

Edited past paper



1-Which of the following is not a typical cause of neonatal intestinal obstruction?

- a. Intussusception
- b. Meconium ileus
- c. Hirschsprung's disease
- d. Malrotation
- e. Incarcerated hernia

Answer: a

Primary Intussusception

- Generally attributed to **hypertrophied Peyer patches**
- Frequently after a recent **URTI** or **gastroenteritis** (adenoviruses and rotaviruses in 50% of cases)
- Incidence
 - can occur at any age
 - most are well-nourished, healthy infants
 - two-thirds are boys
 - highest incidence in infants 4-9 months
 - uncommon < 3 months and > 3 years of age




2-All of the following are clinical features of Infantile Hypertrophic Pyloric stenosis EXCEPT: ***

- a. Projectile non-bilious vomiting
- b. Anorexia
- c. Succussion splash
- d. Visible left to right gastric peristalsis
- e. Palpable olive sign

Answer: b

Diagnosis	Diagnosis
<p>Classic presentation:</p> <ul style="list-style-type: none">• nonbilious, progressive projectile vomiting (of recent feedings)• full-term neonate• 2-8 weeks old	<p>PEx:</p> <ul style="list-style-type: none">• General:<ul style="list-style-type: none">• Usually appears well (early)• Dehydration, somnolence (late)• Abdominal Ex:<ul style="list-style-type: none">• Visible gastric peristaltic waves• Palpable pylorus "olive sign" (70-80% of patients) <p>Labs:</p> <ul style="list-style-type: none">• Hypochloremic• Hypokalemic• Metabolic alkalosis

- 3) The followings are recommended medical indications for circumcision EXCEPT:
- Phimosis
 - Vesicoureteric reflux (VUR)
 - Urinary tract infection in the first year of life
 - Congenital obstructive anomalies of the urinary system
 - As a prophylactic measure against future penile malignancy

Male circumcision	
Summary	
Indications	
<ul style="list-style-type: none"> • Medical indications ^[1] <ul style="list-style-type: none"> ◦ Recurrent and/or refractory balanoposthitis ◦ Recurrent UTIs ◦ Pathological phimosis and paraphimosis  ◦ Prevention of HIV transmission in countries with high infection rates  ^[2] ◦ Queyrat erythroplasia  • Elective <ul style="list-style-type: none"> ◦ Customarily performed during the neonatal period because of social norms and/or religious laws (e.g., in Judaism and Islam) ◦ Cosmetic reasons 	

- Religious or ritual preference
- Pathological phimosis
- Paraphimosis
- Recurrent UTI with no known underlying cause

Answer: e

- 4) All of the following are true regarding Inguinal hernia diagnosis in young infants EXCEPT: ***
- The commonest groin swelling
 - Twice as common on the right side
 - 6-8 times more common in males compared to females
 - Carries high risk of incarceration
 - Very difficult to diagnose based on H&P examination alone

Answer:e

INCARCERATED INGUINAL HERNIA

- Incidence: 12–17%
- Risk factors:
 - Younger age
 - Prematurity
- Signs & Symptoms:
 - Inconsolable infant
 - Intermittent abdominal pain
 - Vomiting
 - Tender and erythematous irreducible mass in the groin
 - Abdominal distention (late sign)
 - Bloody stools (late sign)
 - Peritoneal signs (strangulation)

INCIDENCE

- 1–5% of all children | 10–30% of premature infants
- 10% positive family history
- M:F → 5:1 (1:1 in prematures)
- Right : Left : Bilateral → 60% : 30% : 10%

CLINICAL PRESENTATION

- Most are **asymptomatic** (except for bulging with straining)
- Often found by the **parents** or **pediatrician** on routine physical examination
- The diagnosis is **clinical** (Hx & PEx)

5) The most important in the management of newborn infant with Anorectal malformation (ARM) in the first 24 hours is:

- Defining the level of the defect
- Parenteral feeding
- Examination for associated anomalies
- Correction of the fluid and electrolyte imbalance
- Performing chromosomal analysis

Answer:c

Anorectal Malformations

Initial management

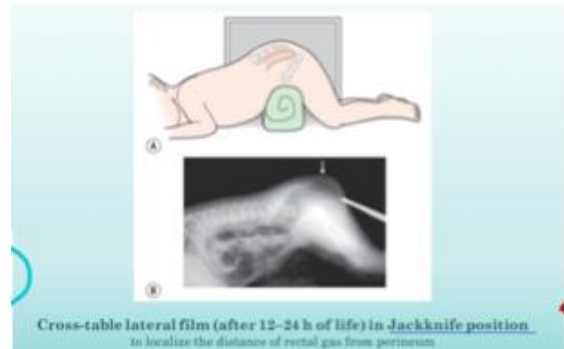
1. Nasogastric tube (for decompression, & to rule out esophageal atresia)
2. NPO + IV fluids
3. Antibiotic prophylaxis
4. Watchful waiting (for 12-24 hrs)
5. Rule out **VACTERL** associations

Then...

- Follow the management algorithms

VACTERL associations:

- Vertebral PBs & imaging
- Esophageal atresia
- Anal & CIA
- Renal UR
- Limb PBs



- 6) VATER syndrome involves all of the following components EXCEPT:***
- Ventriculo-septal defect anomalies
 - Anorectal anomalies
 - Tracheoesophageal fistula
 - Renal anomalies
 - Radial anomalies

Answer: a

ASSOCIATED ANOMALIES

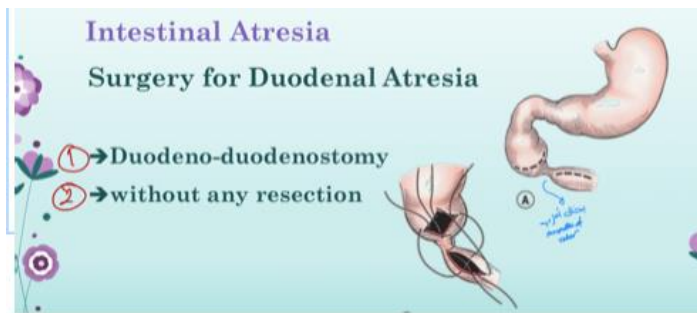
Vertebral, **A**norectal, **C**ardiac, **T**racheo-
Esophageal, **R**enal, and **L**imb abnormalities

Handwritten notes:
- Above A: Imperforated Anus
- Below R: Agnathia?

7) In infants with duodenal atresia all the following statements are true EXCEPT: ***

- a. There is an increased incidence of Down syndrome.
- b. Duodenal atresia can be detected by prenatal ultrasound examination.
- c. It may occur in infants with situs inversus, malrotation, annular pancreas, and anterior portal vein.
- d. It is best treated by gastroenterostomy.
- e. There is a high incidence of associated cardiac defects

Answer: d



- 8) Polyhydramnios is frequently observed in all of the following conditions EXCEPT: ***
- a. Esophageal atresia.
 - b. Duodenal atresia.
 - c. Jejunal atresia.
 - d. Colonic atresia.
 - e. Congenital diaphragmatic hernia.

Answer:d

Intestinal Atresia

Clinical Features

حسب الكائن

- Antenatal:
 - US may show:
 - polyhydramnios with the same proximal atresia
 - double bubble
 - dilated proximal loops
 - echogenic bowel
- Postnatally:
 - bilious vomiting
 - varying degrees of distension, depending on level of obstruction

- 9) The most common type of esophageal atresia is? ***
- EA with distal trachea-esophageal fistula *
 - EA with proximal trachea-esophageal fistula
 - EA with proximal and distal trachea-esophageal fistulas
 - Pure EA with no fistula
 - Trachea-esophageal fistula without EA

Answer:a

- 10) All are possible modalities in the management of omphaloceles, EXCEPT:
- Primary closure
 - Observation until 2-4 years of age
 - Prosthetic patch repair
 - Staged silo repair
 - Tissue expanders

Answer:b

• Treatment

- Cesarean delivery to prevent rupture of the sac of large omphalocele; especially if the liver is contained in the hernia sac
- Vaginal delivery is possible in cases with small omphalocele
- Wrapping of the hernia sac with sterile saline dressings covered with plastic wrap
- Nasogastric suction
- IV fluids to avoid abdominal distention and to compensate fluid loss
- Surgery (within the first 24 hours of life)
 - Usually primary abdominal wall closure
 - Alternatively, secondary closure following:
 - Staged silo repair
 - Skin graft or dermal patch

11) All the following are true about inguinal hernias in children, EXCEPT:***

- a. The deep inguinal ring is a defect in the transversalis fascia.
- b. The deep inguinal ring corresponds to the mid-point of the inguinal ligament.
- c. Indirect inguinal hernia is due to a patent processus vaginalis (PPV) extending through the deep inguinal ring into the inguinal canal.
- d. Direct inguinal hernia bulges lateral to the inferior epigastric vessels.
- e. The female anlage of the PPV is the canal of Nuck that leads to the labia majora

Answer: d

PROCESSUS VAGINALIS (PV)

- In the inguinal canal → gradually obliterates after birth
- In scrotum → forms the tunica vaginalis around the testis

4

N.B.: The female anlage of the processus vaginalis is..
the canal of Nuck

12) A 1-year-old male child presented with an empty small-sized right hemiscrotum. On inspection, right hemiscrotum looks smooth (no skin folds) and similar to surrounding skin color. The right testicle is non-palpable. This will rule out which of the following diagnoses? ***

- a. Ectopic testis
- b. Intra-abdominal testis
- c. Retractable testis
- d. Undescended testis
- e. Monorchia

Answer: c

PHYSICAL EXAMINATION					
	Hemiscrotal development	Hemiscrotal size	Testis is palpable	Palpable testis can be manipulated to scrotum	Testis stays in scrotum after manipulation
Testicular agenesis (rarest)	No	Small	No	-	-
Abdominal UDT (uncommon)	No	Small	No	-	-
Peeping UDT (uncommon)	No	Small	Yes (when inside the inguinal canal) No (when inside the abdomen)	No	-
High inguinal UDT (uncommon)	No	Small	Yes	No	-
Low inguinal UDT (common)	No	Small	Yes	Yes	No
Retractile testis (common)	Yes	Good Small <small>(in scrotum most of time) (if upward most of time)</small>	Yes	Yes	Yes
Ascending testis (uncommon)	Yes	Small	Yes	Yes	No
Ectopic testis (rare)	Yes (near place) No (far place)	Small	No Yes (when palpating possible areas of ectopic testis)	No	-
Vanishing testis (rare)	Yes (if undescended after complete descent) No (if vanished before complete descent)	Small	No	-	-

13) Which one of the following is CORRECT regarding esophageal atresia (EA)?***

- It is most commonly syndromic
- Vertebral anomalies are the most associated anomalies
- It is part of VACTERL anomalies
- Distal EA with proximal tracheo-esophageal fistula is the most common type
- Usually diagnosed antenatally

Answer: c.

V;vertebral , A; anorectal , C; cardiac, T; tracheos E; esophageal ,R; renal , L; limb abnormalities

14) Diaphragmatic hernia in newborns is:

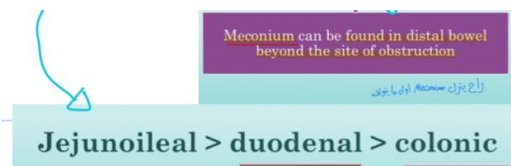
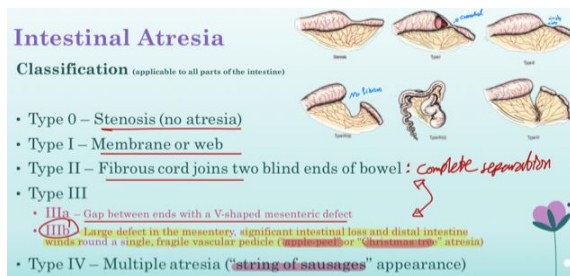
- An acquired condition due to birth trauma
- The same as diaphragmatic hernias in adults
- A congenital anomaly
- Also called hiatal hernia
- Mostly a hereditary condition

Answer: c

15) Intestinal atresia is characterized by which one of the following ?

- a. Type 4 intestinal atresia is described as “apple-peel” atresia
- b. Gastroschisis can be associated with intestinal atresia
- c. Duodenal atresia is best treated by resection of D2 and duodenoduodenostomy
- d. Passage of meconium after birth rules out intestinal atresia
- e. Colonic atresia is much more common than duodenal atresia

Answer: b.



16) The most common radiographic finding on X-ray after aspiration of a foreign body is:***

- a. Pleural effusion
- b. Hyperinflation
- c. Atelectasis
- d. Identification of the foreign body
- e. Pneumonia

Answer: b

Airway Foreign Bodies

AP and lateral films of the neck and chest (inspiratory and expiratory)

→ can reveal **hyperinflation** or **'air-trapping'**

- up to 60% of children
- FB acts as a one-way valve

→ +/- **mediastinal shift**

الصوره في expiration

foreign body
بجسم غريب
في القصبة الهوائية



slight hyperexpansion of the right lung



expiratory film, with hyperlucency of the right lung due to air trapping

17) A 2-week-old term breastfed infant previously healthy presents with a 6-hour history of bilious vomiting with non-distended abdomen; The radiologic study with the highest diagnostic yield for this patient is:

- Abdominal ultrasound
- Plain abdominal film
- CT scan
- Contrast enema
- Upper GI contrast study

Answer: e

18) The best management for asymptomatic 2 years old child who ingested an alkaline watch battery 5 hours prior to presentation and seen by X-ray to be in the proximal small bowel is:

- Immediate laparotomy, enterotomy and removal of the battery
- Laparoscopic assisted surgery
- Enteroscopy and Extraction
- Admission to hospital and serial abdominal X-Rays
- Observation at home, see back in 48 hours if remains asymptomatic

Answer: e

BATTERIES

If the battery is confirmed to be distal to the esophagus

AND the patient is asymptomatic

→ **it can be observed** (>80% pass uneventfully within 48 hours)

19) On examination of a 4-day-old infant male in the newborn nursery, you palpate a nonmobile abdominal mass in the right flank; the examination is otherwise unremarkable. What is the most likely cause of the mass?

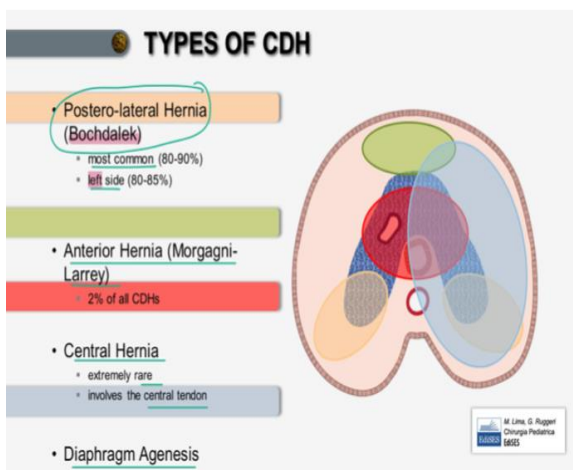
- a. Constipation
- b. Neuroblastoma
- c. Hepatomegaly
- d. Hydronephrosis
- e. sacrococcygeal teratoma

Answer: d

20) Which of the following is the most common type of congenital diaphragmatic hernia?***

- a. Postero-lateral hernia
- b. Anterior hernia
- c. Central hernia
- d. Diaphragm agenesis
- e. Diaphragm eventration

Answer: a



21) A 5-day-old neonate brought with abdominal distension, greenish vomiting, fever, scanty urine and refusal of feeds. Of these, the diagnostic symptom of intestinal obstruction is: ***

- Abdominal distension
- Greenish vomiting
- Fever
- Refusal of feeds
- Scanty urine

Answer: b

Intestinal Atresia

Clinical Features

• Antenatal:

- US may show:
 - polyhydramnios (↑ with the more proximal atresias)
 - "double bubble"
 - dilated proximal loops
 - echogenic bowel

• Postnatally:

- Bile-vomiting
- Varying degrees of distension (depending on level of obstruction)

سؤال الكائنات

22) The ideal age at which orchiopexy is performed for incomplete descent of testis is:

- First year
- At birth
- At puberty
- At the time of marriage
- 4 to 5 years of age

Answer: a

High inguinal UDT	<ul style="list-style-type: none"> • Observe till 12 months of age for possible further descent • Open primary or staged orchiopexy (if didn't descend completely) 	At 12 months of age
Low inguinal UDT (common)	<ul style="list-style-type: none"> • Wait till 12-18 months of age for possible further descent • Open primary orchiopexy (if didn't descend completely) 	At 12-18 months of age

23) The following congenital abnormalities can be conservatively observed until the first year of life or more EXCEPT:

- a. Congenital Hydrocele
- b. Undescended testis
- c. Congenital inguinal hernia
- d. Umbilical hernia
- e. Non complicated hemangioma

Answer: c

24) All of the following regarding Neuroblastoma (NB) are true, EXCEPT:***

- a. NB is the most common abdominal malignancy of infancy.
- b. Approximately 80% of NB patients are diagnosed prior to age 4 years.
- c. N-MYC oncogene copy number in NB tissue is inversely related to survival.
- d. Lung is the commonest site of metastasis.
- e. Stage 4s carries good prognosis

Answer: d

Neuroblastoma

Stage 4S Neuroblastoma

- ~30% of infantile neuroblastoma
- Spontaneous regression is possible
- >80% → survive without any specific treatment

Features:

- 1 ✓ Hepatosplenomegaly (may cause respiratory failure | can be treated with low dose radiotherapy or cyclophosphamide)
- 2 ✓ Subcutaneous nodules ('Blueberry muffin' spot)
- 3 ✓ Positive bone marrow

25) All of the following characteristics of Hirschsprung's disease (aganglionic megacolon) are true EXCEPT:

- a. It is the most common cause of functional intestinal obstruction in the neonate.
- b. There is an increased incidence in males and in children with Down syndrome.

- c. Constipation or abdominal distention are usual presenting symptoms beyond neonatal period.
- d. Barium enema may reveal transition zone between aganglionic bowel and proximal dilated ganglionic bowel.
- e. With typical history and physical examination there is no need for further investigation.



Answer: e

26) All of the following are true regarding esophageal atresia and tracheo- esophageal fistula (TEF), EXCEPT:

- a. Most cases of esophageal atresia are associated with a fistula between the proximal esophagus to the trachea.
- b. Often present prenatally with polyhydramnios.
- c. Postnatally present with choking on feeding and aspiration.
- d. The diagnosis may be confirmed by the inability to pass a nasogastric catheter into the stomach.
- e. Correction takes priority over many other congenital anomalies.

Answer: a

27) Which of the following complications is particular to neonatal circumcision:

- a. Meatal stenosis
- b. Inadequate skin removal
- c. Excessive removal
- d. Bleeding
- e. Infection

Answer: a

- **Meatal stenosis:** narrowing of ventral meatus causes thin urinary stream and straining with urination
 - Most commonly caused by circumcision
 - Treatment consists of surgery: **meatotomy** (the meatus of the urethra is ventrally incised)

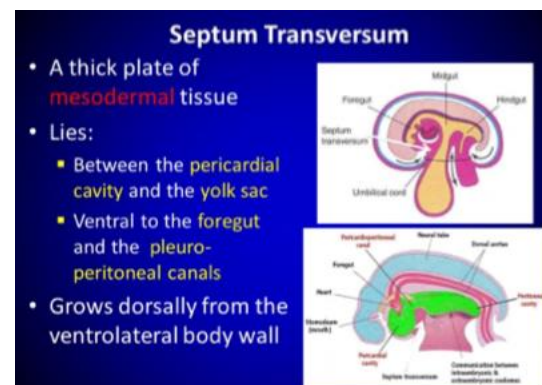
Circumcision | Complications

- **Bleeding**
- Infection
- Meatal stenosis
- Insufficient/excessive foreskin removed
- Adhesions, skin bridges, or inclusion cysts
- Entrapped penis or secondary phimosis
- Urethral injury (iatrogenic hypospadias)
- Necrosis of the penis (injurious use of electrocautery to control bleeding)
- Amputation of the glans (partial or complete)
- **Death** (mainly due to unnoticed bleeding)

28) Regarding congenital diaphragmatic hernia (CDH), all are true EXCEPT:

- a. The septum transversum extends to divide the pleural and coelomic cavities during fetal development.
- b. The most common variant of a CDH is a posterolateral defect (Bochdalek hernia).
- c. Newborns with CDH have a scaphoid abdomen after birth.
- d. In CDH cases, lung hypoplasia occurs on the affected side only.
- e. Nowadays, most cases are diagnosed antenatally.

Answer: d



29) A 6-week-old baby is receiving resuscitation for pyloric stenosis. The most practical and useful method to determine the hydration and intravascular volume status is:***

- a. Blood pressure and heart rate
- b. Skin turgor
- c. Urine output
- d. Mental status
- e. Serum chemistry

Answer: c

30) Potential sites of hemorrhage leading to hypotensive shock in children and adolescents include all the following EXCEPT:

- a. Thorax
- b. Abdomen
- c. Intracranial
- d. Pelvis
- e. Femur

Answer: c

21- Potential sites of hemorrhage leading to hypotensive shock in children and adolescents include all the following EXCEPT:

A. Thorax

B. Abdomen

C. Intracranial :

الفقرات التي تحتوي على نخاع
العمود الفقري

D. Pelvis

E. Femur

31) All of the following are possible known consequences of congenital diaphragmatic hernia EXCEPT:

- a. Hydrops fetalis
- b. Asymptomatic
- c. Right-to-left shunting
- d. Pulmonary hypoplasia
- e. Pulmonary hypotension

Answer:e

WHY TO CONCERN ABOUT?

- Fetal mortality
 - Hydrops fetalis
 - Stillbirths
- Neonates
 - Pulmonary hypoplasia
 - Persistent Pulmonary hypertension
 - Right-to-left shunting PDA
 - Hypoxemia & acidosis
 - Cardiorespiratory failure
 - Mortality
- Infants and children
 - Respiratory manifestations
 - GI manifestations
 - Asymptomatic (incidental)

32) Most frequent cause of bowel obstruction in infants and toddlers is: ***

- Acute appendicitis
- Pyloric stenosis
- Intussusception
- Meckel's diverticulitis
- Hirschsprung's disease

Answer:c

Intussusception

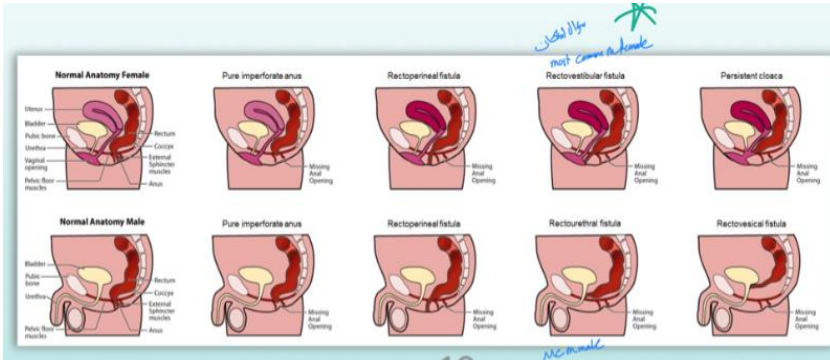
- It is an acquired invagination of the proximal bowel (intussusceptum) into the distal bowel (intussuscipiens).
- ✳ The most frequent cause of bowel obstruction in infants and toddlers.

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- 33) The most common anorectal malformation type in female newborns is:
- Imperforate anus with rectouterine fistula
 - Persistent cloaca
 - Imperforate anus with rectovestibular fistula
 - Imperforate anus with rectovaginal fistula
 - Imperforate anus with rectourethral fistula

Answer: c

- 34) Which of the following regarding surgical management of inguinal hernia in children is



TRUE:

- High ligation of patent processus vaginalis is curative
- Hernioplasty is the procedure of choice
- Herniorrhaphy is mandatory in all cases
- Removal of hernial sac is essential to prevent postoperative hydrocele
- The use of mesh is crucial to decrease recurrence rate

Answer:a

SURGICAL TREATMENT OF HYDROCELES

① Evacuation

+

② High ligation of PV or PPV

- Large or thick sacs may be everted behind the cord
(Bottle procedure)

35) Most common site of origin for neuroblastoma in children is: ***

- Abdominal sympathetic ganglia
- Posterior mediastinum
- Pelvis
- Neck

- e. Adrenal medulla

Answer: e

Neuroblastoma

► Sites of Origin

- ① • Adrenal medulla (~50%)
- ② • Abdominal sympathetic ganglia (~25%)
- ③ • Posterior mediastinum (~20%)
- ④ • Pelvis (~3%)
- ⑤ • Neck (~3%)

36) All of the following are within the spermatic cord in the inguinal canal EXCEPT: ***

- a. Testicular artery
- b. Genital branch of the genitofemoral nerve
- c. Artery of the vas
- d. Lymphatics
- e. Inferior epigastric artery

Answer: e





• Spermatic cord structures:

- ① • Cremasteric muscle
- ② • Testicular artery
- ③ • Pampiniform plexus
- ④ • Lymphatic channels
- ⑤ • Vas
- ⑥ • Genital branch of Genitofemoral nerve
- ⑦ • Processus vaginalis

37) All the following are true regarding gastroschisis, EXCEPT:***

- Often diagnosed by antenatal ultrasonography.
- Incidence increases in younger mothers.
- Associated anomalies are uncommon.
- The most common association is intestinal atresia.
- The defect is usually to the left of the midline

Answer: e

	Gastroschisis	Omphalocele
PRESENTATION	Paraumbilical herniation of abdominal contents through abdominal wall defect	Herniation of abdominal contents through umbilicus
COVERAGE	Not covered by peritoneum or amnion; "the guts come out of the gap (schism) in the letter G"	Covered by peritoneum and amnion (light gray shiny sac); "abdominal contents are sealed in the letter O"
ASSOCIATIONS	Not associated with chromosome abnormalities; good prognosis • Assoc. with jejunal & ileal atresia	Associated with congenital "Onomalies" (eg, trisomies 13 and 18, Beckwith-Wiedemann syndrome) and other structural abnormalities (eg, cardiac, GU, neural tube)
	 	 

39) Bowel malrotation is characterized by which of the following?

- Time of presentation can be at any age
- Double bubble appearance on abdominal x-ray rules out malrotation
- Urgent laparotomy is the gold standard for all cases
- The abdomen is tender even if not accompanied with mid-gut volvulus
- Almost always symptomatic and diagnosed in infancy

Answer: a



40) A 3-years-old male child presented with an asymptomatic empty right hemiscrotum. On inspection, right hemiscrotum looks darker than surrounding skin with coarse skin folds (rugae). The right testicle was palpable in the inguinal canal, good in size, and manipulated easily down and rest inside the scrotum. Next step in the management would be:

- Ask parents to manipulate it down frequently
- Reassurance and observation
- Appointment for orchidopexy
- Obtain an inguino-scrotal ultrasound
- Urgent surgical exploration

Answer: b

Retractile testis (common)	<ul style="list-style-type: none">• Observe till <u>puberty</u> for possible spontaneous resolution (90%)• <u>Orchidopexy</u> (10%) if any of the following:<ul style="list-style-type: none">• Painful• <u>Not growing</u>• <u>Upward most of the time</u>• <u>Became ascending testis</u>	At any age when becoming <u>painful</u> , <u>not growing</u> , <u>upward most of time</u> , or <u>ascending</u>
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41) Which of the following best fits inguinal hernia in children?

- a. The diagnosis rests squarely on ultrasound imaging
- b. Herniorrhaphy is the surgical management of choice
- c. Most are symptomatic and need urgent surgery
- d. Observation and surgery when needed are the mainstay treatment
- e. Good history can be relied on as an indication for surgery

Answer: e

CLINICAL PRESENTATION

- Most are asymptomatic (except for bulging with straining)
- Often found by the parents or pediatrician on routine physical examination
- The diagnosis is clinical (Hx & PEx)

42) Regarding children who present with ingestion of coins, which of the following is CORRECT?

- a. Nonemergent endoscopy for retrieval is the mainstay of treatment
- b. Mostly located in the mid-oesophagus
- c. Majority can be expelled by the child him-/herself
- d. Foley balloon extraction with fluoroscopy is contraindicated
- e. Mostly appear circular on lateral radiograph

الوجه الذي يظهر يكون AP

- Appear on face in x-ray (AP view).¹²
- Appear from the side on lateral view.

Answer: a

43) Which of the following signs is diagnostic for esophageal atresia?

- a. Absent stomach bubble on antenatal ultrasound
- b. Absence of gas in the stomach and bowel on abdominal x-ray
- c. Polyhydramnios on antenatal ultrasound
- d. Naso-gastric tube coiling on a chest x-ray
- e. Excessive salivation after birth

Answer: d

ANTENATAL DIAGNOSIS

Two nonspecific signs:

- ✓ Polyhydramnios ①
- ✓ Absent or small stomach bubble ②

Fetida → ②

POSTNATAL DIAGNOSIS

- Excessive salivation
- Coiled feeding tube in the blind upper pouch around T2-T4 on chest x-ray

Failure to induce N/G-tube

POSTNATAL DIAGNOSIS

- Presence/absence of gas in the stomach and bowel on abdominal x-ray
- assign the type of EA
- +/- Contrast study

*Fistula → Gas
NO → No Gas*

44) A 2-year-old child has swallowed a 2-cm coin, he has drooling of saliva but no respiratory distress. Where is the most likely site to find the coin: ***

- a. At the level of the lower esophageal sphincter
- b. At the level of cricopharyngeous muscle
- c. At jejunoileal junction
- d. At level of crura of diaphragm

- Most located in the proximal esophagus.

- Three main areas of narrowing:

- ① cricopharyngeus sling (70%) ; *narrowest point*
- ② level of the aortic arch in the mid-esophagus (15%)
- ③ lower esophageal sphincter (GE junction) (15%)

Answer: b

45) The treatment of choice for neonates with uncomplicated meconium ileus is:

- a. Observation.
- b. Emergency laparotomy, bowel resection, and Bishop-Koop enterostomy.
- c. Intravenous hydration and a Gastrografin enema.
- d. Emergency laparotomy, bowel resection, and anastomosis.
- e. Sweat chloride test and pancreatic enzyme therapy.

Answer: c

Meconium Ileus

Management

Postoperative care:

- Parenteral nutrition ✓
- N-acetylcysteine (10%) enterally (5–10 mL) ✓
- ~~Enteral~~ pancreatic enzymes (e.g., Creon®, Pancrease®) ✓
- Antibiotics ✓
- Involvement of CF team ✓

Due to CF

Meconium Ileus

Management

- Conservative:
 - Water-soluble contrast enema (success 60–70% in simple MI)
- Surgery:
 - Simple MI: ileotomy and irrigation using N-acetylcysteine or normal saline, followed by either:
 - Simple closure and return
 - Enterostomy tube
 - Ileostomy creation (distal ileostomy: Meckel's diverticulum)
 - Complex/Extensive MI: Resection of ischemic bowel & diversion (ileostomy or colostomy)

46) A 2.8-kg neonate with excessive salivation develops respiratory distress. Attempts to pass an orogastric catheter fail because the catheter coils in the back of the throat. A chest film is obtained and shows right upper lobe atelectasis and a gasless abdomen. The most likely diagnosis is: ***

- a. Proximal esophageal atresia without a fistula.
- b. Proximal esophageal atresia with a distal tracheoesophageal (TE) fistula.
- c. "H-type" TE fistula.

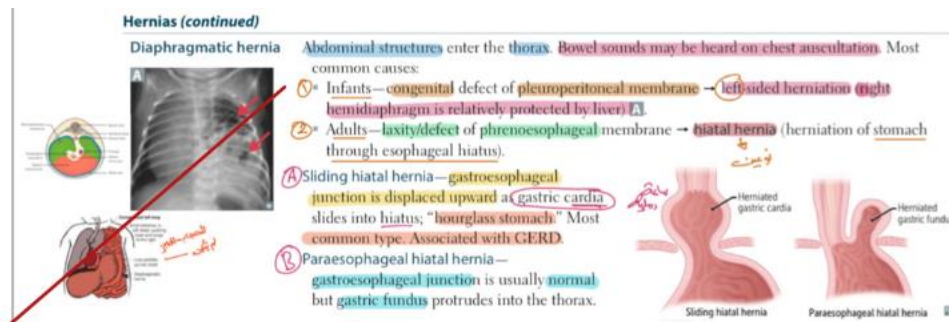
- d. Esophageal atresia with both proximal and distal TE fistula.
- e. Congenital esophageal stricture.

Answer: a

47) The most common type of congenital diaphragmatic hernia is caused by: ***

- a. A defect in the central tendon.
- b. Eventration of the diaphragm in the fetus.
- c. A defect through the space of Larrey.
- d. An abnormally wide esophageal hiatus.
- e. A defect through the pleuroperitoneal fold

Answer: e



48) True about pyloric stenosis: ***

- a. Can present as autosomal dominant condition
- b. Mostly in first week of life
- c. Leads to bilious vomiting
- d. Tumor can be palpated in most cases
- e. If left untreated leads to severe complications in childhood

Answer: d

▪ Pylorus may be palpable "olive sign" (70–90% of patients)

Diagnosis

- Classic presentation: ^{تقيؤ/تجشؤ}
 - nonbilious, projectile vomiting ^{milky}
 - full-term neonate
 - 2-8 weeks old

49) Most likely cause of biliary vomitus is:

- a. Esophageal atresia
- b. Pyloric stenosis
- c. Small intestinal volvulus
- d. Diaphragmatic hernia

Answer: c

50) Intussusception, false:

- a. Most common cause of intestinal obstruction between age of 6-18 months
- b. Palpable sausage abdominal mass in 80% of pts
- c. Ileocecal is most common type
- d. Meckle's or peyer's patch may act as leading points
- e. In ultrasound appear as doughnut sign

Answer: b

CLINICAL PRESENTATION

- The classic presentation is an infant or a young child:
 1. With intermittent, crampy abdominal pain
 2. Associated with 'currant jelly' stools (due to bowel ischemia and mucosal sloughing) → ^{intussusception}
 3. Palpable mass on PEx
- this triad is seen in <25% of children

51) A neonate with a palpable left flank mass, what is the most probable diagnosis: ***

- a. Wilm's tumor of the left kidney

- b. Ureteropelvic obstruction
- c. Vesicoureteral reflux
- d. Ureterovesical obstruction

Answer: b

سؤال / اجابة
• Most are asymptomatic (detected via prenatal screening US)

• When symptomatic:

- Flank or abdominal pain (~50%)
- Palpable flank mass (~50%)
- Hematuria
- Recurrent UTIs (~30%)

52) Most common presentation of Hirschsprung's disease after the neonatal period (delayed)

- a. Abdominal pain
- b. Distention and weight loss
- c. Constipation
- d. Bilious vomiting
- e. Delayed passage of meconium

Answer: c

Hirschsprung's Disease

Clinical Features

Two overlapping scenarios

1. Neonatal bowel obstruction:
 - Delayed passage of meconium
 - Abdominal distension
 - Bile vomiting
 - Enterocolitis
2. Chronic constipation (no encopresis/soiling)
 - ± Enterocolitis
 - Failure to thrive

• Explosive discharge of liquid fecal matter after DRE

53) What is the medical contraindication of circumcision:

- a. Phimosis
- b. Enuresis
- c. Hypospadias
- d. Reflux
- e. Recurrent UTI's

Answer: c

Circumcision

Contraindications

- **Absolute:**
 - Family history of bleeding disorders
 - The newborn has known bleeding tendency/disorder, or pathological jaundice
- **Relative:**
 - Hypospadias (as foreskin helps in the surgical repair of hypospadias)

54) The most common CXR finding in foreign body aspiration in children: ***

- a. Atelectasis
- b. Air trapping
- c. Pneumonia
- d. Infiltrates
- e. Increased AP diameter

Answer: b

Airway Foreign Bodies

AP and lateral films of the neck and chest (inspiratory and expiratory)

- can reveal **hyperinflation** or **"air trapping"**
 - up to 60% of children
 - FB acts as a one-way valve
 - +/- **mediastinal shift**
- Handwritten notes in Arabic: "foreign body" (جسم غريب), "air trapping" (احتباس الهواء), "hyperinflation" (تضخم رئوي), "mediastinal shift" (انزياح الوترية), "expiration" (الزفير).

55) The best way to evaluate dehydration in children:

- a. Electrolytes
- b. Blood pressure

- c. Heart rate
- d. Weighing before and after
- e. Mental status

Answer: d

When we talk of 5% dehydration, it means that the child has lost an amount of fluid equal to 5% of the body weight. So,

A 10 kg child who is 5% dehydrated will weigh 9.5 kg.
 A 10 kg child who is 10% dehydrated will weigh 9 kg.
 A 5 kg child who is 10% dehydrated will weigh 4.5 kg.

The child's current (dehydrated) weight can be used for calculation of dehydration and maintenance fluids. After all, clinical assessment of dehydration, and therefore the volume needed for correction, is approximate!

- 56) Regarding undescended testis, all are true except:
- a. Laparoscopy is indicated in non-palpable testis
 - b. Increases risk of infertility
 - c. Increases risk of torsion
 - d. By age of 1 year, < 50% will spontaneously descend

• Majority of testes complete descending within the first 6 to 12 months of life

Answer: d

- 57) In testicular torsion, all are true except:
- a. Most common age is neonatal and prepubertal
 - b. Can present with nausea and vomiting but with less testicular symptoms
 - c. Doppler ultrasound is mandatory for every encountered case
 - d. A 6-hour delay in correction will decrease the viability of testis
 - e. Orchidopexy of the contralateral testis is indicated

Answer: c

Diagnostics

⌚ Testicular torsion is typically a clinical diagnosis. Do not delay definitive treatment for diagnostic workup if clinical suspicion is high.

Imaging

⌚ Imaging is not routinely indicated in patients in which there is high clinical suspicion but should be considered in patients with atypical clinical features.

58) Twelve years old male, presented to the ER complaining of testicular pain that started during soccer practice. He denied trauma. On examination, the right testicle is tender, red, and edematous. The patient had vomited once. What is your diagnosis:

- a. Right testicular torsion
- b. Acute epididymoorchitis
- c. Idiopathic testicular edema
- d. Bacterial epididymitis
- e. Vasculitis

Answer: a

Diagnostics

⌚ Testicular torsion is typically a clinical diagnosis. Do not delay definitive treatment for diagnostic workup if clinical suspicion is high.

Imaging

⌚ Imaging is not routinely indicated in patients in which there is high clinical suspicion but should be considered in patients with atypical clinical features.

59) Double bubble sign is indicative of obstruction in which segment:

- a. Duodenum
- b. Jejunum
- c. Ileum
- d. Cecum
- e. Sigmoid

Answer: a



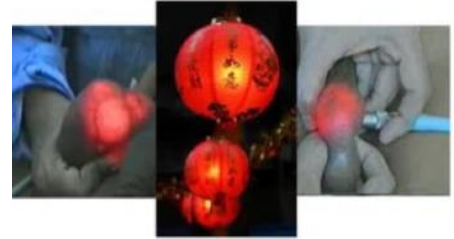
- 60) Doesn't need evaluation for intersex:
- a. Bilateral scrotal testes with small penis
 - b. Phenotypically female with fused labia
 - c. Male phenotype with bilateral impalpable testes
 - d. Proximal hypospadias with perineoscrotal fusion

Answer: a

- 61) What is transluminant:
- a. Scrotal hernia
 - b. Epididymal cyst
 - c. Hematocele
 - d. Testicular tumor

Answer: b

Epididymal Cyst- Clinical Features



62) Which is true about congenital diaphragmatic hernia?***

- a. Mostly on the right side
- b. Usually associated with oligohydramnios
- c. The major cause of death is pulmonary hypoplasia
- d. ECMO (extracorporeal mechanical oxygenation) is indicated when pao₂ is below 20

Answer: c

63) What is the metabolic change associated with excessive vomiting?***

- a. Hypochloremic, hypokalemic metabolic alkalosis
- b. Hyperchloremic, hyperkalemic metabolic alkalosis
- c. Hyperchloremic, hyperkalemic metabolic acidosis

- d. Hypochloremic, hypokalemic metabolic acidosis

Answer: a

Diagnosis *Hypertrophic pyloric stenosis*

- Labs:
- ① ▪Hypochloremic
- ② ▪Hypokalemic
- ③ ▪Metabolic alkalosis

- 64) Which is wrong about Hirschsprung's disease?***

- a. More common in females
- b. Full thickness biopsy is the definitive diagnostic test
- c. Agangliosis in the myenteric and submucosal plexus
- d. Can rarely involve the small intestines

Answer: a

- 65) Gastroschisis wrong:

- a. Can be closed primarily
- b. 80-90% good prognosis
- c. Associated with less anomalies
- d. Defect is to the right of umbilicus
- e. Caesarean section delivery is mandatory

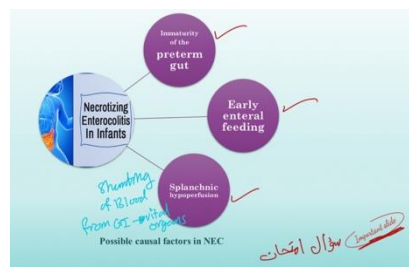
Answer: e

• Treatment

- Cesarean delivery has no advantage over vaginal delivery.
- See "Treatment" of omphalocele above
- Emergency surgery
 - Primary abdominal wall closure (success rate of 70%)
 - Alternative: staged silo repair (see "Treatment" of omphalocele above)

- 66) Necrotizing enterocolitis is associated with all of the following except:
- a. High vitamin A
 - b. Premature baby
 - c. Milk formula instead of breast feeding
 - d. Sepsis
 - e. Umbilical catheterization

Answer: a



- 67) Foreign body aspiration, all are possible CXR findings except:
- a. Normal CXR
 - b. Unilateral hyperinflation
 - c. Unilateral atelectasis
 - d. Increased AP diameter

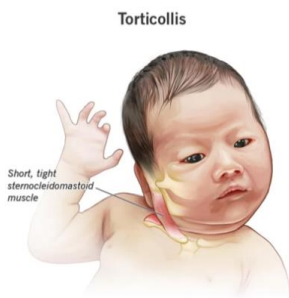
- e. Pulmonary infiltrates

Answer: d

68) Torticollis, which muscle is involved:

- a. Sternocleidomastoid
- b. Trapezius
- c. Platysma
- d. Omohyoid
- e. Pectoralis

Answer: a



69) Pyloric stenosis, which is wrong:

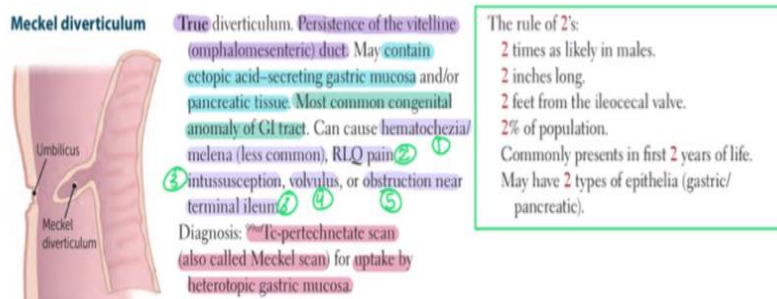
- a. Equal loss of both sodium and chloride
- b. Patient has hypochloremic, hypokalemic metabolic alkalosis
- c. Clinical exam and labs is the best way to assess dehydration
- d. Before surgery you first correct the electrolyte abnormalities
- e. Paradoxical aciduria occurs with severe dehydration

Answer: a

70) Meckel's diverticulum, which is wrong:

- a. Fresh bleeding
- b. Causes painful hematemesis
- c. Contains gastric mucosa
- d. Contains pancreatic mucosa

Answer: b



71) Neuroblastoma worst prognosis according to site is:

- a. Cervical
- b. Abdominal
- c. Mediastinal
- d. Site isn't associated with worsening of prognosis

Answer: b

72) Hirschsprung's disease, what's wrong: ***

- a. Rectal biopsy is full thickness biopsy
- b. Abdominal distention and constipation are the usual presentations
- c. Definitive diagnosis by suction biopsy which shows lack of ganglionic nerve cells
- d. Barium enema will show a transitional area between the distal aganglionic part and the proximal DILATED segment
- e. Rectal examination is usually normal

Answer: e

Hirschsprung's Disease

Clinical Features

Two overlapping scenarios

1. Neonatal bowel obstruction:
 - Delayed passage of meconium
 - Abdominal distension
 - Bile vomiting
 - ± Enterocolitis
2. Chronic constipation (no encopresis/soiling)
 - ± Enterocolitis
 - Failure to thrive

Explosive discharge of liquid fecal matter after DRE.

73) 18 months child, presented with Colicky abdominal pain followed in the next 12hrs by loose blood-stained stool, on P/E he looks febrile, his BP was 120/60 and has palpable mass, Your Dx is:

- a. Appendicitis
- b. Gastroenteritis
- c. Intussusception
- d. Hirschsprung's disease
- e. Nephroblastoma

Answer: c

CLINICAL PRESENTATION

- The classic presentation is an infant or a young child:
 1. With intermittent, crampy abdominal pain
 2. Associated with 'currant jelly' stools (due to bowel ischemia and mucosal sloughing) → *late presentation*
 3. Palpable mass on PEx

→ this triad is seen in <25% of children

74) Patient with severe, nonbilious vomiting, all can occur except:

- a. Hypochloremia
- b. Hypokalemia
- c. Metabolic alkalosis
- d. Respiratory alkalosis
- e. Paradoxical aciduria

Answer: d

Diagnosis

HPS

• Labs:

- ① ▪ Hypochloremic
 - ② ▪ Hypokalemic
 - ③ ▪ Metabolic alkalosis
- seen in most patients

[? paradoxical aciduria]

75) Regarding meconium ileus, which is wrong:

- a. Hypertonic enema is used to relieve it

- b. Associated with cystic fibrosis
- c. Affects lung, skin, pancreas
- d. Aganglionic
- e. Obstruction in the distal intestines

Answer: d

Meconium Ileus

Investigation

- AXR:
 - Dilated proximal bowel loops
 - "Soap-bubble" appearance or "Neuhäuser's sign" (in the loops filled with meconium)
 - Calcification (in meconium peritonitis)
- Contrast enema
 - Microcolon (contain small pellets of meconium)
- Confirmation of CF:
 - Sweat-Chloride test (normal <40, diagnostic >60 mmol/L)
 - Gene mutation analysis
 - Immunoreactive trypsinogen (basis for screening - ↑ levels in CF)

76) Which of the following isn't associated with neuroblastoma.***

- a. Hepatomegaly
- b. Diarrhea
- c. Splenomegaly
- d. Paraplegia

Answer: c

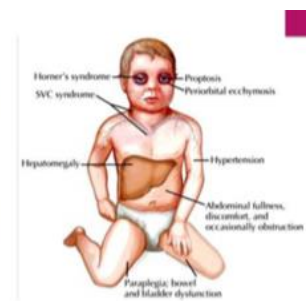
Neuroblastoma

► **Unusual But Characteristic Features**

- ① Periorbital ecchymosis or proptosis (**raccoon eyes**) *retro-orbital secondaries*
- ② **Homer's syndrome** ^{apical thoracic tumors} & **SVC syndrome**
- ③ **Progressive cerebellar ataxia** and **trunk opsomyoclonus**
- ④ **Dancing eye syndrome**
- ⑤ **Progressive paraplegia** *extradural cord compression*
- ⑥ **Hypertension** (~25%) *catecholamine production or renal artery compression*
- ⑦ **Skin nodules** *stage 4S disease*
- ⑧ **Diarrhea** *(VIP) release*
vasoactive intestinal peptide

1. miosis, ptosis, and hemifacial anhidrosis

Characteristic Features



77) An overactive cremastic muscle, with inadequate gubernacular attachment, the case is:

- a. Ectopic testis
- b. Undescended testis
- c. Retractable testis
- d. Monorchia
- e. Anorchia

Answer: c

78) Infant with a 48h Hx of recurrent cough and wheeze. Decreased air entry on left side. Hyperlucency on CXR, what's the management of choice?

- a. Left sided chest tube
- b. Right sided chest tube
- c. Steriod and something else
- d. Rigid bronchoscopy

Answer: d

Airway Foreign Bodies

- Common practice:

- The use of **flexible** bronchoscope (mainly to diagnose a FB)

- **Rigid** bronchoscopy for removal of FBs (diagnostic & therapeutic)



Isomh, G. W., Murphy, J. P., & Peter, S. D. S. (2019). Holcomb and Ashcraft's Pediatric Surgery.

79) False regarding omphalocele:

- Presence of the liver in the sac confers a bad prognosis
- Easy and simple to surgically repair the defect
- Sac present
- Umbilicus inserted into the sac
- Diagnosed prenatally

Answer: b

80) Which is wrong about Hirschsprung's disease:

- Absence of myenteric and Auerbach plexus
- The ganglionic segment appears dilated on Barium enema
- The initial treatment can be emergent colostomy
- Biopsy shows decreased Ach esterase in the affected ganglions
- Most commonly affects the recto-sigmoid

Answer: d

Hirschsprung's Disease

Investigations

1. AXR (non-specific signs of intestinal obstruction)
2. Contrast enema
 - dilated proximal colon
 - small-caliber distal colon
 - transitional zone
 - retained contrast on a 24-hour film
3. Rectal biopsy (suction or open under GA) *100% Diagnostic*
 - 1, 2, and 3 cm above dentate line
 - Characteristic HP features:
 - ✗ Absence of ganglion cells
 - ✗ Hypertrophied nerve bundles
 - ✗ Acetyl cholinesterase staining *سؤال امتحان*
 - ✗ Absence of Calretinin staining
 - Immunohistochemistry (e.g., LDH, S100, SDH, etc.)
4. Anorectal manometry (absence of Recto-Anal Inhibitory Reflex) *No need*

81) True about testicular torsion:

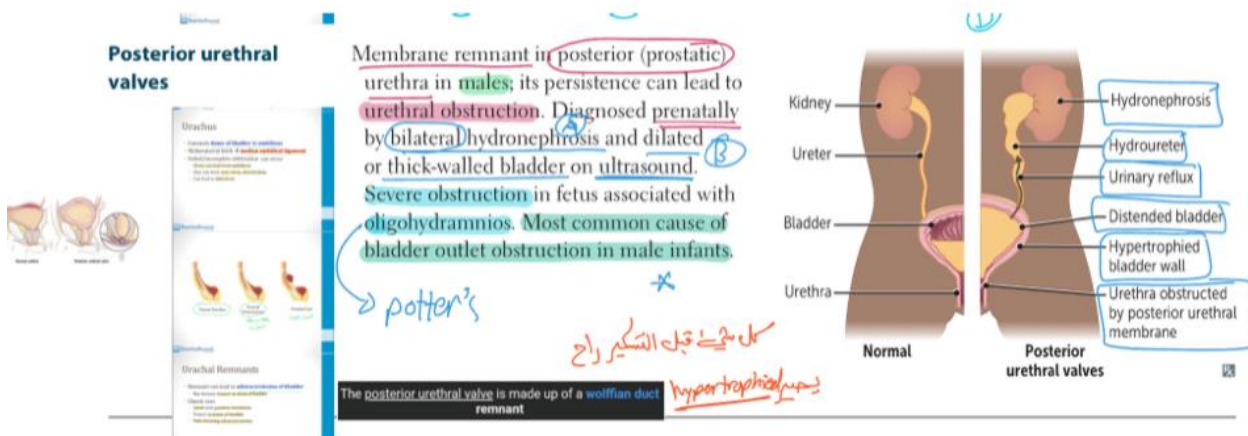
- a. Testicular torsion is most common before 3 years and during puberty
- b. Testicular salvage is very high regardless duration
- c. Extravaginal is also called bellclapper deformity
- d. Intravaginal is more common perinatally

Answer: a

82) Child with bilateral masses and lower abdominal mass, what is the cause:

- a. Posterior urethral valve
- b. Neuroblastoma
- c. Wilm's tumor
- d. Undescended testes

Answer: a



83) Not a risk for inguinal hernia:

- Cystic fibrosis
- Female
- Prematurity
- Hydrocephalus
- Positive family history

Answer: b

ASSOCIATIONS

- Cystic Fibrosis
- Hydrocephalus (VP Shunts) استسقاء دماغ
- Peritoneal Dialysis
- Other:
 - undescended testes
 - abdominal wall defects
 - connective tissue disorders (Ehlers-Danlos syndrome)
 - mucopolysaccharidoses (Hunter or Hurler syndrome)
 - ascites
 - congenital hip dislocation
 - meningomyelocele

84) False regarding gastroschisis:

- a. Can be associated with malrotation
- b. On the right of the umbilicus
- c. No sac covering
- d. Extruded bowel looks normal

Answer: d

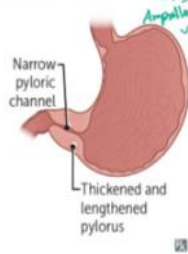
Ventral wall defects		Developmental defects due to failure of rostral fold closure (eg, sternal defects [ectopia cordis]), lateral fold closure (eg, omphalocele, gastroschisis), or caudal fold closure (eg, bladder exstrophy).
	Gastroschisis	Omphalocele
PRESENTATION	Paraumbilical herniation of abdominal contents through abdominal wall defect	Herniation of abdominal contents through umbilicus
COVERAGE	Not covered by peritoneum or amnion A; "the guts come out of the gap (schism) in the letter G"	Covered by peritoneum and amnion B (light gray shiny sac); "abdominal contents are sealed in the letter O"
ASSOCIATIONS	Not associated with chromosome abnormalities; good prognosis • Assoc. with jejunal & ileal atresia	Associated with congenital "Onomalies" (eg, trisomies 13 and 18, Beckwith-Wiedemann syndrome) and other structural abnormalities (eg, cardiac, GU, neural tube)

85) All the following are true about pyloric stenosis EXCEPT:

- a. Causes nonbilious vomiting
- b. Palpable pylorus in 70-90%
- c. Longitudinal muscle growth, it's enlarged and elongated
- d. Growth is from smooth muscle cells and intestinal secretions

Answer: d

Hypertrophic pyloric stenosis



Most common cause of gastric outlet obstruction in infants. Palpable olive-shaped mass (due to hypertrophy and hyperplasia of pyloric sphincter muscle) in epigastric region, visible peristaltic waves, and nonbilious projectile vomiting at ~2-6 weeks old. More common in firstborn males; associated with exposure to macrolides. Results in hypokalemic hypochloremic metabolic alkalosis (2° to vomiting of gastric acid and subsequent volume contraction).
★ Ultrasound shows thickened and lengthened pylorus.
Treatment: surgical incision of pyloric muscles (pyloromyotomy).

- 5 m's:
- ① mass
 - ② male
 - ③ macrolides
 - ④ Met. alkalosis
 - ⑤ pyloromyotomy

86) About the new consensus regarding the treatment of congenital diaphragmatic hernia:

- After extubation
- In utero

Answer: b

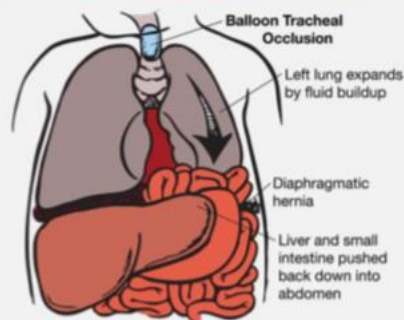
HOW TO MANAGE?

• Prenatal Management

- Screening for associated abnormalities
- Fetal echocardiography
- Genetic studies
- Family counselling
- In utero fetal therapy
- Delivery planning

• Investigational procedures

- Patch closure (abandoned)
- Fetoscopic Endoluminal Tracheal Occlusion (FETO)

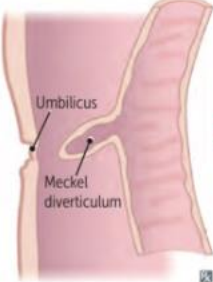


87) Most common cause of massive GI bleeding in children less than 6 months old:

- a. Meckel's diverticulum
- b. AV malformation

Answer: a

Meckel diverticulum



Umbilicus
Meckel diverticulum

True diverticulum. Persistence of the vitelline (omphalomesenteric) duct. May contain ectopic acid-secreting gastric mucosa and/or pancreatic tissue. Most common congenital anomaly of GI tract. Can cause hematochezia/melena (less common), RLQ pain ② ①, ③ intussusception, volvulus, or obstruction near terminal ileum ② ④ ⑤.

Diagnosis: ^{99m}Tc-pertechnetate scan (also called Meckel scan) for uptake by heterotopic gastric mucosa.

The rule of 2's:

- 2 times as likely in males.
- 2 inches long.
- 2 feet from the ileocecal valve.
- 2% of population.
- Commonly presents in first 2 years of life.
- May have 2 types of epithelia (gastric/pancreatic).

88) 3 year old, BPR, Hb=8, no abd pain or vomiting.. Next step??

- a. Technetium
- b. Colonoscopy

Answer: a

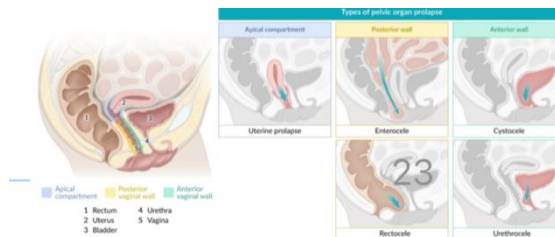
89) New born with respiratory distress on ventilator was found to have reducible inguinal hernia, Management?

- a. Repair while the new born on ventilator.
- b. Repair after extubation and before discharge

Answer: b

90) All cause slow transient constipation except:

Rectocele



91) Most common cause of hydronephrosis:

Congenital ureteropelvic junction stenosis

92) Tympanic percussion on the left chest with vomiting and scaphoid abdomen:

Left diaphragmatic hernia

93) All mimic necrotizing enterocolitis except:

Duodenal atresia

Necrotizing Enterocolitis

Clinical Features

- Nonspecific signs related to sepsis and ischemia
 - 1. Tachycardia
 - 2. Hypotension
 - 3. Metabolic acidosis
 - 4. Unstable body temperature
 - 5. Increasing O₂ requirement
 - 6. Thrombocytopenia
 - 7. Coagulopathy
- Specific local signs related to the affected bowel loops
 - 1. Peritonism
 - 2. Abdominal wall erythema
 - 3. Bile vomiting
 - 4. GI bleeding, (ischemia)
 - 5. Abdominal mass formation - perforation + meconium pseudocyst

Intestinal Atresia

Investigations

- AXR
 - Features of obstruction
 - **“Double bubble” and no distal gas** (classical feature in duodenal obstruction)
 - **Peritoneal calcification**: suggests perforation and meconium cyst formation

94) Idiopathic intussusception, wrong:

A leading point is found most of the time

95) Normal testis that is pulled up with crematic muscle contraction:

Retractile testis

96) Pseudokidney sign:

Intussusception

- Characteristic findings:
 - **“Target” or “doughnut”** lesion; in a transverse plane
 - **“Pseudokidney”** sign; on longitudinal section

97) Pneumatosis intestinalis seen in:

Necrotizing Enterocolitis

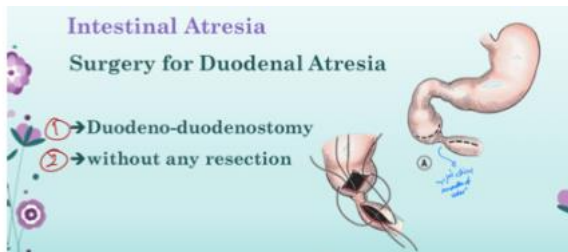
98) Syndromic esophageal atresia is most commonly associated with:

Cardiac anomalies

ASSOCIATED ANOMALIES

- Isolated EA (50%)
- Syndromic EA (50%):
 - ✓ Cardiac (m.c.)
 - ✓ Vertebral
 - ✓ Limb
 - ✓ Anorectal
 - ✓ Renal

99) Duodenal atresia, management:
Duodenoduodenostomy



100) 1st thing to do in anorectal malformation:
IV fluids

