diagnosis

Confirmed by echocardiography.

Management

- Furosemide
- Digoxin
- ACE inhibitors such as captopril or enalapril
- Concentrated feeds
- Early surgical correction, especially in children with Down syndrome
- Closure of ASD and VSD
- Repair of mitral and tricuspid valves

F. Patent Ductus Arteriosus

PDA occurs when the fetal ductus arteriosus fails to close after birth. It is more common in premature infants.

Pathophysiology

The ductus arteriosus connects the aorta and pulmonary artery. If it stays open, oxygenated blood from the aorta flows back into the pulmonary artery, increasing pulmonary blood flow and forcing the heart to work harder.

Assessment

- Systolic murmur early in life
- Continuous murmur as the child ages
- Murmur heard at second intercostal space, left upper sternal border, or left clavicular area
- Rales
- Congestion
- Increased work of breathing
- Difficulty feeding
- Failure to thrive

Diagnosis

Confirmed by echocardiogram.

Management

- Furosemide
- Increased caloric concentration of feeds
- Indomethacin to promote closure
- Cardiac catheterization closure for older children
- Surgical closure through left-sided thoracotomy

G. Signs of Decreased Cardiac Output

Children with congenital heart disease may show:

- Decreased peripheral pulses
- Exercise intolerance
- Feeding difficulties
- Hypotension
- Irritability
- Restlessness
- Lethargy

- Oliguria
- Pale, cool extremities
- Tachycardia

H. General Nursing Diagnoses for Congenital Heart Disease

Possible nursing diagnoses include:

- Anxiety and inadequate coping
- Possible delayed growth and development
- Risk for infection
- Inadequate nutrition
- Impaired gas exchange

I. General Nursing Management for Congenital Heart Disease

Nursing care includes:

- Assess family coping
- Provide information about the condition
- Promote developmentally appropriate mental activities
- Limit exposure to infection
- Offer small, frequent meals
- Organize care to allow rest
- Promote pulmonary hygiene
- Change position every 2 hours

Pulmonary hygiene includes deep breathing exercises, controlled coughing, adequate hydration, and postural drainage.

Unit 8: Children and Adolescents with GI, Urologic, Musculoskeletal, Hematologic, and Cellular Aberrations

A. Gastrointestinal Problems

1. Intussusception

Definition

- **Intussusception** is the **invagination of one portion of the intestine into another**. This means that one segment of the bowel "telescopes" or slides into another part of the intestine, which can lead to obstruction and compromised blood flow.

Types of Intussusception

Intussusception is classified based on its location in the bowel:

Type	Description
Ileocolic	The most common form. The small intestine, specifically the ileum, slides into the large intestine or colon.
Enteroenteric / Small bowel	Involves only the small intestine.

Causes / Risk Factors

The notes and slides identify the following risk factors:

Causes / Risk Factors

Viral infections that cause enlargement of lymphoid tissue in the intestine
Meckel's diverticulum
Intestinal polyps or tumors
History of recent gastroenteritis
Male infants are more commonly affected
Common age group affected: **3 months to 3 years**

Assessment Findings

Important signs and symptoms include:

Assessment Findings in Intussusception
Colicky abdominal pain
Screaming and drawing knees to the abdomen
Vomiting
Blood-stained fecal emesis
Currant jelly-like stool with blood and mucus
Hypoactive or hyperactive bowel sounds
Tender, distended abdomen
Palpable sausage-shaped abdominal mass

Key Stool Finding

A classic finding in intussusception is **red currant jelly stool**, which is a mixture of:

Components
Blood
Mucus
Sloughed intestinal mucosa

This happens because of **venous congestion** and **ischemia of the bowel wall**.

Diagnosis and Tests

The slides show the use of **contrast enema** as part of diagnostic evaluation and management. The diagram also identifies common findings such as:

Diagnostic/Clinical Clues
Sausage-shaped abdominal mass
Red currant jelly stool
Telescoping bowel
Possible association with intestinal polyps or Meckel's diverticulum
Contrast enema findings

Therapeutic Management

Nursing / Therapeutic Care
Replace fluid volume as ordered
Monitor intake and output accordingly
Offer diversional activities
Provide pain relief

Surgical Management

Surgical Care
Reduction of intussusception
Post-surgery, observe for **24 hours** for possible recurrence of intussusception

2. Hirschsprung's Disease / Aganglionic Megacolon

Definition

- **Hirschsprung's disease**, also called **aganglionic megacolon**, is the **absence of ganglionic innervation to the muscle of a section of the bowel**. Because the affected bowel segment lacks nerve supply, peristalsis is impaired or absent in that area.

Assessment Findings

Assessment Findings
Absence or delayed passage of meconium in the newborn
Constipation
Ribbon-like stools
Distended abdomen
Vomiting
No peristaltic waves

Therapeutic Management

Nursing / Therapeutic Care
Observe proper colostomy care
Observe for signs of pain and discomfort
Ensure accurate intake and output determinations
Observe the consistency of effluent
Perform oral and nasal care

Surgical Management

Surgical Care
Disection/dissection and removal of affected section
Anastomosis of the intestine

Pull-through operation
Commonly treated in newborns by a two-stage surgery
First, a temporary colostomy is established
Bowel repair usually follows after several months, noted as around **12 to 18 months** in the slide

3. Volvulus

Definition

- **Volvulus** is the **twisting of the intestine**. This can obstruct the bowel and may compromise blood supply to the affected intestinal segment.

Assessment Findings

Assessment Findings
Intense crying
Pain
Pulling up the legs
Abdominal distention
Vomiting

Therapeutic Management

Nursing / Therapeutic Care
Assess respiratory function
Provide comfort measures
Administer pain medication as ordered
Assess for signs of possible dehydration
Provide oral hygiene

Surgical Management

Surgical Care
Surgery to relieve the volvulus and reattach the bowel
Surgery must be done promptly before necrosis of the intestine occurs

4. Inguinal Hernia / Abdominal Hernia

Definition

- An **inguinal hernia** is the **protrusion of a section of the bowel into the inguinal ring**. It is commonly associated with a **hydrocele in infants** by **2 to 3 months of age**, when intra-abdominal pressure increases enough to open the sac. Abdominal hernia may also be evaluated using imaging such as **abdominal ultrasound and MRI**, aside from physical examination.

Assessment Findings

Assessment Findings
Lump in the left or right groin
Pain, especially if the bowel has become incarcerated
Swelling in the inguinal area
Tenderness at the hernia site
Possible signs of obstruction or strangulation

Additional Assessment Technique from Notes

Assessment Technique
Let the child stand and instruct the child to cough to assess the hernia

Diagnosis and Tests

Diagnosis / Tests
Physical examination
Abdominal ultrasound
MRI, if needed

Possible Nursing Diagnoses

Nursing Diagnoses
Acute pain related to surgical repair
Deficient knowledge related to lack of knowledge about postoperative care
Risk for injury related to intestinal obstruction
Risk for fluid volume deficit related to postoperative NPO status or dehydration

Therapeutic Management

Therapeutic Care
Assess by palpation for swelling in the inguinal area
Assess hernia site for tenderness and other symptoms
Maintain NPO status, if prescribed
Initiate small amounts of clear liquids, as tolerated, especially postoperatively

Surgical Management

Surgical Care
Surgical repair to prevent obstruction and eventual incarceration of a loop of bowel
Infants with inguinal hernia may undergo laparoscopic surgery before 1 year of age to prevent bowel strangulation

Notes mention laparoscopic surgery or open surgery depending on the case
Notes also mention that the abdominal wall may be strengthened using suture and mesh to support the repair

Health Teaching

Health Teaching
Encourage parents to hold the infant when crying and during feeding
Instruct the child to avoid pushing, lifting, or engaging in vigorous activity
Explain that the infant may need frequent diaper changes and good diaper-area care
Assess circulation in the leg on the side of the surgical repair to ensure groin edema is not compressing blood vessels and obstructing blood flow
Instruct to keep the suture line dry and free of urine or feces to prevent infection

5. Cleft Palate and Cleft Lip

General Definition

- **Cleft palate and cleft lip** are **congenital anomalies** that occur because of failure of soft tissue or bony structure to fuse during embryonic development.

Causes / Risk Factors

From the notes, possible causes include:

Causes / Risk Factors
Environmental factors
Genetic factors
Maternal exposure to smoking
Alcohol intake during pregnancy
Contraindicated medications during pregnancy, such as certain anti-seizure medications or antibiotics
Gene mutation or genetic problem
Unknown exact cause, but often a combination of genetic and environmental factors

Cleft Palate

Definition

- **Cleft palate** occurs when the **roof of the mouth does not fuse properly**, usually during the **6th to 9th month of pregnancy** according to the notes.

Assessment Findings

Assessment Findings
Opening of the palate
Difficulty sucking and feeding
Underweight
Risk for aspiration
Possible respiratory distress

Diagnosis and Tests

Diagnosis / Tests
Depressing the newborn's tongue with a tongue blade
Inserting a gloved finger to check for an opening
Sonogram or ultrasound while in utero

Therapeutic Management

Nursing / Therapeutic Care
Assess for signs of respiratory distress
Assess and clean the suture line
Administer analgesics as ordered
Feed with cup, spoon, or special feeding bottle
Position the baby upright when feeding
Use specialized bottles if the infant has difficulty sucking or feeding

Surgical Management

Surgical Care
Surgical repair
Palatoplasty
Palatoplasty involves repositioning of the soft tissue
Primary treatment is commonly done between **9 to 18 months**, before the child talks

Health Teaching

Health Teaching
Teach parents special feeding or suctioning techniques
Encourage parents to express their feelings about the disorder
Encourage parents to continue bonding with the infant
Explain that all children born with cleft palate need follow-up treatment by a pedodontist

Dental follow-up is needed so that, as the child grows, extractions or realignment of teeth can be done if indicated
Follow-up is also needed to detect speech or hearing difficulty

Cleft Lip

Definition

- **Cleft lip** occurs when fusion of the **maxillary and median nasal processes fails to occur**. It may appear as an opening of the upper lip or a complete slit extending from the lip toward the nose.

Assessment Findings

Assessment Findings
Opening or slit in the upper lip
May involve deformity extending toward the nose
Possible feeding difficulty
Possible appearance-related concerns

Diagnosis and Tests

Diagnosis / Tests
Physical examination
Sonogram or ultrasound while in utero

Surgical Management

Surgical Care
Surgical repair
Cheiloplasty
Cheiloplasty is commonly performed between **2 and 6 months**, often around **3 to 4 months old**
Repositioning of soft tissue is performed
Procedure is done under general anesthesia
May leave a small scar
Reconstructive surgery may be needed, especially when there is missing cartilage, flattened nose, or misaligned teeth

Psychosocial Considerations

Psychosocial Concerns
Physical appearance of the child may cause parental distress
Notes mention that it may contribute to postpartum depression because of the child's physical appearance

The child may later experience bullying
Bullying may contribute to emotional distress or depression
Parents should be encouraged to express feelings and continue bonding with the infant

B. Uro-Nephrologic Problems

General Concept

- Uro-nephrologic problems involve structural abnormalities or kidney malfunction. These may cause children to have excessive amounts of fluid in the body or electrolyte imbalances that affect normal body functioning.

From the notes:

General Points
Uro-nephrologic problems are problems involving the kidney and urinary system
They may cause electrolyte imbalance
They may cause edema
A main filtration problem is the excretion of protein and blood in the urine
If left untreated, serious kidney problems may cause death
Frequent UTI may occur because of bacterial invasion
Other issues may include CKD or blockage due to stones or tumors

Urologist vs. Nephrologist

Specialist	**Focus**
Urologist	Surgical specialist who focuses on anatomical urinary problems, stones, tumors, and structural issues
Nephrologist	Medical specialist, not a surgeon; focuses on medical management of kidney problems such as CKD

Epispadias and Hypospadias

Definition

- **Epispadias and hypospadias** are congenital defects involving abnormal placement of the **urethral orifice of the penis**.

Difference Between Epispadias and Hypospadias

Condition	**Location of Urethral Opening**

Epispadias	Urethral opening is on the **dorsal surface** of the penis
Hypospadias	Urethral opening is on the **ventral/lower aspect** of the penis

Classification / Locations in Hypospadias

The slides show possible locations of hypospadias:

Degree	Possible Locations
1st degree	Glanular, coronal
2nd degree	Subcoronal, distal penile, midshaft, proximal penile
3rd degree	Penoscrotal, scrotal, perineal

Associated Findings

Associated Findings
Many newborns with hypospadias may have accompanying chordee
Chordee is a fibrous band that causes the penis to curve downward
It is often called a cobra-head appearance
Inspect carefully for cryptorchidism or undescended testes, which may occur with hypospadias

Diagnosis and Tests

Diagnosis / Tests
Routine physical examination
Inspection of urethral opening location

Therapeutic Management

Nursing / Therapeutic Care
Provide pain relief measures
Provide diversional activities
Observe proper hygiene practices
Observe for signs of possible infection
Offer favored choice of liquids often
Observe changes in urinary pattern
Observe inability to void

Surgical Management

Surgical Care
Surgical repair
Urethroplasty or hypospadias repair
Epispadias repair or urethral reconstruction
Orthoplasty and urethroplasty
Single-stage repair is most common for mild to moderate cases
Two-stage repair or Bracka's repair may be used for severe cases
Severe repair may use a free graft from oral buccal mucosa
Repair is typically done around **6 to 12 months old**
Circumcision is contraindicated because the foreskin may be needed for reconstruction

Surgical Procedures Mentioned in Notes

Procedures / Techniques
Snodgrass procedure or TIP procedure for hypospadias
MAGPI procedure
Flap procedure
Modified Cantwell procedure for epispadias
Urethral reconstruction
Urethroplasty
Orthoplasty

Health Teaching

Health Teaching
Explain that this may be a difficult medical diagnosis for parents to accept because it may feel like a threat to the child's masculinity
Parents may have difficulty discussing the defect with relatives or health care personnel
Help parents work through feelings by allowing them to talk about the disorder
Answer questions honestly and openly
Teach parents how to care for the wound site
After repair, children are expected to have usual urinary and reproductive function unless accompanying anomalies of the penis are present

Glomerulonephritis

Definition

- **Glomerulonephritis** is an **inflammation of the glomeruli of the kidney**. It usually occurs as an **immune complex disease** after infection with nephritogenic streptococci, most commonly subtypes of **Group A beta-hemolytic streptococci**.

Pathophysiology

- Inflammation of the glomeruli increases permeability. This allows protein molecules to escape into the filtrate. Because the glomeruli are the filtering units of the kidney, inflammation causes abnormal filtration, leading to blood and protein in the urine.

Pathophysiology Points
It is a problem with the filtering units of the kidney
It may cause hypertension, edema, and swelling
It may occur after post-streptococcal infection
Other associated causes mentioned include Hepatitis C and skin infection
Urine may show active sediment, blood, and protein
Proteinuria may appear as foamy or bubbly urine

Assessment Findings

Assessment Findings
Sudden onset of hematuria and proteinuria
Tea-colored, reddish-brown, or smoky urine
Oliguria
Hypovolemia
Hypertension
Abdominal pain
Low-grade fever
Edema
Pruritus
Anorexia
Orthopnea
Cardiac enlargement
Enlarged liver

Pulmonary edema
Galloping heart rhythm
Anemia
Heart failure

Diagnosis and Tests

Diagnostic Test	**Purpose / Finding**
Urinalysis	Detects hematuria, proteinuria, active sediment
Blood analysis	May show abnormal blood findings
Erythrocyte sedimentation rate / ESR	Increased in inflammation
BUN and creatinine	Assess kidney function
Antistreptolysin O titer / Anti-DNase B titer	Helps confirm recent or current streptococcal infection

Therapeutic Management

Therapeutic Care
Maintain bed rest
Practice proper hygiene
Monitor intake and output
Monitor blood pressure
Monitor urine characteristics
Control blood pressure
Administer antihypertensive therapy such as calcium channel blocker, as ordered
Give ACE inhibitors if ordered
Give immunosuppressants if ordered
Give antibiotics for active infection
Reduce salty foods if edema is present
Salt restriction
Weigh daily
High-protein diets are **not recommended**
Administer phosphate binders or potassium-removing resin agent such as Kayexalate for rising phosphate and potassium levels

If Heart Failure Occurs

Care if Heart Failure Occurs

Place child in semi-Fowler's position
Digitalization
Oxygen administration as ordered

Important Medication Notes

Medication / Treatment	Important Notes
Digoxin	Used in digitalization; monitor heart rate for one full minute before giving
Kayexalate	Used to treat hyperkalemia; may be given orally or rectally; side effects include nausea, constipation, stomach pain, and vomiting

Daily Weight

Daily weight is important because it is the **most accurate objective indicator of fluid retention** and may also reflect worsening kidney function.

Health Teaching

Health Teaching
Encourage children to participate in quiet play activities
Teach that they can attend school and engage in normal activities after 1 or 2 weeks
Remind them to limit competitive activity until kidney function has returned to normal
Caution parents that urine protein test results may remain abnormal for up to a year
Explain that persistent abnormal urine protein does not necessarily mean reinfection or worsening disease

Musculoskeletal Problems

General Concept

- Many common musculoskeletal disorders in children are first noticed during routine physical examinations.

Talipes / Clubfoot

Definition

- **Talipes**, commonly called **clubfoot**, is a congenital foot deformity where the foot is positioned abnormally.

Causes / Risk Factors

Causes / Risk Factors
Exact cause is unknown

Genetic factors may increase risk
Intrauterine environmental factors may contribute
The feet may be restricted or "stuck" in an abnormal position in the uterus
Lifestyle-related exposures may contribute
Maternal smoking is identified in the notes as a high-risk factor

Types / Assessment Terms

Term	Description
Plantarflexion	Equinus or "horsefoot" position; forefoot is lower than the heel
Dorsiflexion	Heel is held lower than the forefoot or anterior foot is flexed toward the anterior leg
Varus deviation	Foot turns inward
Valgus deviation	Foot turns outward
Cavus	High arch deformity
Adduction	Foot turns toward the midline
Equinus	Downward pointing foot position

Assessment

Assessment Point
During initial assessment, make a habit of straightening all newborn feet to the midline
Notes mention this should be done before Ballard scoring
Assess crying episodes in babies
Observe for impaired tissue integrity

Diagnosis and Tests

Diagnosis / Tests
Initial newborn assessment
Straightening newborn feet to the midline
Radiographs

Therapeutic Management

Therapeutic Care
Support verbalization of positive and negative feelings
Monitor site of impaired tissue integrity for color changes

Monitor for redness, warmth, pain, and other signs of infection
Assess crying episodes in babies
Change diapers frequently
Mild cases may be managed with simple stretching

Surgical / Orthopedic Management

Surgical / Orthopedic Care
Casting is applied while the foot is placed in an overcorrected position
If the child does not respond to casting, surgery may be done
Denis Browne splints may be used
The infant may sleep in Denis Browne splints, which are shoes attached to a metal bar
High-top shoes may be used at night for a few more months
Surgery is an option for children who do not achieve correction by casting

D. Hematologic Problems

General Concept

- Hematologic problems are alterations in the substance or function of blood or its components. These can have immediate and life-threatening effects on the functioning of all body systems.

General Hematologic Concepts
Hematologic problems are disorders of the blood and bone marrow
Common conditions include iron-deficiency anemia, hemophilia, sickle cell disease, and thrombocytopenia
Problems may involve oxygen transport and clotting
Disorders may be malignant or non-malignant

1. Iron-Deficiency Anemia

Definition

- **Iron-deficiency anemia** occurs when iron stores are depleted, resulting in a decreased supply of iron for the manufacture of hemoglobin in red blood cells.

Assessment Findings

Assessment Findings

Dark-skinned or pale appearance
Pale mucous membranes
Poor muscle tone
Reduced activity
Fatigue
Irritability
Spleen may be slightly enlarged
Spoon-shaped fingernails
Enlarged heart may be possible
Enlarged spleen may be possible
Decreased activity

Diagnosis and Tests

Diagnosis / Tests
Hemoglobin level
Hematocrit level
RBC appearance
RBCs may be microcytic
RBCs may be hypochromic
RBCs may possibly show poikilocytes

Therapeutic Management

Therapeutic Care
Assist in developing a schedule for daily activities
Stress the relevance of frequent rest periods
Increase intake of iron-rich foods
Provide iron replacement and supplementation
Increase intake of vitamin C-rich foods
Administer ferrous sulfate as ordered
Assess for local or systemic signs of infection

Health Teaching for Iron Therapy

Health Teaching
Instruct parents to administer the drug on an empty stomach with water to enhance absorption
If gastrointestinal irritation occurs, administer after meals

Avoid giving iron with milk, eggs, coffee, or tea
If liquid iron is ordered, mix it with water or juice to mask the taste
Use a straw to prevent staining of the teeth
Iron is absorbed best in the presence of vitamin C
Give iron with citrus juice such as orange juice to help absorption
Some children may be prescribed vitamin C together with iron
Inform the child and parents that iron may turn stools black
Encourage high-fiber foods to minimize constipation
Reinforce thorough brushing of teeth to prevent staining
Remind parents about follow-up blood studies to evaluate drug effectiveness