

Anterior abdominal wall defects and congenital malrotations

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Anterior abdominal wall defects



Developmental bases

By: Nagham Mohammad

Developmental bases:

01

**Embryonic
folding**

02

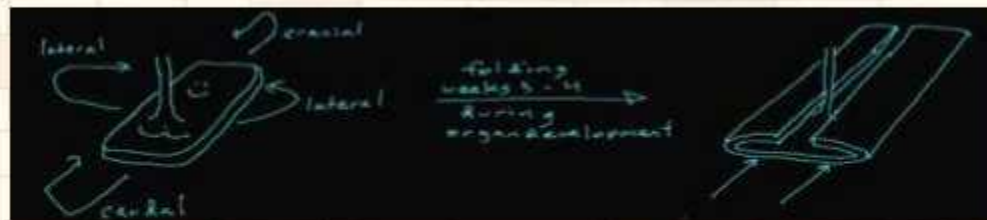
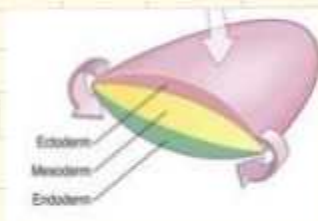
**Physiological
herniation**



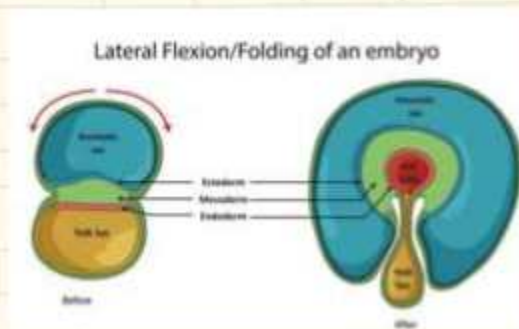
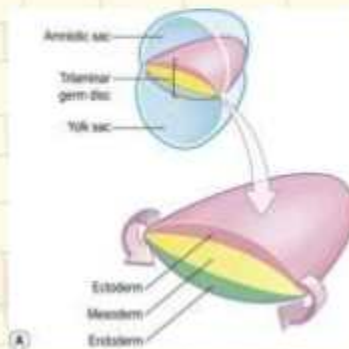
01.embryonic folding (~4th week)

The process of cephalocaudal and lateral folding transforms the embryo from a flat disc to a three-dimensional vertebrate body form.

-Embryonic disc:



-lateral folding:

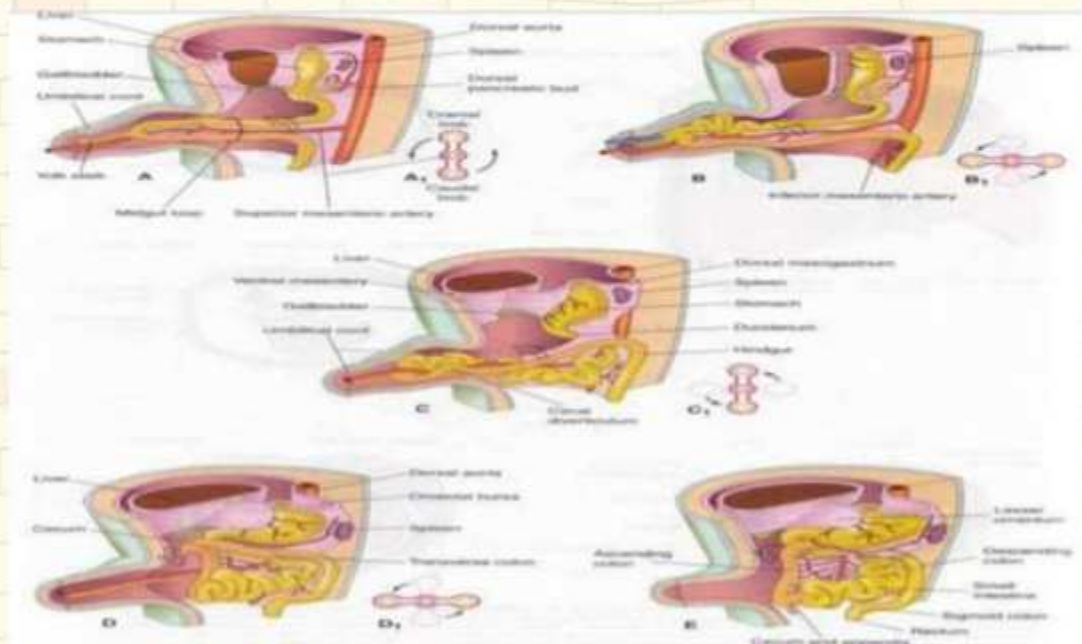
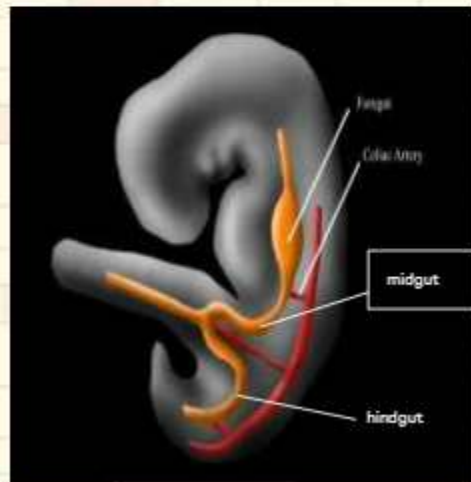


-craniocaudal folding:



02.physiological herniation: (~6th week)

A natural phenomenon that occurs in early pregnancy.it usually occurs from around 6-8 weeks until 10-13 weeks in utero,after which the bowel returns to the abdominal cavity.



Thanks

Do you have any questions?

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Gastroschisis and Omphalocele

Done by: Aseel Alrazem



Gastroschisis

Definition:

- Gastroschisis is a congenital defect in the abdominal wall where it fails to close during fetal development.
- The eviscerated bowel is not covered by a membrane.
- The defect is typically located to the right of the umbilicus.
- The intestines (and occasionally other abdominal organs, such as the liver) herniate through the defect and are exposed directly to amniotic fluid, causing inflammation.

Gastroschisis



Gastroschisis

Incidence:

-1:20000-30000

-40% are premature/SGA

-10-15% have associated anomalies

Diagnosis:

Prenatal US

Polyhydramnios

MSAFP

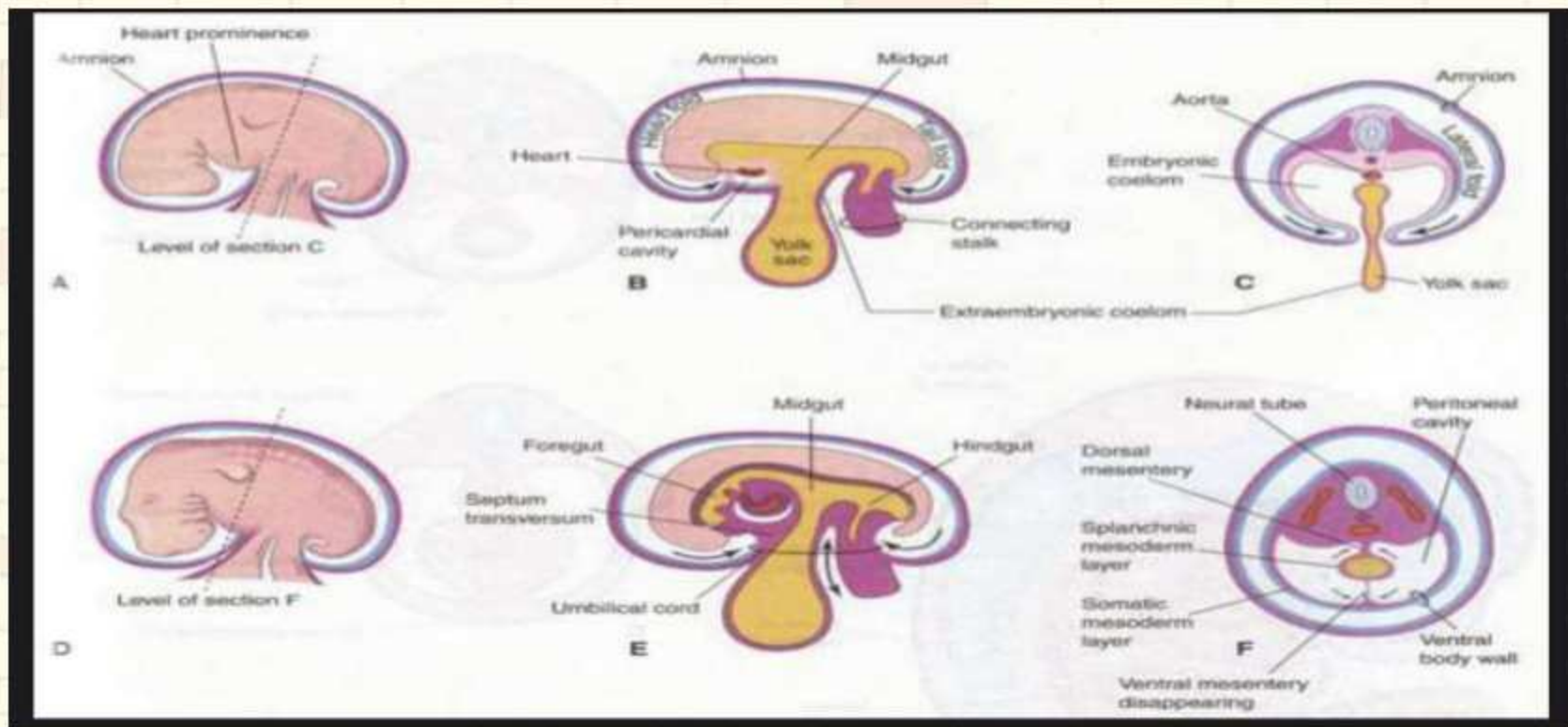
Pathophysiology:

Abnormal involution of the right umbilical vein

Rupture of a small Omphalocele

Failure of migration and fusion of the lateral folds of the embryonic disc on the week 3-4 of gestation

Gastroschisis



Gastroschisis

Etiology

- Could be caused by a folic acid deficiency, hypoxia, and salicylates.
- Associated with environmental factors like smoking, drug use (cocaine), and maternal age (younger mothers).
- Not usually linked to genetic or chromosomal abnormalities.

Clinical Presentation

- Postnatally, newborns present with intestines protruding outside the abdomen on the right side of the umbilicus, without a covering sac.
- Often, the bowel appears swollen, thickened, or edematous due to exposure to amniotic fluid.
- Maybe associated with intestinal atresia
- May cause malrotation, volvulus and undescended testicles

Omphalocele

Definition and Pathophysiology:

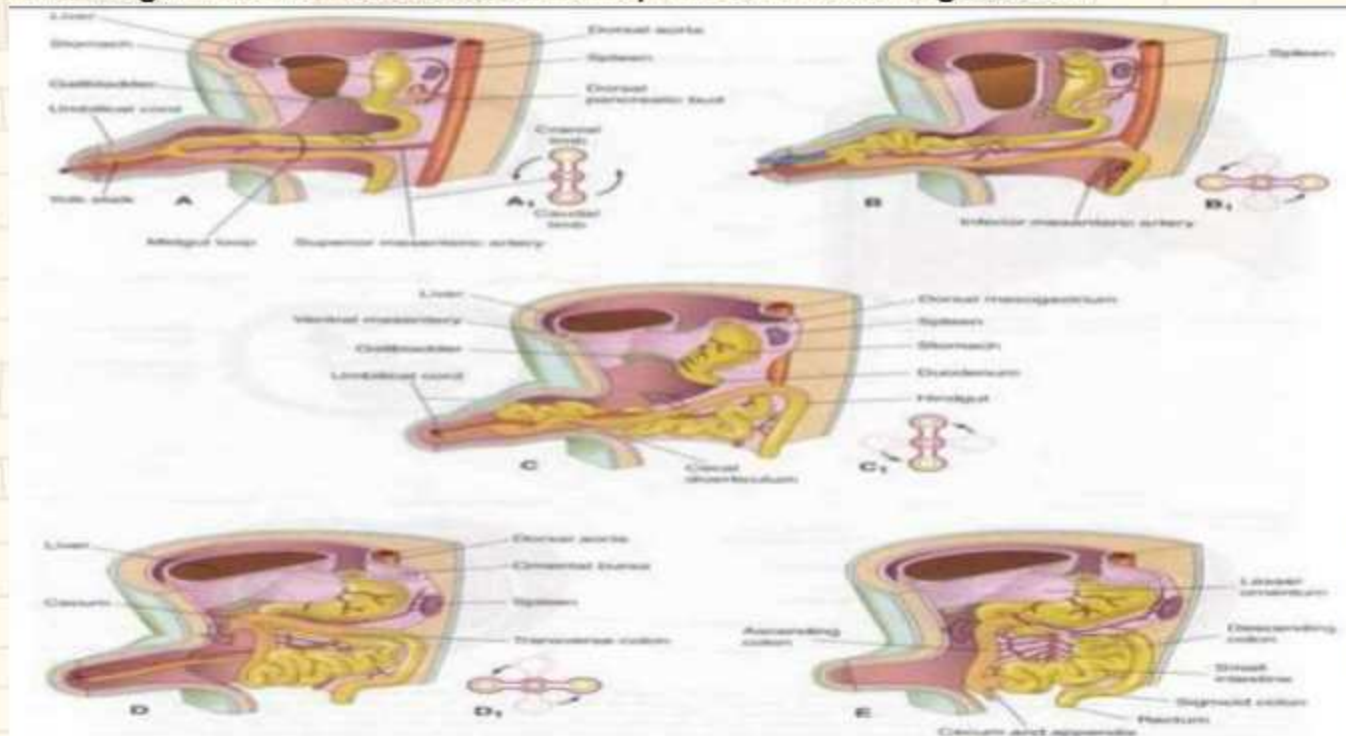
- Omphalocele occurs when the abdominal contents (intestines, liver, etc.) herniate into the base of the umbilical cord.
- Unlike gastroschisis, the herniated organs are covered by a protective sac made of peritoneum and amnion.
- The size of the defect can vary:
 - Exomphalos major >5 cm vs minor <5cm



Omphalocele

Pathophysiology:

- Failure of the midgut to return to the abdomen by the 10th week of gestation



Omphalocele

Etiology:

- Thought to result from abnormal folding of the embryonic disk during development.
- Stronger association with chromosomal abnormalities (e.g., Trisomy 13, 18, and 21) and genetic syndromes (e.g., Beckwith-Wiedemann syndrome).
- Risk factors include advanced maternal age.



Omphalocele

Clinical Presentation

- Detected prenatally by ultrasound as early as the first trimester.
- Newborns present with a visible sac containing herniated abdominal organs at the umbilicus.
- Often associated with other anomalies, including cardiac defects, neural tube defects, and genitourinary abnormalities.
- High risk of chromosomal abnormalities, warranting genetic testing.
- The sac may rupture in utero in 10%-18% or from the delivery process in 4%.



Gastroschisis And Omphalocele

Treatment and Management:

- Requires surgical intervention, often immediately after birth.
- Primary closure: If the defect is small and organs can be returned to the abdomen in one surgery.
- Staged closure (Silo): Used if the organs cannot be placed back in one step; a mesh or silo is placed to allow gradual reduction of the bowel over time.
- Post-operative care includes careful fluid management, ventilation support if necessary, and gradual initiation of feeding.
- Long-term outcomes are generally good, but some patients may have issues with feeding and bowel function initially.

Staged closure (silo):



Umbilical hernia

+

prune belly syndrome ..

SHAHD ALSWEITY



Things we are going to cover :

01

Introduction

What is it ? Causes ?
Etiology ?

02

Signs and symptoms ?

03

Diagnosis

04

prognosis and treatment





1.

Introduction

A congenital umbilical hernia occurs when part of the intestine or fatty tissue protrudes through a weakness in the abdominal muscles near the belly button (umbilicus).

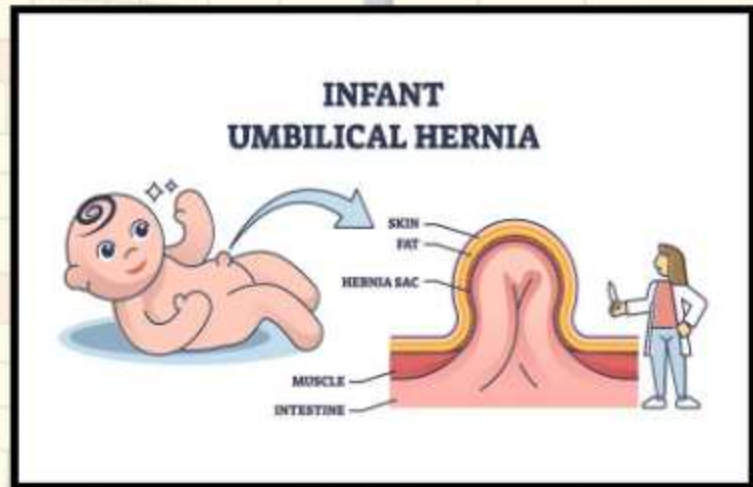
This condition is typically present at birth and is more common in infants, particularly in those **born prematurely** or with **low birth weight**.



One of the most common conditions in children.

Occur equally among boys and girls and in 15 to 23% of newborns .

The exact cause is often unknown, but it results from a defect in the abdominal wall that leads to incomplete closure of the umbilical ring fascia during fetal development.



02. Signs & symptoms

A visible bulge or swelling at the site of the umbilical cord. It may become more prominent when the baby cries or strains.

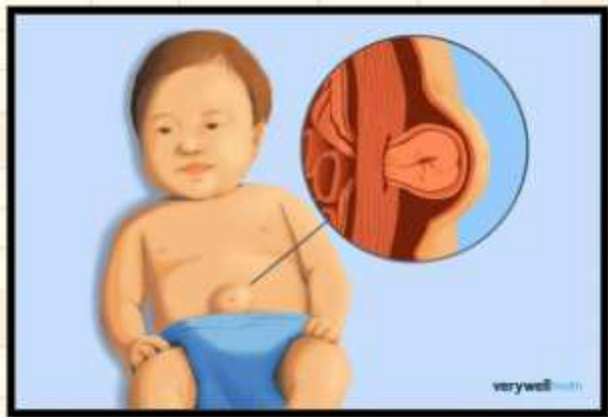
An umbilical hernia usually does not cause pain in children

What if it is a strangulated umbilical hernia ??



03.

Diagnosis



An important indication could be a history of the infant experiencing crying or apparent discomfort during bowel movement or urination .

Usually diagnosed through a physical examination.

Imaging tests are rarely needed.



04.

Prognosis and treatment



Prognosis

Generally good, especially for hernias that close spontaneously. Surgery, when needed, typically has a high success rate.

Over 90% of these asymptomatic hernias will resolve spontaneously without any intervention by the time the child reaches age 5.



Treatment

Many congenital umbilical hernias close on their own by the age of 1 or 2. If the hernia persists or causes complications (like incarceration or strangulation), surgical intervention may be recommended.

If that hernia become symptomatic before the child is 5 years old it will require surgical intervention.



prune belly syndrome

Also known as Eagle-Barrett syndrome, is a rare congenital condition

1.

It is characterized by a triad of features:

- 1 Absence or weakness of the abdominal muscles
- 2 Urinary tract abnormalities
- 3 Cryptorchidism

95% Of cases are mostly male babies

It affects about 1 in every 30.000 to 40.000 newborn babies .



2.

Symptoms :



1

Wrinkled or prune-like appearance of the abdominal wall .

2

Large abdomen with loops of intestine that you can see through the thin skin of the abdominal wall

3

Undescended testicles

4

Urinary , stomach , intestinal , heart structural and musculoskeletal abnormalities .



Complications ??



Constipation

Underdevelopment
of the lung

Urinary tract
diseases

Bone
deformities

Infertility

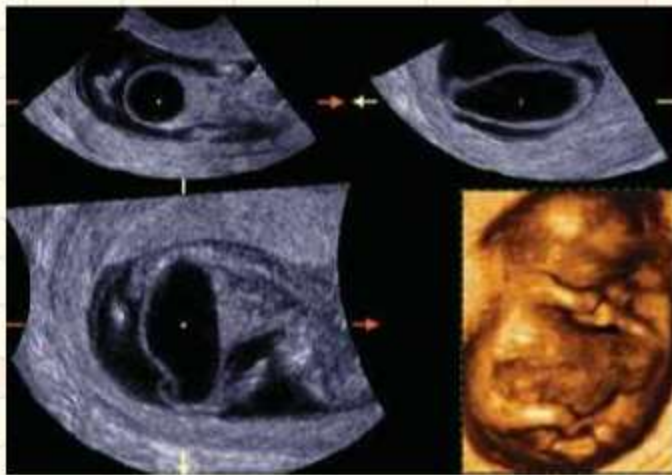
Chronic kidney
failure



3.

How is prune belly syndrome is diagnosed

Diagnosis is typically made through physical examination and imaging studies, such as ultrasound.



4.

Treatment :

Management often involves a multidisciplinary approach, addressing the various symptoms and complications.

It will depend upon the severity of your baby's symptoms. In the mildest of cases, some babies with prune belly syndrome may only need antibiotics to treat or prevent urinary tract symptoms.

Most babies need several surgeries to repair their abdominal walls, genitals, bladders and other urinary tract organs.

Surgical procedures may include :



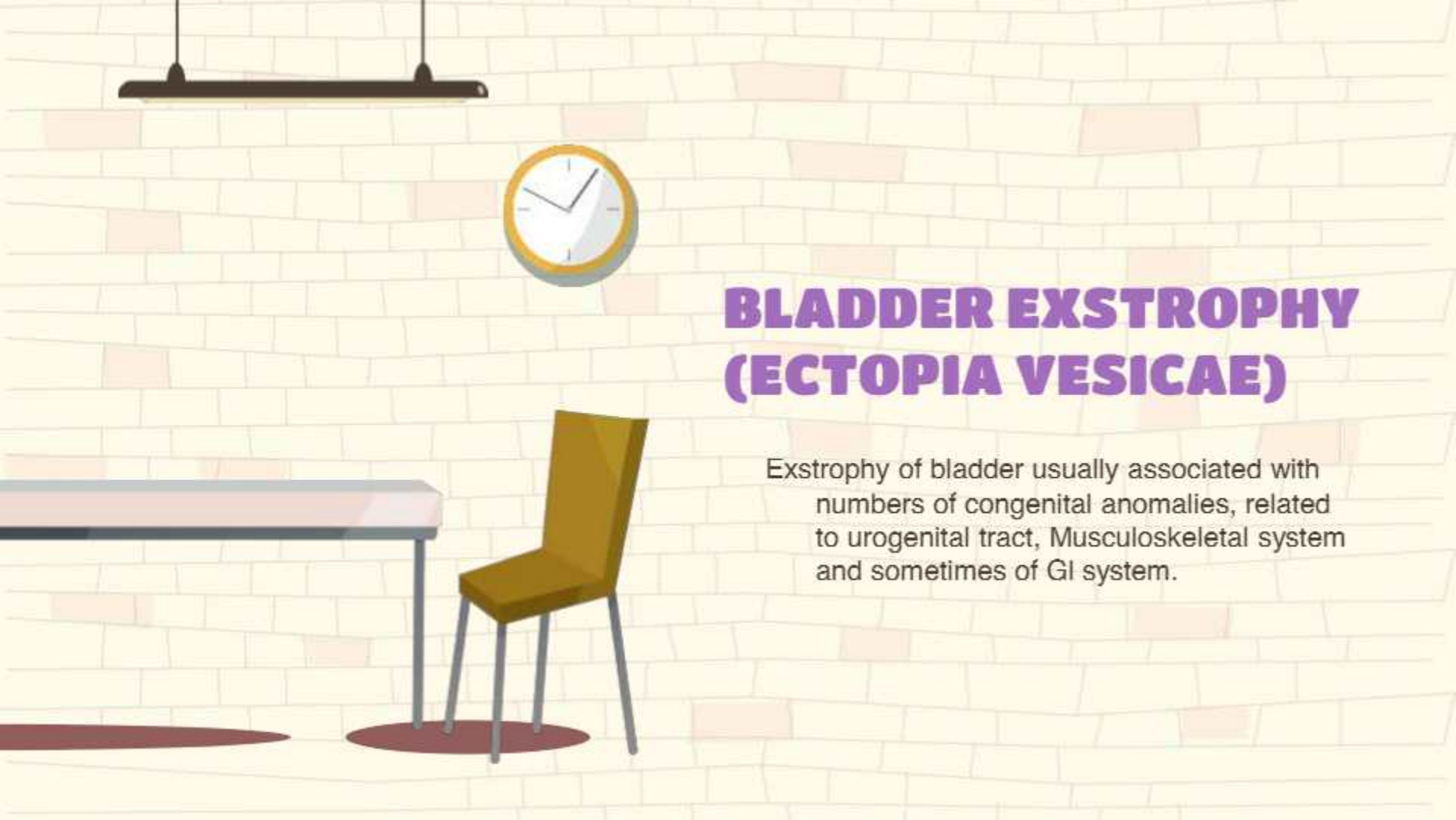
In some cases, the baby may need a kidney transplant



Bladder exstrophy and pentalogy of cantrell

Done by Maya Ayyat



The background is a light yellow wall with a pattern of irregular, light brown rectangular shapes. In the upper left, a black horizontal bar hangs from two thin black lines. In the center, a round clock with a white face, black hands, and a yellow border is mounted on the wall. In the lower left, a long, thin, light pink table with a grey top and grey legs is partially visible. To its right is a yellow chair with a grey backrest and four grey legs. Two dark red oval shapes are on the floor, one under the table and one under the chair.

BLADDER EXSTROPHY (ECTOPIA VESICAE)

Exstrophy of bladder usually associated with numbers of congenital anomalies, related to urogenital tract, Musculoskeletal system and sometimes of GI system.



Introduction

- Exstrophy of bladder is a congenital malformation in which the lower portion of the abdominal wall and the anterior wall of the bladder are missing, so that the bladder is everted through the opening and may found on the lower abdomen just above the symphysis pubis, with continuous passage of urine to the outside.
- It is also termed as 'ectopic vesicae' i.e. malposition or displacement of urinary bladder from its normal position in the pelvis.



Incidence

- The birth prevalence of classic bladder exstrophy has been estimated to be between 1 in 10,000 and 1 in 50,000 livebirths. Males are affected 2-3 times more often than females.

Etiology

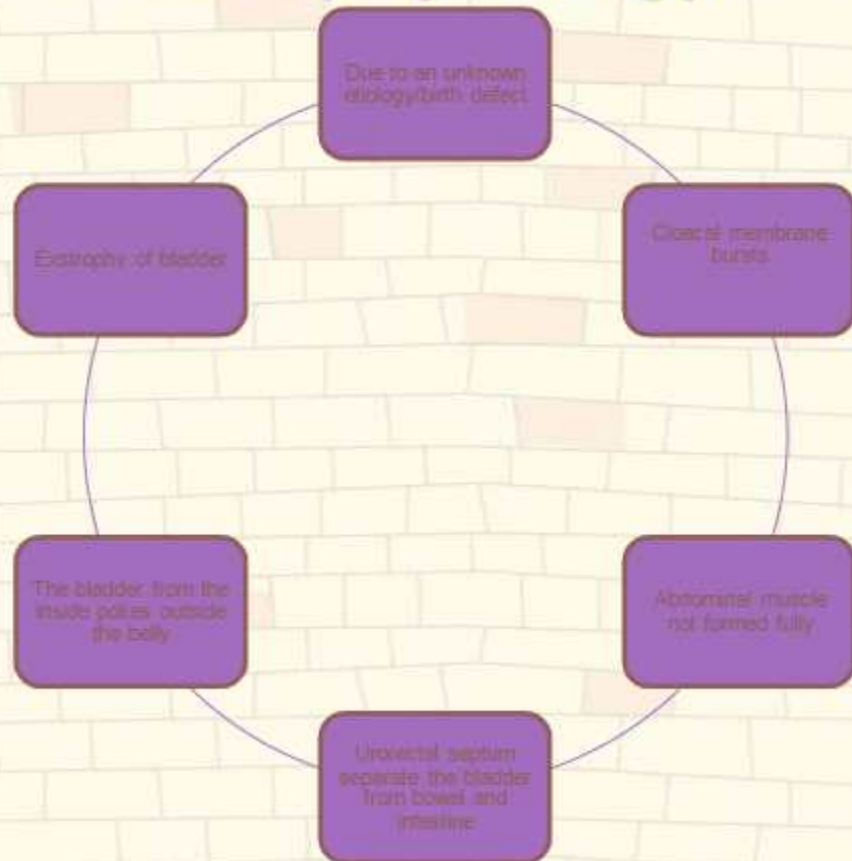
Idiopathic

Due to any birth defect

Genetic factors

Environmental factors

Pathophysiology



Clinical manifestation

- Exposed bladder from the abdomen
- Separation of the pubic symphysis
- Shortening of the pubic rami
- External rotation of the pelvis
- Associated with prolapsed vagina or rectum, epispadias, bifid clitoris or penis
- Dribbling of urine



Diagnosis

Cystoscopic examination
X-Ray
Ultrasound
Intravenous pyelogram
MRI

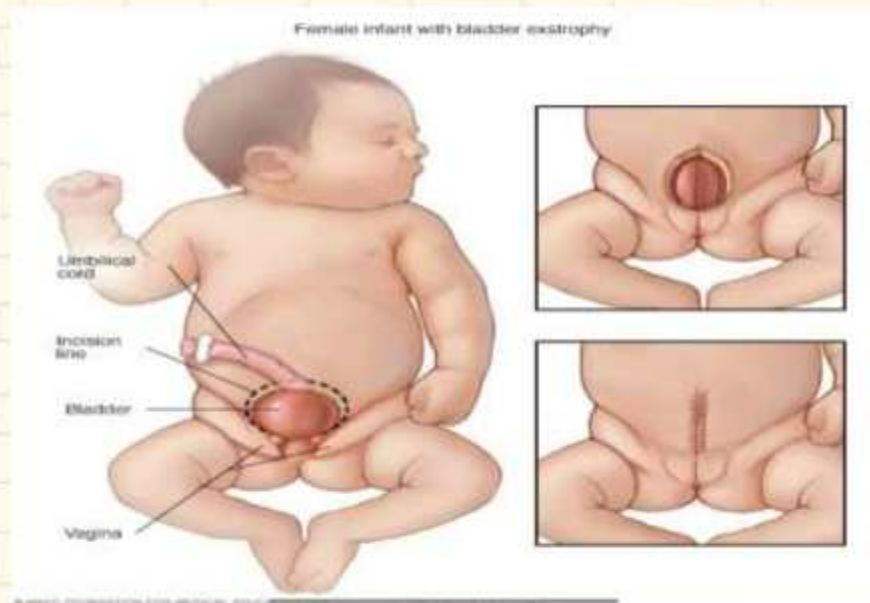
Treatment

After delivery, the bladder is covered with a clear plastic dressing to protect it. Children born with bladder exstrophy are treated with reconstructive surgery after birth. The overall goals of reconstruction are to:

- Provide enough space for urine storage
- Create outer sex organs (external genitalia) that look and function acceptably
- Establish bladder control (continence)
- Preserve kidney function

There is 2 types of surgical management:

- MSRE - Modern Staged Repair of Exstrophy
- CPRE - Complete Primary Repair of Exstrophy





Surgical follow-up

Standard care after surgery includes:

Immobilization. After surgery, infants need to stay in traction while they heal. The amount of time a child needs to be immobilized varies, but is typically around four to six weeks.

Pain management. Doctors can place a thin tube into the spinal canal during surgery to deliver pain medications directly to the area it's needed. This allows for more consistent pain control and less use of opioid medications.



Complications

Incontinence of urine

Infection

Dehydration

Progressive weight loss

Even with successful surgery, people may have long-term complications. Some of the most common include:

Vesico-ureteral reflux

Bladder spasm

Bladder calculus

Urinary tract infections



Pentalogy of Cantrell

Introduction

Pentalogy of Cantrell (POC) is a collection of five congenital midline birth anomalies that present a distinctive challenge for providers and surgeons. Those five defects are of the heart, pericardium, diaphragm, sternum, and abdominal wall. This condition has been divided into two categories, complete or partial. Complete, as the name indicates, refers to the presence of all five defects, while others may present with only partial defects.

Epidemiology

The pentalogy of Cantrell usually presents at birth. Every 1 in 65,000 live births is affected by this condition.

Etiology

The exact cause of the pentalogy of Cantrell is unknown. The cases are mostly sporadic. Many familial cases have been reported suggesting genetic factors may play role in the development of this disorder. It has been seen in chromosomal abnormalities like trisomy 21, trisomy 18, and Turner syndrome. The role of genes on the X-chromosome has been suggested, but the evidence is scarce to support this claim.

Pathophysiology

The five defects of the pentalogy as described in Cantrell's initial paper are as follows:

- Omphalocele
- Anterior diaphragmatic hernia
- Sternal cleft
- Ectopia cordis
- Intracardiac defect

Diagnosis

Ultrasound at the first trimester

Chest x-ray

Cardiac magnetic resonance imaging

Echocardiography exam

Complication

Complications of pentalogy of Cantrell have a wide range, from surgery to anesthesia, and lack of timely intervention can all further complicate the patient's course. Some of the complications include tachyarrhythmias, bradycardia, hypotension, ventricular diverticulum rupture, and heart failure.



Treatment

The treatment of the pentalogy of Cantrell is tailored towards the presence of defects and their extent. Many types of reconstruction and repairs are described that can be single or multi-staged and require an interprofessional team approach. Treatment involves neonatal resuscitation to a temporary covering of contents protruding out of the ventral abdominal wall and, finally, surgical correction. Surgical management of cardiac, diaphragmatic, and other defects is crucial and initially involves covering the defects. Assessment for risk factors for mortality should be evaluated. The surgical aim involves correcting cardiac malformations, restoring cardiac position and anatomy, and repairing the thoracoabdominal wall and diaphragmatic defects. Initial conservative management includes prophylactic antibiotics and daily dressing changes to allow epithelialization of the omphalocele sac. Despite the intervention, morbidity and mortality may remain high in severe cases. The surgery itself carries significant risk.

Prognosis

The survival rate of patients with this condition is estimated to be around 37%. The prognosis is primarily poor for patients with severe disease and complete-type pentalogy of Cantrell, the mean survival rate without any interventional surgery is about 36 hours.

Associated anomalies and syndromes of anterior abdominal wall

Layan al-zghyyer

Examples of anomalies :

01

Bekwith-wiedeann sundroe

02

Ectopia cordis

03

Prune belly syndroe

04

Cloacal exstrophy



Beckwith-wiedann syndroe

Beckwith-Wiedemann syndrome is a condition that affects many parts of the body. It is classified as an overgrowth syndrome, which means that affected infants are larger than normal (macrosomia), and some may be taller than their peers during childhood. Growth begins to slow by about age 8, and adults with this condition are not unusually tall. In some children with Beckwith-Wiedemann syndrome, specific body parts may grow abnormally large on one side of the body, leading to an asymmetric or uneven appearance. This unusual growth pattern, which is known as hemihyperplasia, usually becomes less apparent over time.



Signs and symptoms

The signs and symptoms of Beckwith-Wiedemann syndrome vary among affected individuals. Some children with this condition are born with an opening in the wall of the abdomen (an omphalocele) that allows the abdominal organs to protrude through the belly-button. Other abdominal wall defects, such as a soft out-pouching around the belly-button (an umbilical hernia), are also common. Some infants with Beckwith-Wiedemann syndrome have an abnormally large tongue (macroglossia), which may interfere with breathing, swallowing, and speaking. Other major features of this condition include abnormally large abdominal organs (visceromegaly), creases or pits in the skin near the ears, low blood glucose (hypoglycemia) in infancy, and kidney abnormalities.



Beckwith–Wiedemann syndrome

Examples of findings



Macroglossia



Lateralized overgrowth



Umbilical hernia



Ear creases



Facial naevus simplex



Children with Beckwith-Wiedemann syndrome are at an increased risk of developing several types of cancerous and noncancerous tumors, particularly a form of kidney cancer called Wilms tumor and a form of liver cancer called hepatoblastoma. Tumors develop in about 10 percent of people with this condition and almost always appear in childhood.



Causes

The genetic causes of Beckwith-Wiedemann syndrome are complex. The condition usually results from the abnormal regulation of genes in a particular region of chromosome 11. People normally inherit one copy of this chromosome from each parent. For most genes on chromosome 11, both copies of the gene are expressed, or "turned on," in cells. For some genes, however, only the copy inherited from a person's father (the paternally inherited copy) is expressed. For other genes, only the copy inherited from a person's mother (the maternally inherited copy) is expressed. These parent-specific differences in gene expression are caused by a phenomenon called genomic imprinting. Abnormalities involving genes on chromosome 11 that undergo genomic imprinting are responsible for most cases of Beckwith-Wiedemann syndrome.

Frequency

Beckwith-Wiedemann syndrome affects 1 in 10,500 to 13,700 newborns worldwide. The condition may actually be more common than this estimate because some people with mild symptoms are never diagnosed.

Inheritance

In about 85 percent of cases of Beckwith-Wiedemann syndrome, only one person in a family has been diagnosed with the condition. However, parents of one child with Beckwith-Wiedemann syndrome may be at risk of having other children with the disorder. This risk depends on the genetic cause of the condition





Life expectancy

Most children and adults with Beckwith-Wiedemann syndrome do not have serious medical problems associated with the condition. Their life expectancy is usually normal.

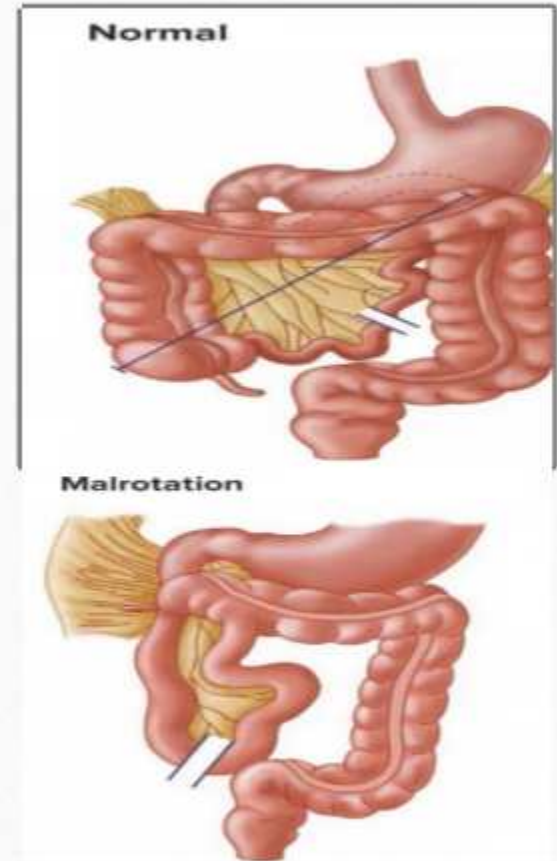
Congenital Malrotation: Anatomy and Embryology

Understanding the Developmental Anomalies

Done By Own Amayreh

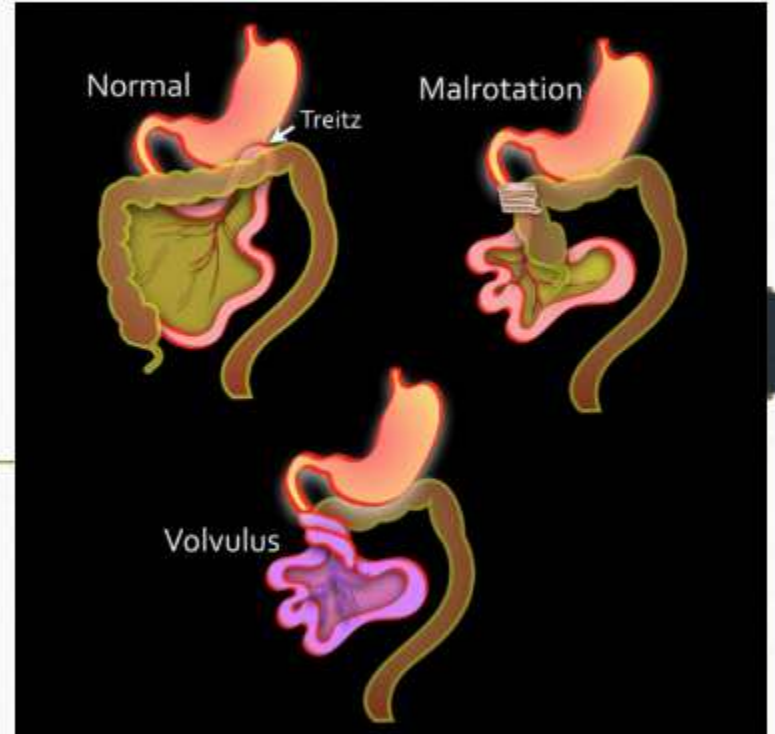
What is Congenital Malrotation?

- Definition: A congenital anomaly where the intestines do not rotate properly during fetal development.-



Complications

- Complications: Can lead to intestinal obstruction or volvulus (twisting of the intestines).



Congenital Malrotation: Anatomy and Embryology

- Normal Development: During fetal development, the intestines herniate into the umbilical cord and undergo a 270-degree counter-clockwise rotation as they return to the abdominal cavity.
- Result: The duodenojejunal (DJ) flexure is typically located left of the midline, and the terminal ileum is in the right iliac fossa
- Intestinal malrotation is a condition that is congenital (present at birth) and results from a problem in the normal formation of the fetal intestines. There is a disruption in the usual steps that the intestines follow to arrive at the correct position within the abdomen.

Congenital Malrotation: Embryology

- Near the end of the first trimester of pregnancy, the intestines move from the umbilical cord into the abdomen. If they don't properly turn after moving into the abdomen, malrotation occurs. It happens in 1 out of every 500 births in the United States and the exact cause is unknown.

Types of Malrotation

- Incomplete Rotation: The midgut does not rotate more than 180 degrees.

••

- Nonrotation: The midgut does not rotate more than 90 degrees.-

•

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- Mixed Rotation: A combination of incomplete and nonrotation patterns.

Difference between Abnormalities of Gut Rotation



Non Rotation



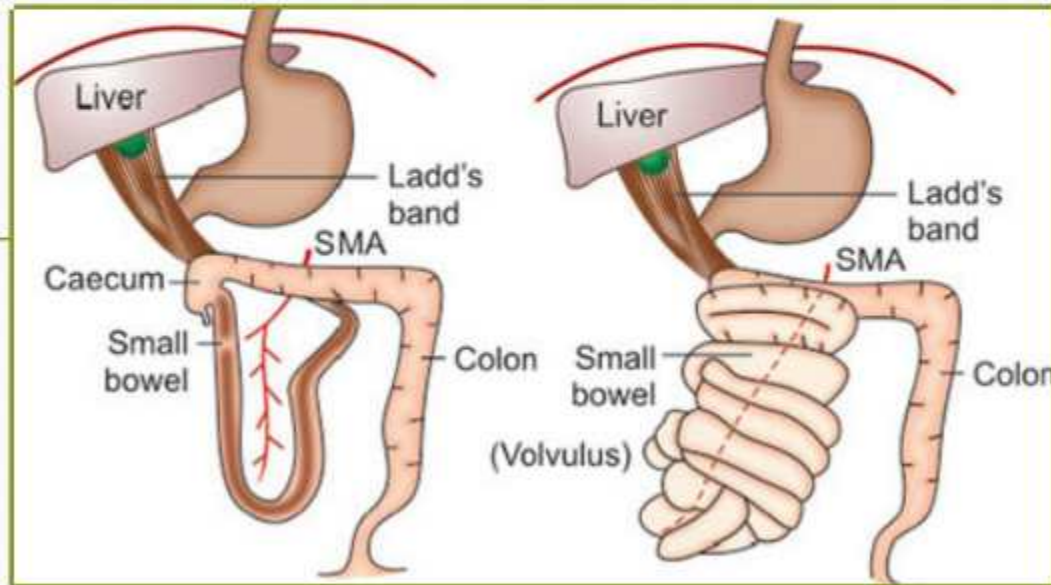
Mixed/ Incomplete
Rotation



Reverse Rotation

Anatomical Variations

- Midgut Fixation: In malrotation, the midgut may be fixed in abnormal positions, leading to a narrow mesenteric base.
- Ladd's Bands: Fibrous bands that can cause kinking or obstruction of the intestines.





Done by Own Amayreh



Clinical Presentation and Diagnosis of Congenital Malrotation

Congenital malrotation is a rare condition that occurs when the intestines do not rotate properly during fetal development. It can cause a variety of symptoms, ranging from mild to life-threatening.

by Karam Al hashash



Signs Of Congenital Malrotations

1 Abdominal Distention

The abdomen may be abnormally swollen and distended, especially in infants.

2 Vomiting

Infants may vomit frequently and forcefully, often with bile-stained vomit.

3 Blood in the Stool

In some cases, there may be blood in the stool due to intestinal obstruction.

4 Failure to Thrive

Infants may not gain weight or grow as expected, which can be a sign of malnutrition.

Clinical presentation and symptoms Of Congenital Malrotations

Gastrointestinal Symptoms

Vomiting, abdominal pain, distention, and constipation are common symptoms.

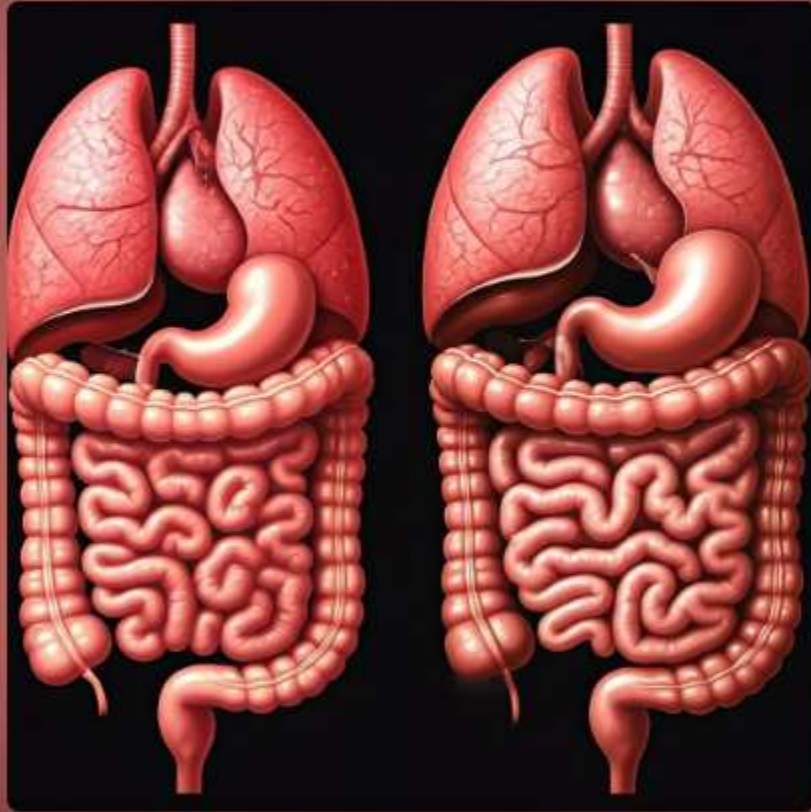
Cardiovascular Symptoms

In severe cases, decreased blood flow to the intestines can lead to shock and organ failure.

Other Symptoms

Fever, lethargy, and dehydration can also occur due to the body's response to the condition.

Spectrum of congenital malrotations



1

Incomplete Rotation

The intestines may rotate partially but not completely, leading to a range of problems.

2

Midgut Volvulus

The intestines can twist around themselves, cutting off blood flow and causing a medical emergency.

3

Fixation Anomalies

The intestines may not be properly anchored, leading to mobility and potential complications.

Diagnostic techniques



1

Physical Examination

A doctor will examine the infant's abdomen for distention, tenderness, and other signs.

2

Upper Gastrointestinal Series (UGI)

A series of X-rays taken after the infant swallows barium contrast can reveal abnormalities in the intestines.

3

Ultrasound

An ultrasound can visualize the intestines and identify any twists or abnormalities.



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Imaging modalities

Modality	Purpose
Upper Gastrointestinal Series (UGI)	Reveals malrotation and volvulus
Ultrasound	Visualizes the intestines and their position
CT Scan	Provides detailed anatomical images of the abdomen



Differentiating malrotation from other conditions



Intussusception

One part of the intestine telescopes into another, causing blockage.



Hirschsprung's Disease

A condition where the nerves in a portion of the colon are missing, causing constipation.



Gastroenteritis

A viral or bacterial infection that can cause vomiting, diarrhea, and abdominal pain.



Appendicitis

Inflammation of the appendix, which can cause severe abdominal pain and fever.

Treatment and Management



Surgical Correction

The primary treatment for malrotation is surgery to untwist the intestines and secure them in their correct position.

Postoperative Care

Infants will require careful monitoring, antibiotics, and intravenous fluids after surgery.

Long-Term Follow-up

Regular checkups are essential to monitor growth and development and to address any complications.

Thank You for Listening

Thank you all for attending this presentation on the clinical presentation and diagnosis of congenital malrotation.

THANK
YOU!

Done by Karam Al hashash

What is congenital malrotations ?

By Zaid Ahmad Alhroub

What is congenital malrotations ?

- is a developmental anomaly of the gastrointestinal tract that occurs
 - when the intestines fail to undergo the normal rotation during fetal development. Typically, during the 6th to 12th weeks of gestation, the midgut undergoes a 270-degree counterclockwise rotation around the mesenteric axis. In congenital malrotation, this process is disrupted, leading to improper positioning of the intestines within the abdominal cavity .
- >>This abnormal positioning can lead to various complications, such as obstruction, volvulus (twisting of the intestines), and reduced blood supply to the affected areas .

Anatomy of congenital malrotations :

- **1- Position of the Cecum:**
 - In malrotation, the cecum may remain in the upper abdomen rather than descending to the right lower quadrant.
 - This improper positioning can lead to increased tension on the mesentery, predisposing to volvulus
- **2- Short Mesentery :**
 - The mesentery may be shorter than normal, limiting the mobility of the intestines and increasing the risk of twisting or obstruction.
 - This can lead to entrapment of bowel loops, causing ischemia

- **3- Ladd's Bands:**

- These fibrous bands can form due to the abnormal development of the midgut.
 - They can cross over the duodenum or other bowel segments, causing obstruction and contributing to the risk of volvulus .
-

- **4- Volvulus:**

- This occurs when the intestines twist around the mesenteric axis, often due to the abnormal positioning of the bowel.
- It can compromise blood supply, leading to ischemia and potential bowel necrosis .

- **5- Blood Supply:**

- The superior mesenteric artery supplies the midgut; in cases of malrotation, the abnormal positioning can affect perfusion and increase the risk of ischemic injuries

Types of congenital malrotations :

- **1- Non-Rotation :**
- **Definition:** The intestines do not rotate at all during fetal development.
- **Anatomy:** The entire small bowel is located on the right side of the abdomen, while the colon remains on the left.
- **Complications:** High risk of volvulus due to the lack of proper fixation, which can lead to obstruction and ischemia.

- **2- Incomplete Rotation :**

- **Definition:** The intestines partially rotate but do not complete the full 270-degree rotation.
- **Anatomy:** The position of the small bowel and colon may be abnormal, often with the cecum positioned higher in the abdomen than usual.
- **Complications:** Similar to non-rotation, this can result in volvulus and intestinal obstruction.

- **3- Mixed Malrotation :**

- **Definition:** A combination of non-rotation and incomplete rotation.
- **Anatomy:** Some segments of the intestines may be in their correct anatomical positions, while others are malpositioned.
- **Complications:** Increased risk of complications due to the irregular positioning of various bowel segments

- **4- Ladd's Bands :**

- **Definition:** Fibrous bands that form as a result of abnormal intestinal development.
- **Anatomy:** These bands can tether the intestines and cause obstruction.
- **Complications:** Can lead to volvulus or bowel obstruction, requiring surgical intervention.

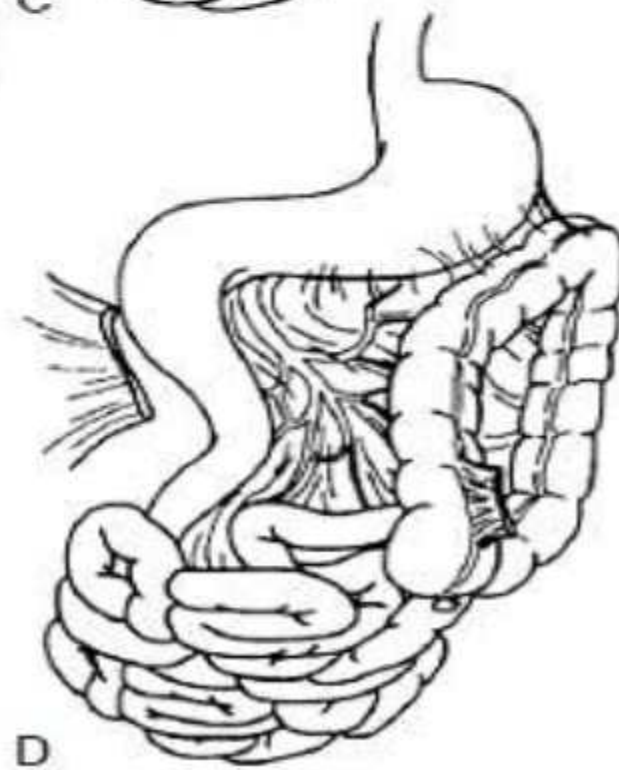
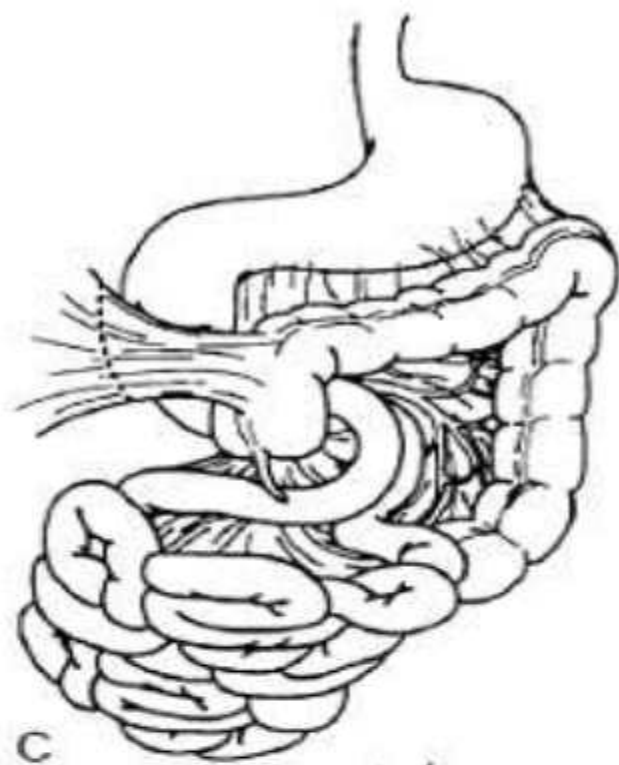
- **5. Midgut Volvulus :**

- **Definition:** A critical complication of malrotation where the intestines twist around the mesenteric axis.
- **Symptoms:** Acute abdominal pain, bilious vomiting, and signs of intestinal obstruction.
- **Consequences:** If not treated promptly, it can lead to ischemia and necrosis of the affected bowel, which can be life-threatening

TREATMENT: (LADD'S PROCEDURE)

- ***The aim of surgery:***
- 1. Entry into abdominal cavity and evisceration (open)
- 2. Counterclockwise detorsion of the bowel (acute cases)
- 3. Division of Ladd's cecal bands
- 4. Broadening of the small intestine mesentery
- 5. Incidental appendectomy
- 6. Placement of small bowel along the right lateral gutter and colon along the left gutter





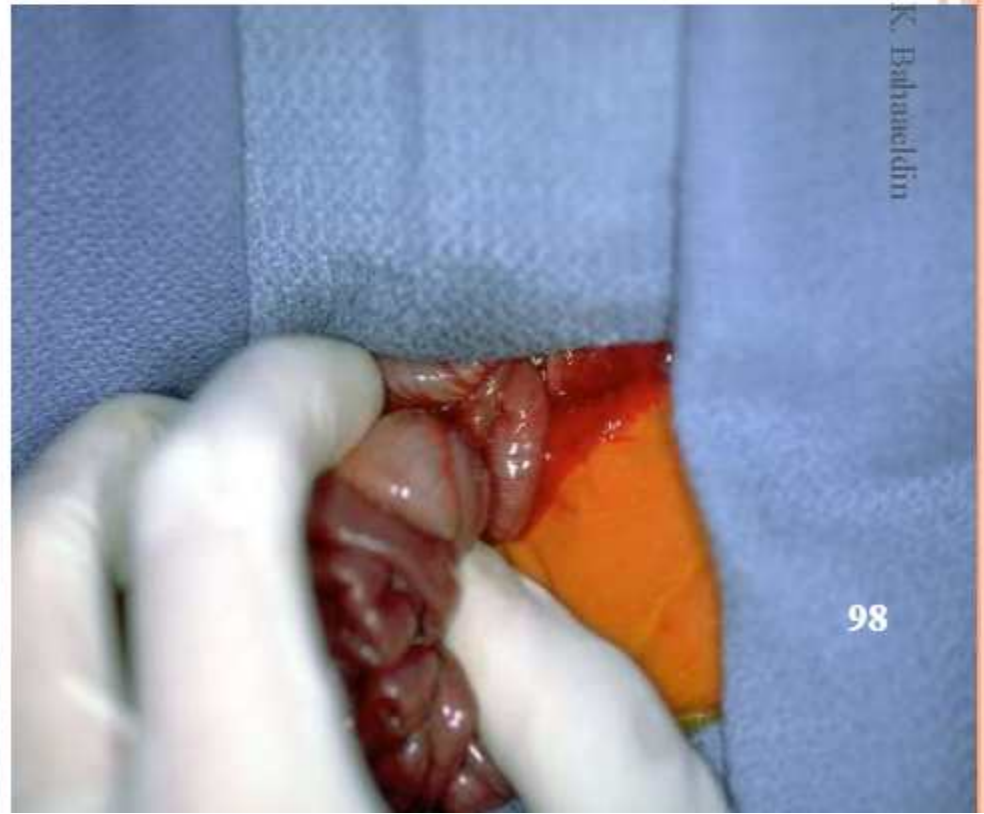
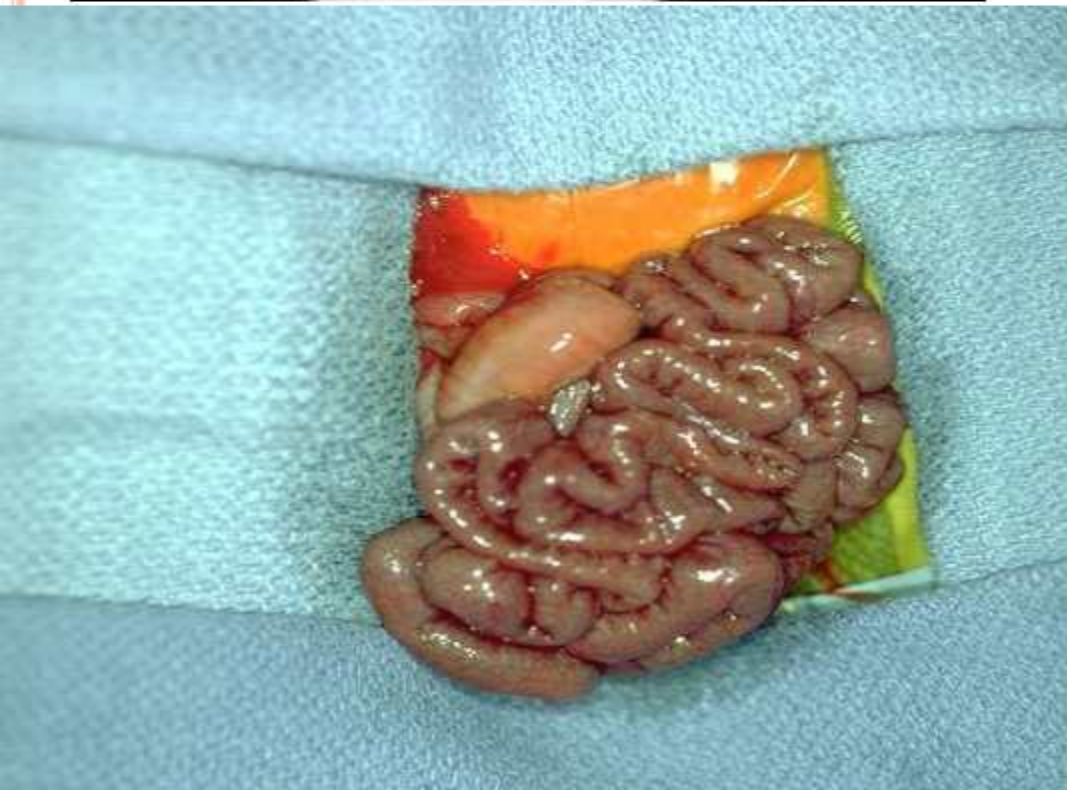
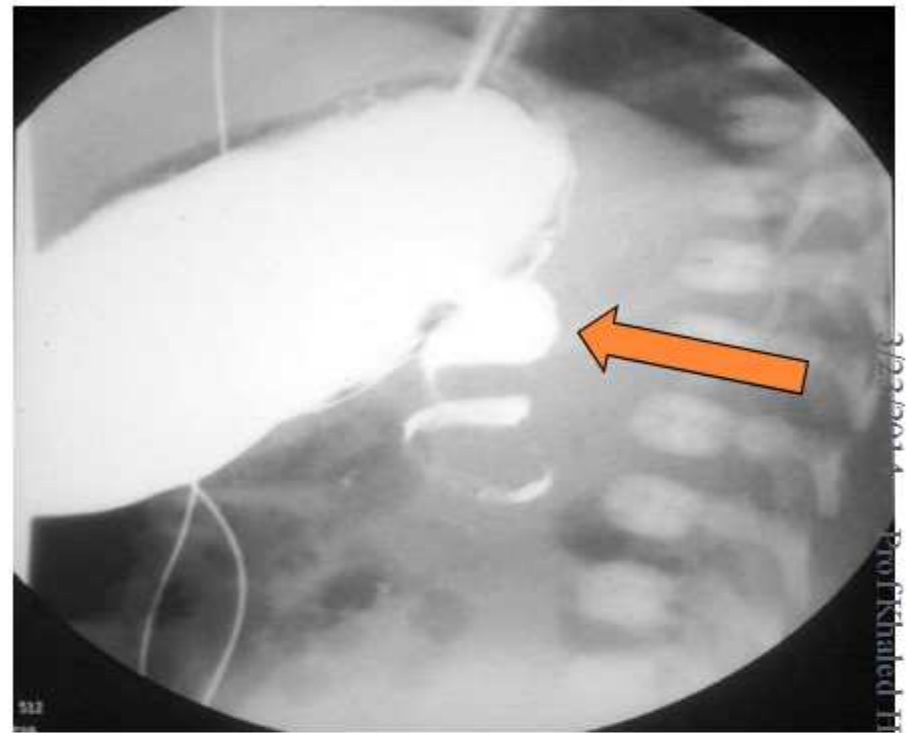
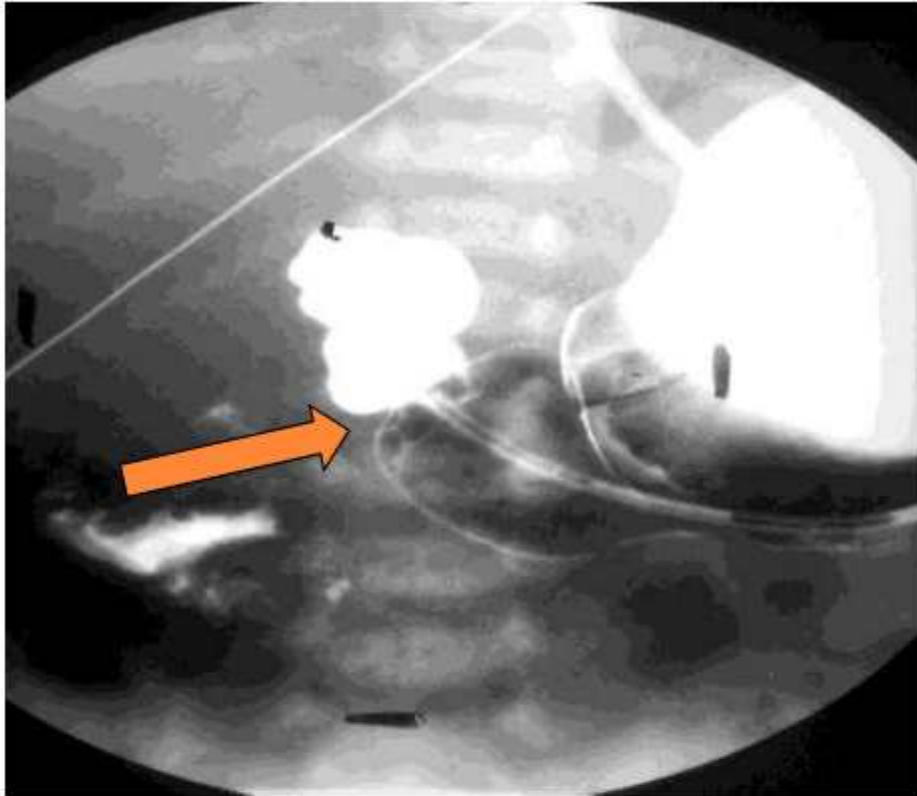
LAPAROSCOPY

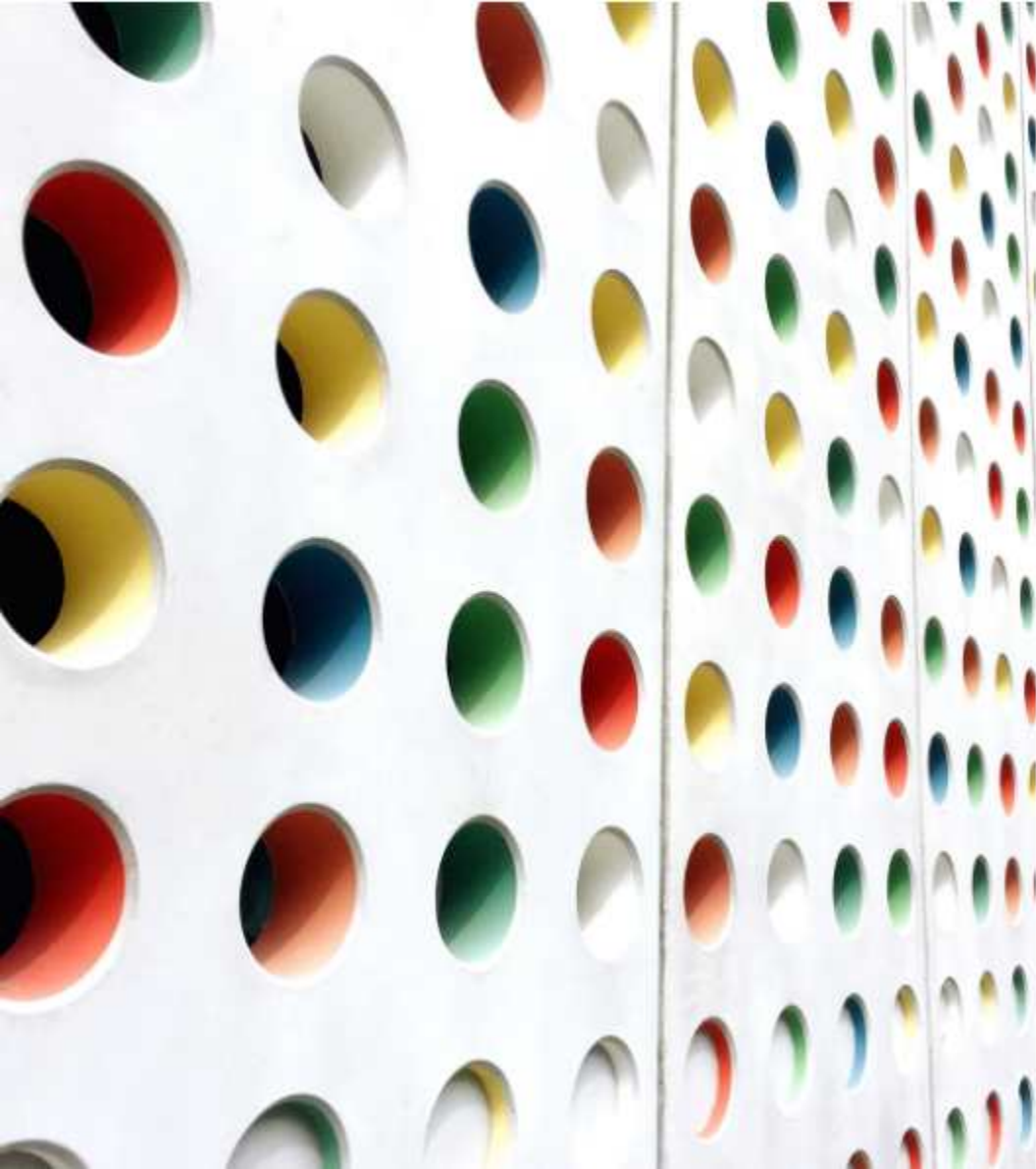
- The laparoscopic treatment for intestinal rotation anomalies in neonates, infants, and children with or without midgut volvulus has been proposed by several authors since van der Zee's original report in 1995.
- Reverse trendelenberg position
- 4 port technique used.



SUMMARY

- Rotational anomalies are the result of arrest of normal rotation of the embryonic gut
- Early diagnosis and surgical intervention reduces morbidity and mortality .
- Must have a high index of suspicion for infants with bilious vomiting.
- Malrotation, regardless of age and presence of symptoms is treated surgically with Ladd procedure



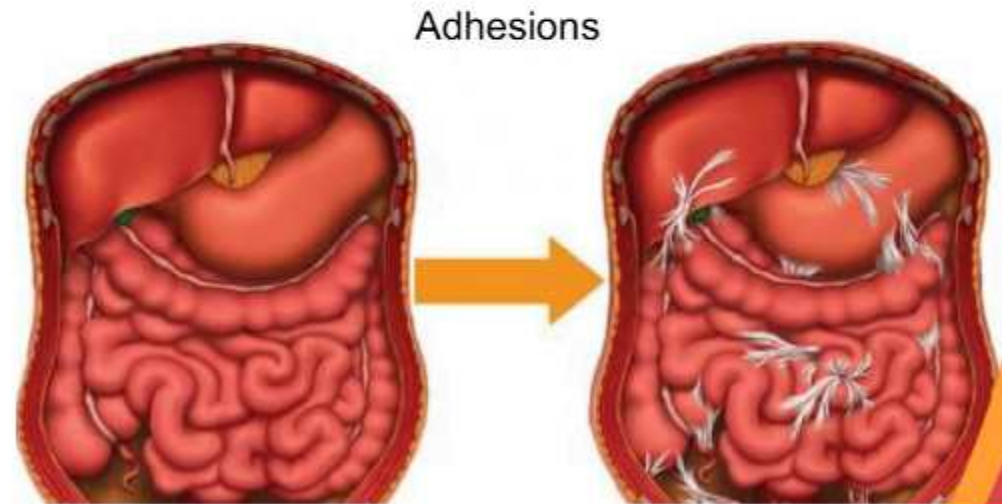
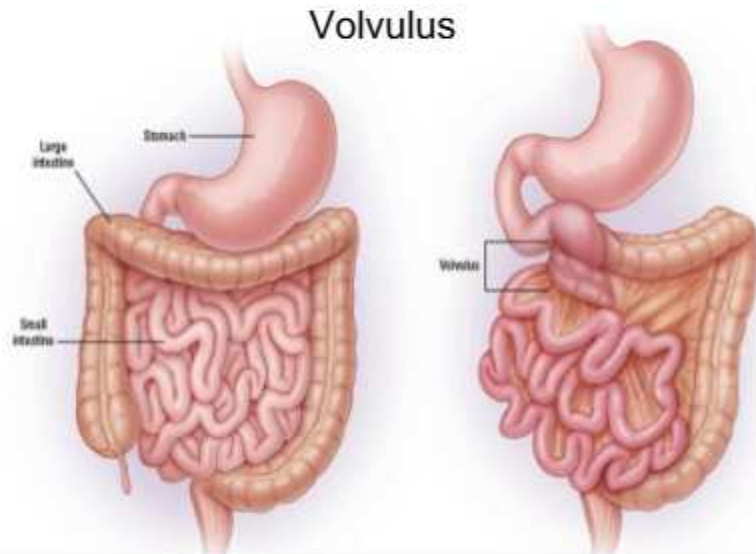


Post Operative Outcomes Of Malrotation

DONE BY
ABDALLAH
NSOUR

Postoperative Outcome

- Short-Term Recovery: Most children recover well after surgery with proper medical care.
-
- Complications: Risk of infection, adhesions, or recurrent volvulus, although these are relatively rare with modern surgical techniques.



Long-Term Prognosis



- Positive Prognosis: With successful surgery, many children can lead normal lives with no significant dietary restrictions or long-term complications.
- Monitoring: Regular follow-up is crucial to monitor growth, development, and any potential digestive issues.

Potential Long-Term Complications

- Digestive Issues: Some patients may experience chronic abdominal pain or digestive disturbances.

.Adhesions: Scar tissue may form, leading to possible bowel obstruction in the future.

Quality of Life

- Normal Activities: Most children can participate in regular activities, including sports and school, without limitations.
- Parental Support: Importance of a supportive home environment and awareness of symptoms that might require medical attention.





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