

APPROACH TO ABDOMINAL MASS

**Presented by : Shatha Hamad
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Mohammad Alakhras**



لا تنسوا إخوانا المجاهدين في غزة من دعائكم،
نصرهم الله وأعانهم



APPROACH TO ABDOMINAL MASS

Done By :Shatha Hamad.

OBJECTIVES:

- Definition
- Classification of abdominal masses
- History
- physical examination
- Investigation
- Treatment-Management



Definition :

Abdominal mass: is a localized enlargement or swelling in the abdomen.

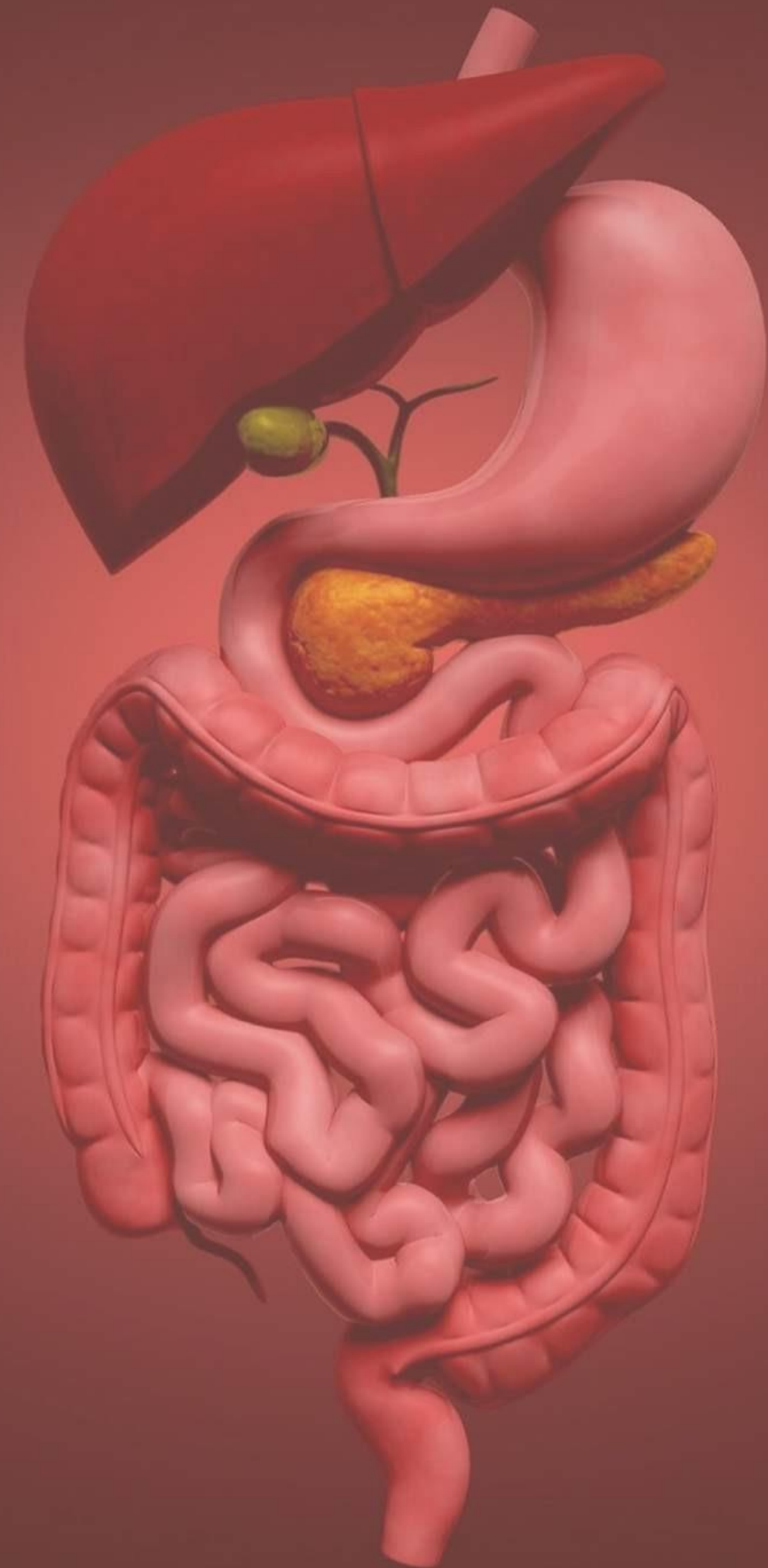
Symptoms Of Abdominal Mass:

It is possible to feel a lump in the stomach (the mass in your own abdomen) before any other symptom but, much more frequently, it is first felt by a doctor examining the abdomen because of a different symptom, such as abdominal pain.

Therefore, it is more usual to become aware of a mass in the abdomen because of other symptoms such as:

- Abdominal pain.
- Diarrhea.
- Constipation.
- Rectal bleeding.
- Weight loss.

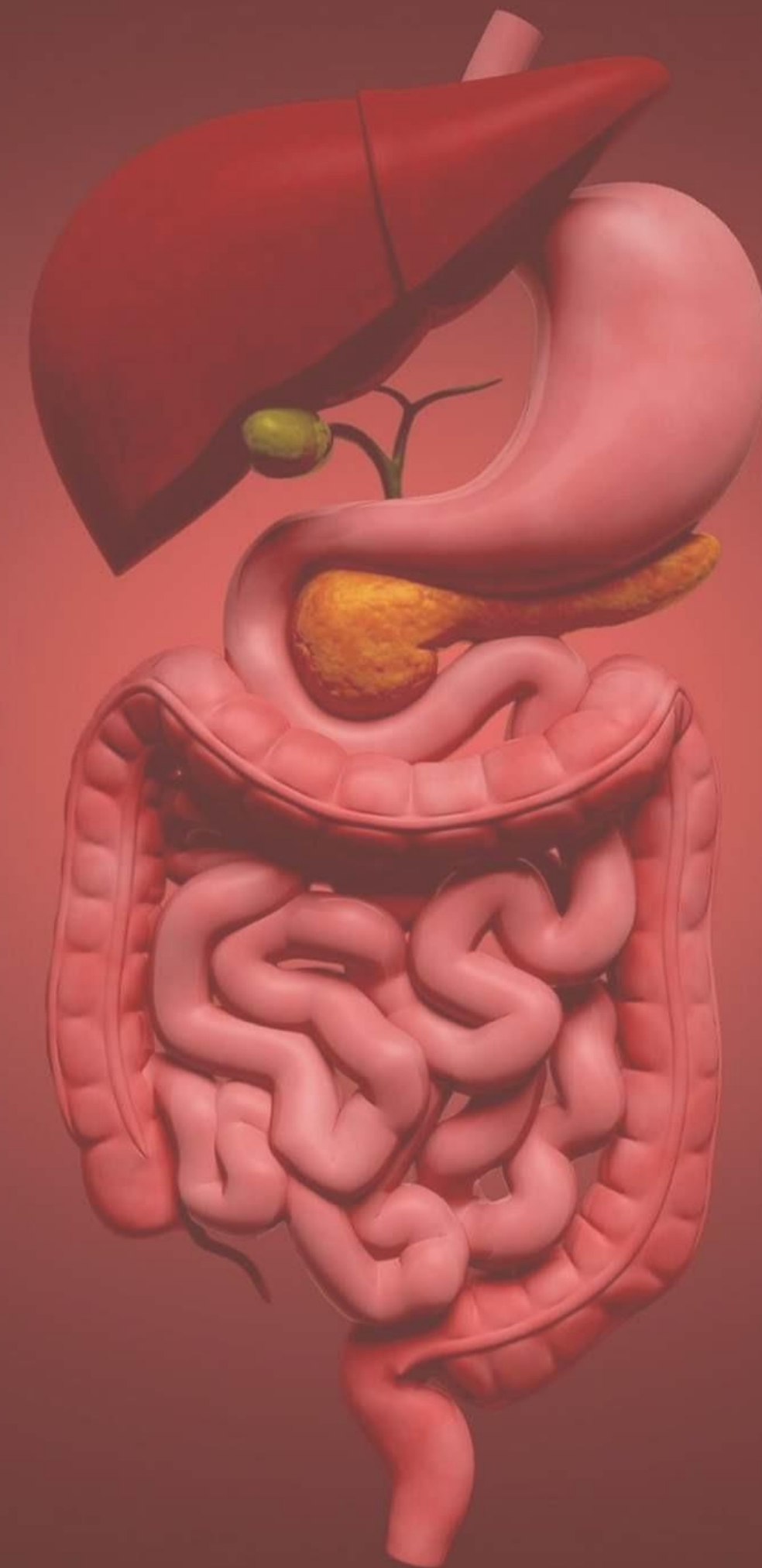
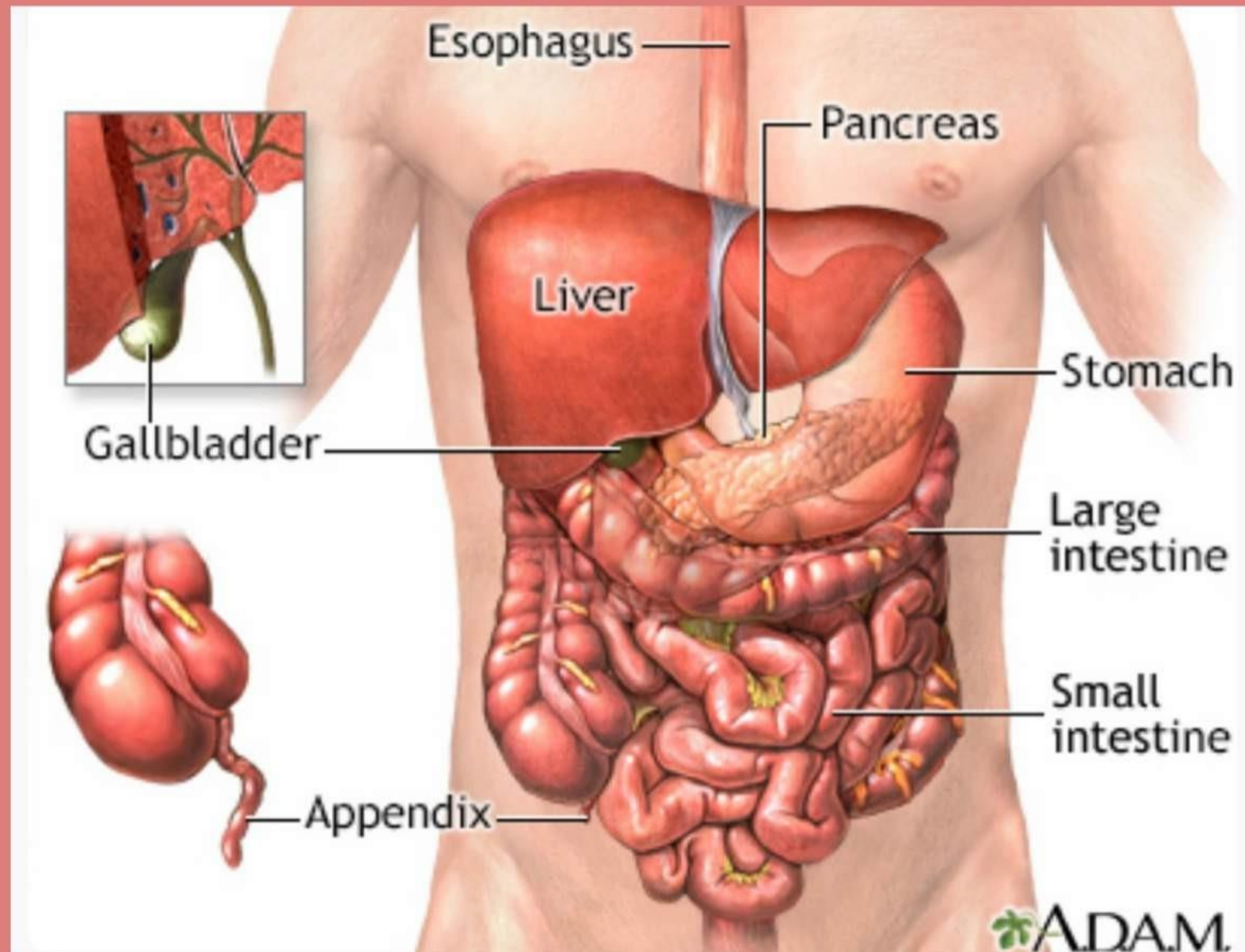
A mass in the kidney may also cause blood in the urine. Other symptoms will depend on the cause of the mass.



Quick review of abdominal anatomy :

The abdomen contains many different structures including the:

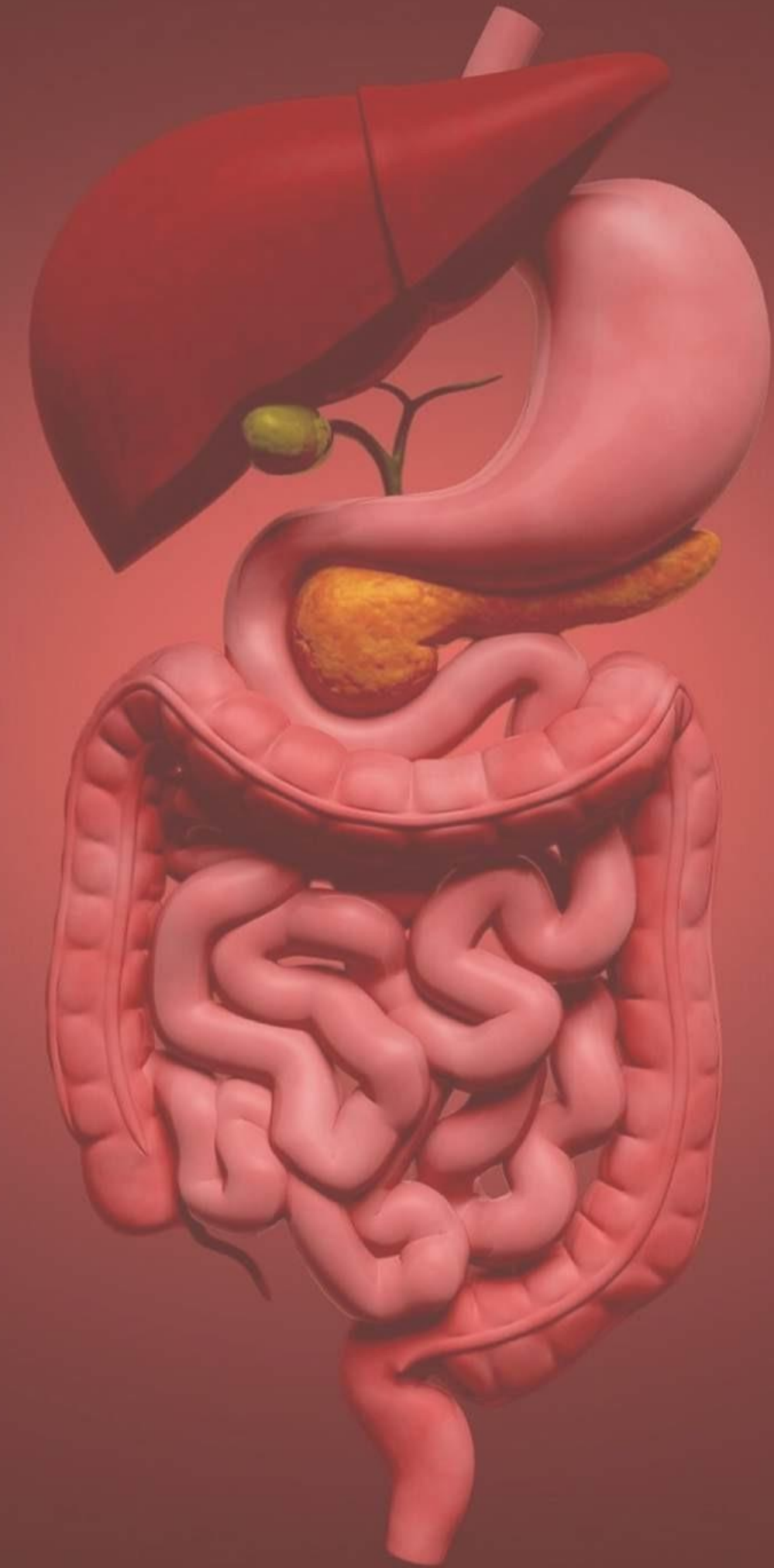
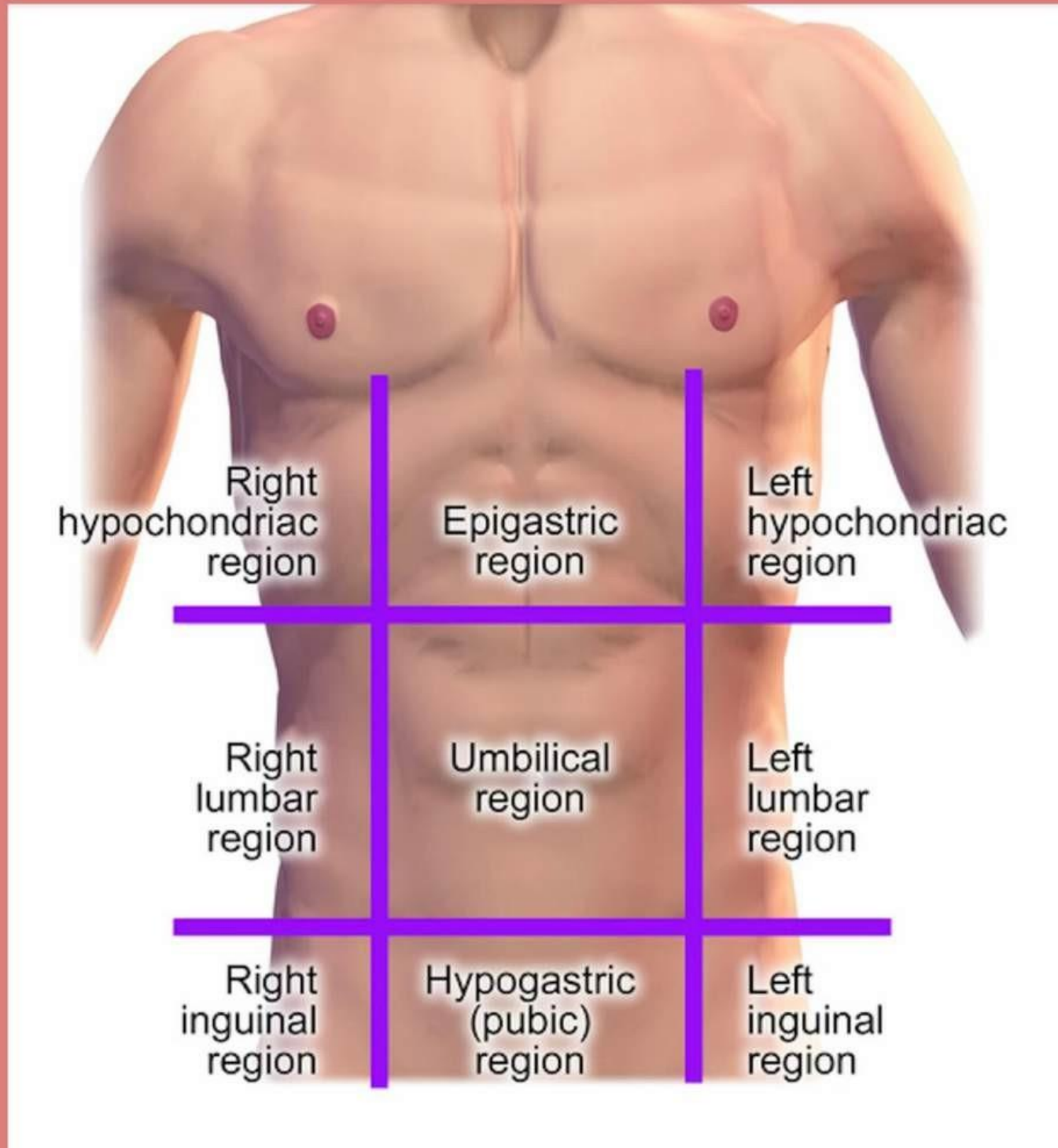
- Stomach and gut (bowel).
- Liver.
- Spleen.
- Pancreas.
- Kidneys and bladder.
- Womb (uterus) and ovaries in women.
- Major blood vessels - for example, the aorta.



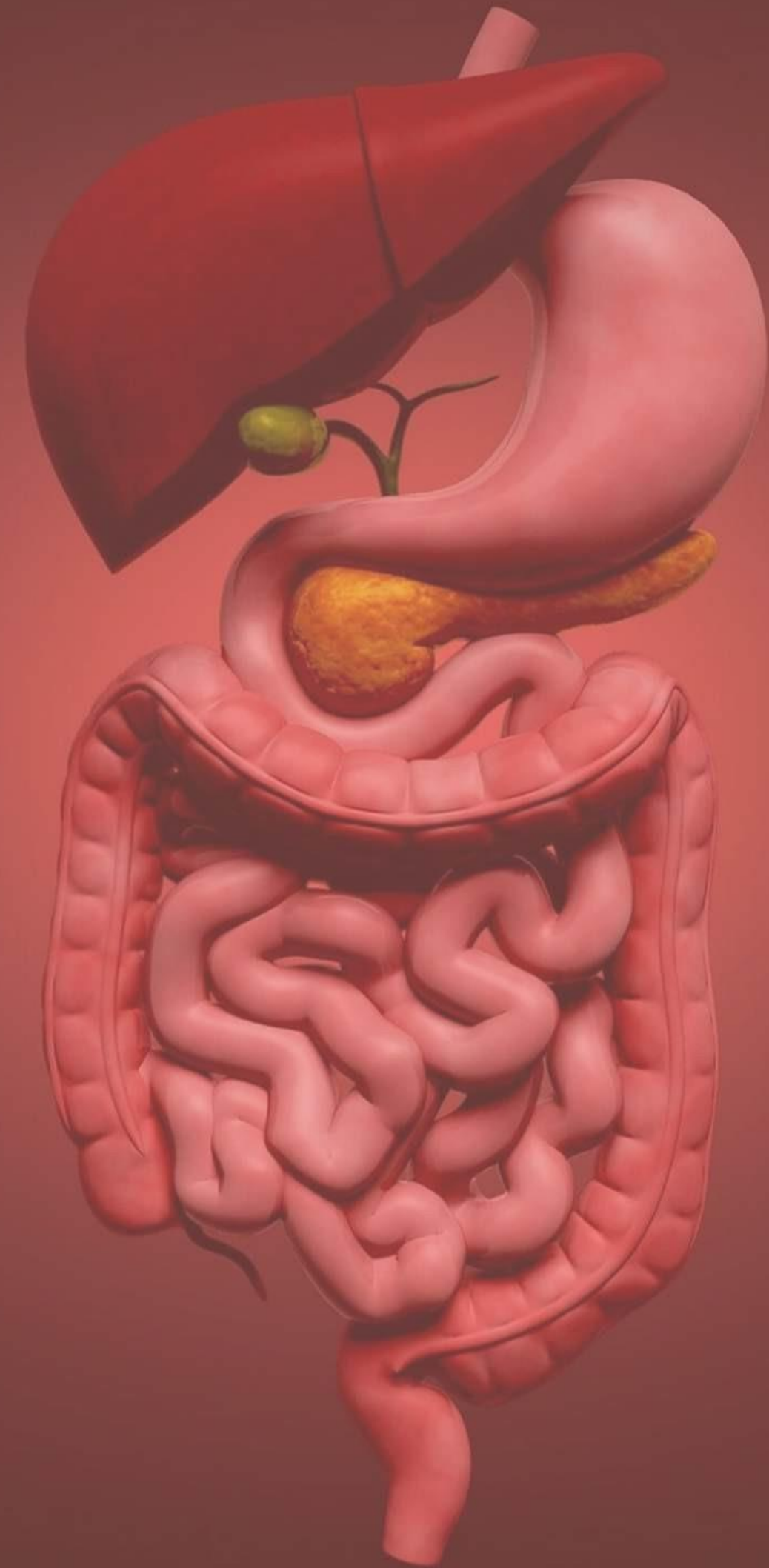
Classification of abdominal masses :

Abdominal masses can be classified in several ways , but we will focus on explaining the classification of abdominal masses according to the site:

The abdomen is divided into nine regions :



- Just below the ribs on the right side (right upper quadrant/ hypogastrium).
- Just below the ribs in the middle (epigastrium).
- Just below the ribs on the left side (left upper quadrant/ hypogastrium).
- Right side of the middle abdomen (right loin/ lumbar region).
- The tummy button (umbilical).
- Left side of the middle abdomen (left loin/ lumbar region).
- Right side of the lower abdomen (right lower quadrant/ inguinal or iliac region).
- Middle of the lower abdomen (suprapubic and pelvis).
- Left side of the lower abdomen (left lower quadrant/ inguinal or iliac region).

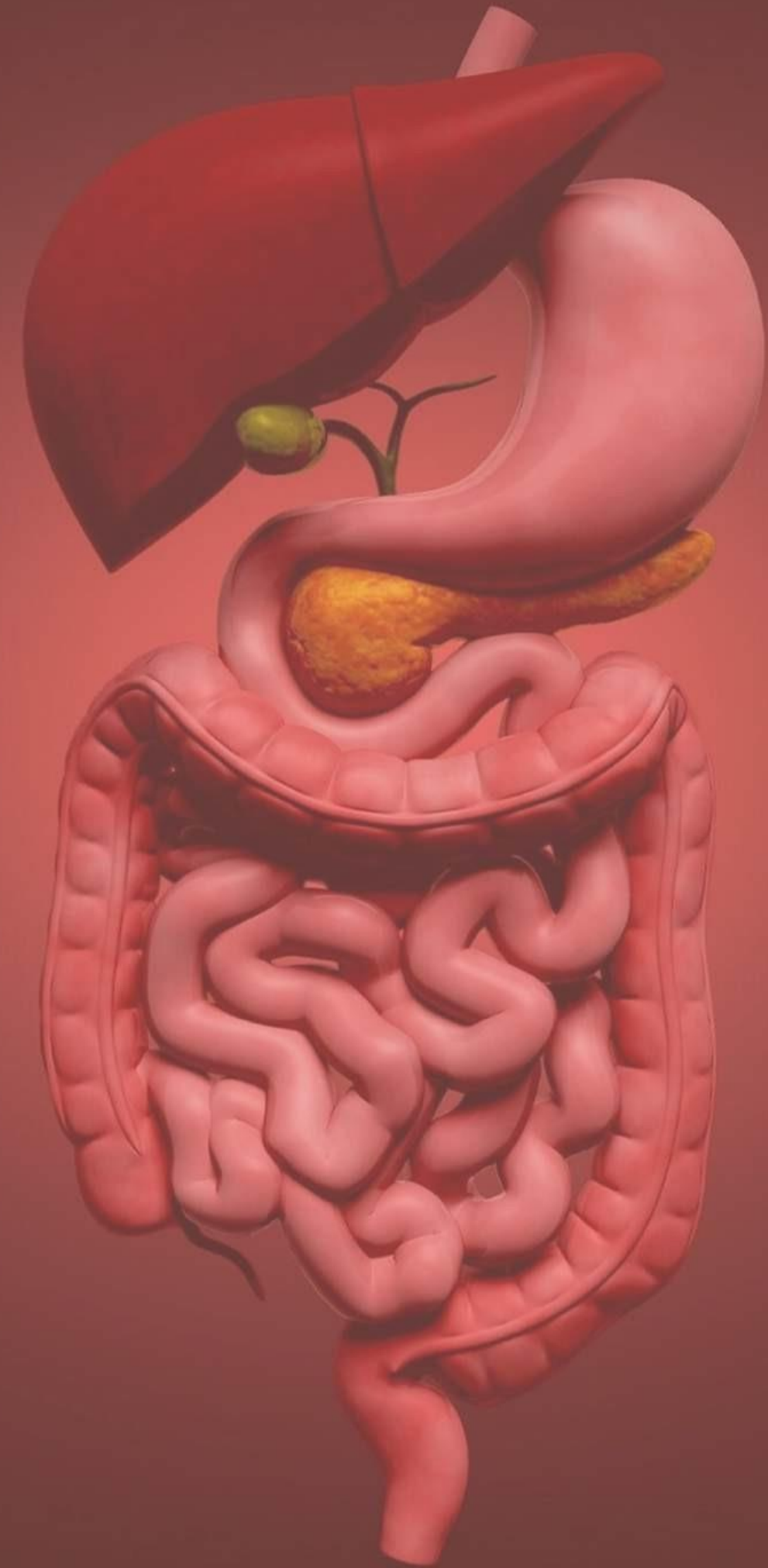


Right upper quadrant:

- Hepatomegaly (infective, neoplastic, cirrhotic, metabolic, drugs and toxins)
- Gallbladder enlargement (cystic duct obstruction, common bile duct obstruction)
- Gastric carcinoma
- Right subphrenic abscess (accumulation of the fluid between diaphragm and liver)
- Subhepatic abscess

Left upper quadrant:

- Splenomegaly (infective, blood disease, metabolic, circulatory, neoplastic)
Splenomegaly, ask about: fever, anorexia, weakness and fatigue from anemia.
- Gastric carcinoma
- Pancreatic enlargement / Left subphrenic abscess



Epigastrium:

- Hepatomegaly
- Gastric carcinoma
- Pancreatic enlargement
- Abdominal Aortic Aneurysm (AAA)
- Colon cancer
- Mesenteric cyst

Aortic aneurysm, ask about :
risk factors of CVS diseases as
smoking, HTN and early death
in the family

Suprapubic and pelvis:

- Distended bladder
- Uterine fibroma
- Ovarian tumor / cysts



Rt< Lumbar region :

- Enlargement of kidney (malignancy, hydronephrosis, pyonephrosis, cystic disease)
- Adrenal tumors, Adrenal cyst

Left lower quadrant:

- Sigmoid diverticulitis
- Psoas abscess
- Ovarian tumor / cysts
- Sigmoid tumor
- Undescended testis
- Iliac lymphadenopathy

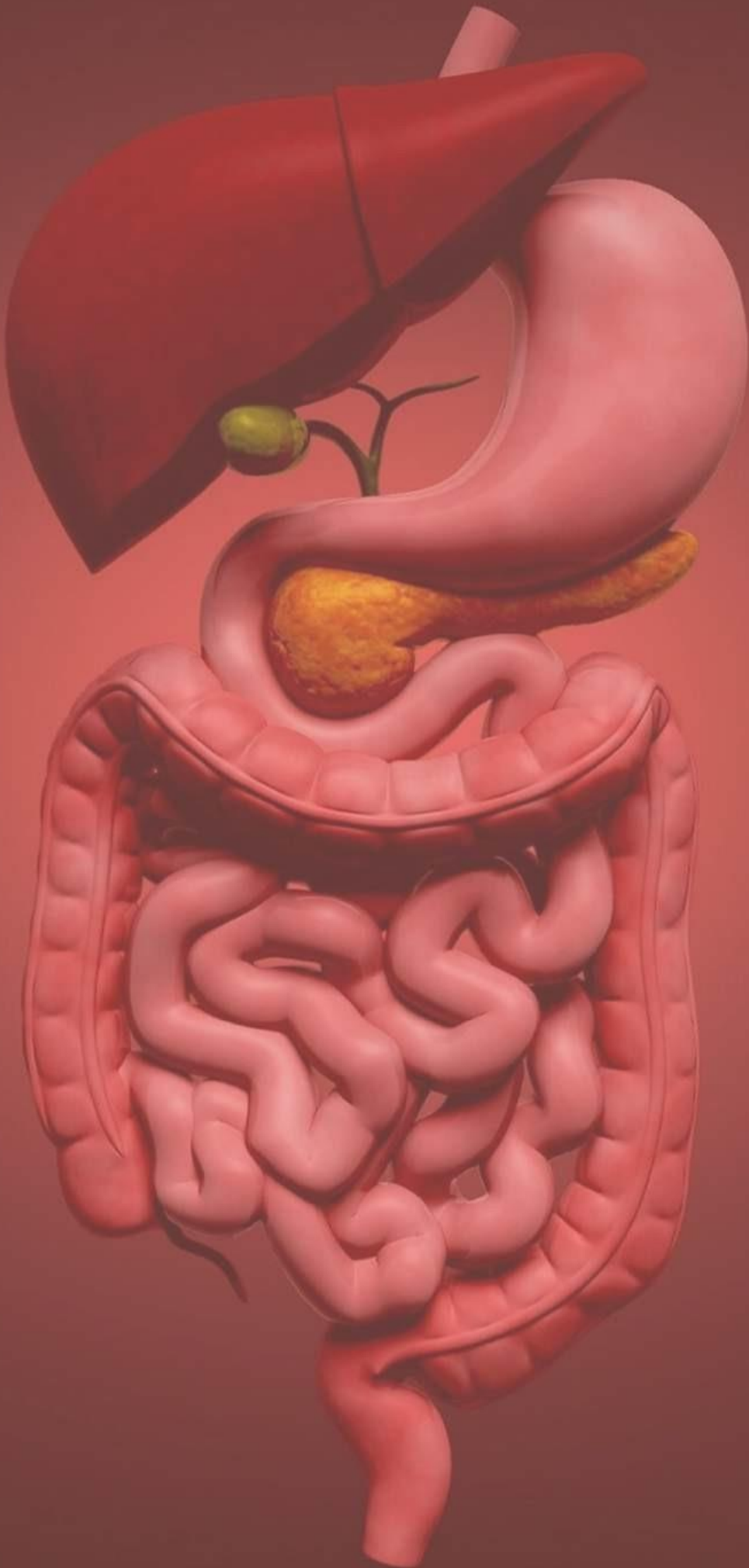
Right lower quadrant:

- Appendix mass / abscess
- Psoas abscess
- Ovarian tumor / cyst
- Colon tumor
- Undescended testis
- Iliac lymphadenopathy

Umbilical:

- Abdominal Aortic Aneurysm (AAA)
- Volvulus
- Hernia
- Intestinal neoplasm

Right hypochondrium Cholecystitis +gallbladder ca Hepatomegaly (liver ca , cavernous hemangioma , adenoma)	Epigastric Hepatomegaly Gastric ca Pancreatic abscess/pseudocyst	Left hypochondrium Gastric ca Pancreatic abscess/pseudocyst Splenomegaly Colon ca RCC Hydronephrosis
Right flank RCC Hydronephrosis	Periumilical AAA Hernia (umbilical , epigastric , para umbilical) Crohn's disease	Left flank RCC Hydronephrosis
Right iliac fossa Colon ca Crohn's disease Appendix mass/abscess Iliac lypmadenopathy Psoas abscess Ovarian cyst /fibroid	Suprapubic Distended bladder Neuroblastoma	Left iliac fossa Colorectal ca Diverticular disease Iliac lypmadenopathy Psoas abscess Ovarian cyst /fibroid



Quiz!

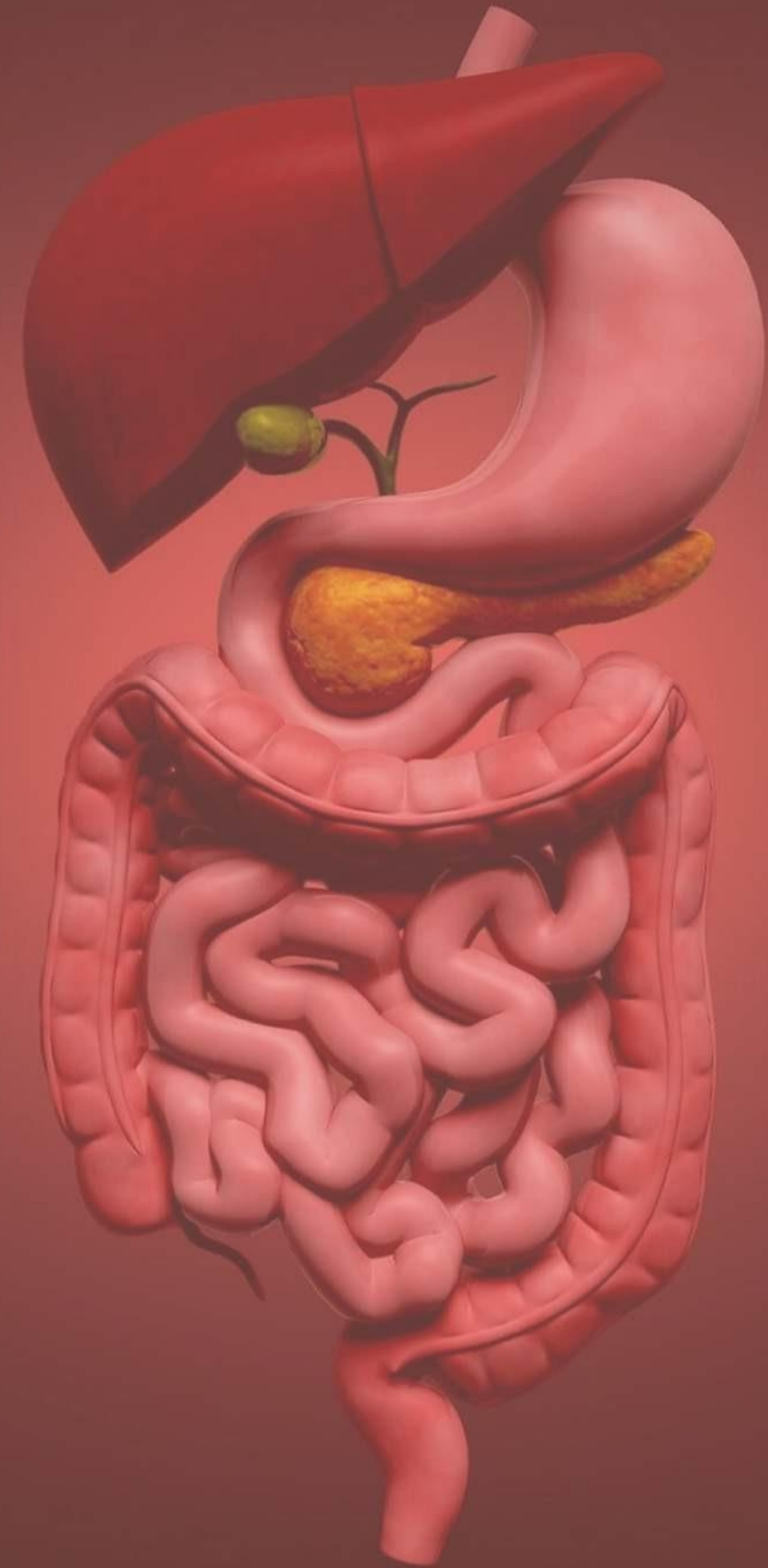
Which of the following symptoms is most commonly associated with an abdominal mass?

- A) Headache
- B) Abdominal pain
- C) Shortness of breath
- D) Nausea without vomiting

A mass in the left upper quadrant is most likely to involve which of the following organs?

- A) Gallbladder
- B) Spleen
- C) Bladder
- D) Appendix

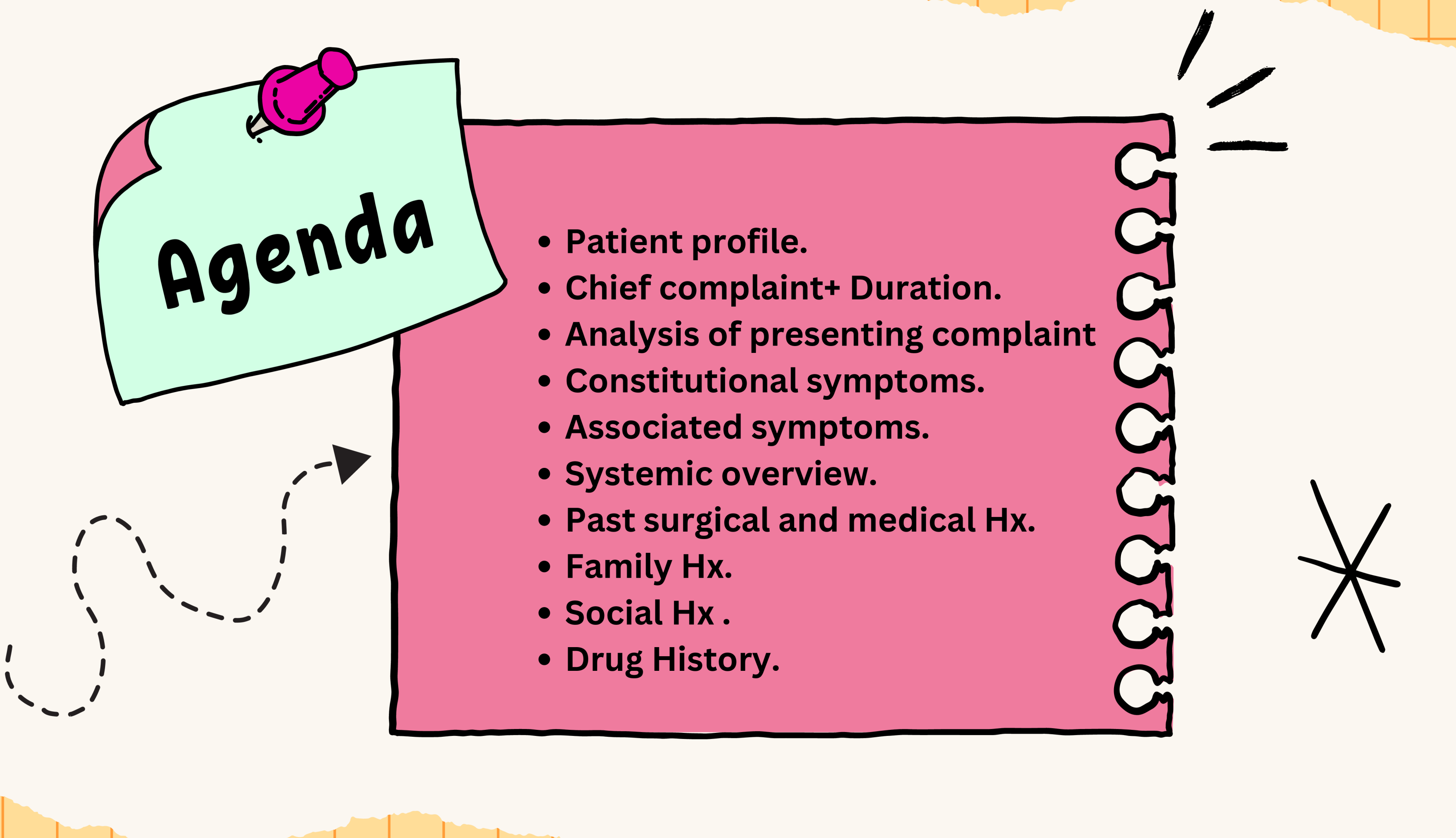
Thank You !



History Taking

Done by:
Rand Qadi.



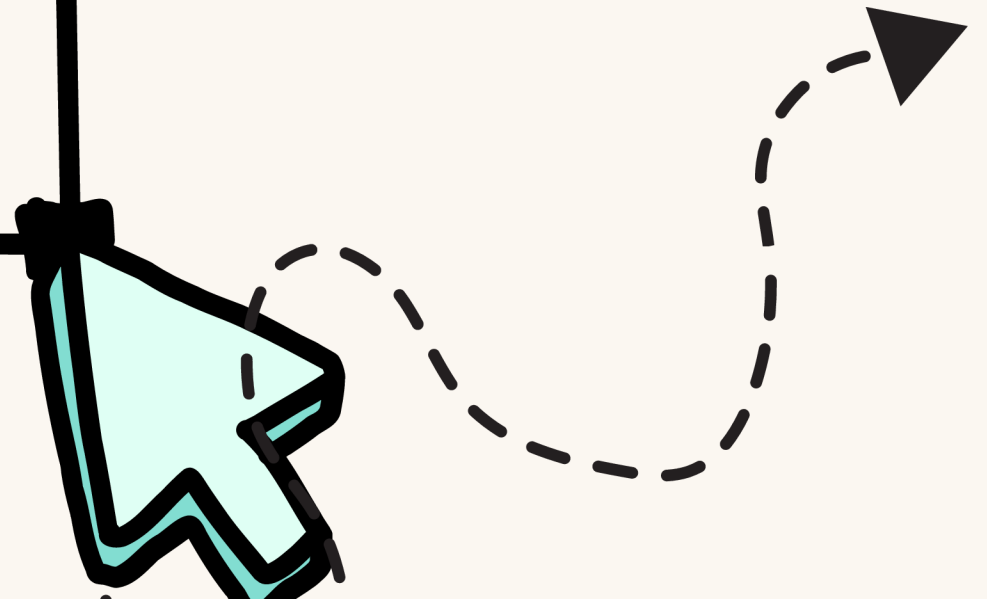


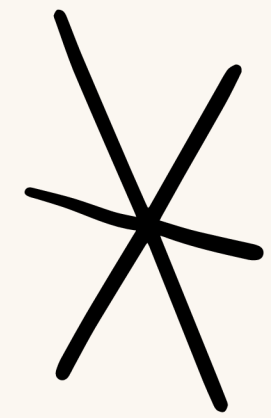
Agenda

- Patient profile.
- Chief complaint+ Duration.
- Analysis of presenting complaint
- Constitutional symptoms.
- Associated symptoms.
- Systemic overview.
- Past surgical and medical Hx.
- Family Hx.
- Social Hx .
- Drug History.

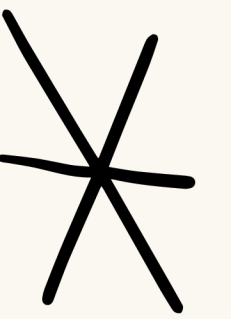
Patient Profile :

- name
- age
- gender
- marital status
- occupation
- address
- route of admission
- Date of admission

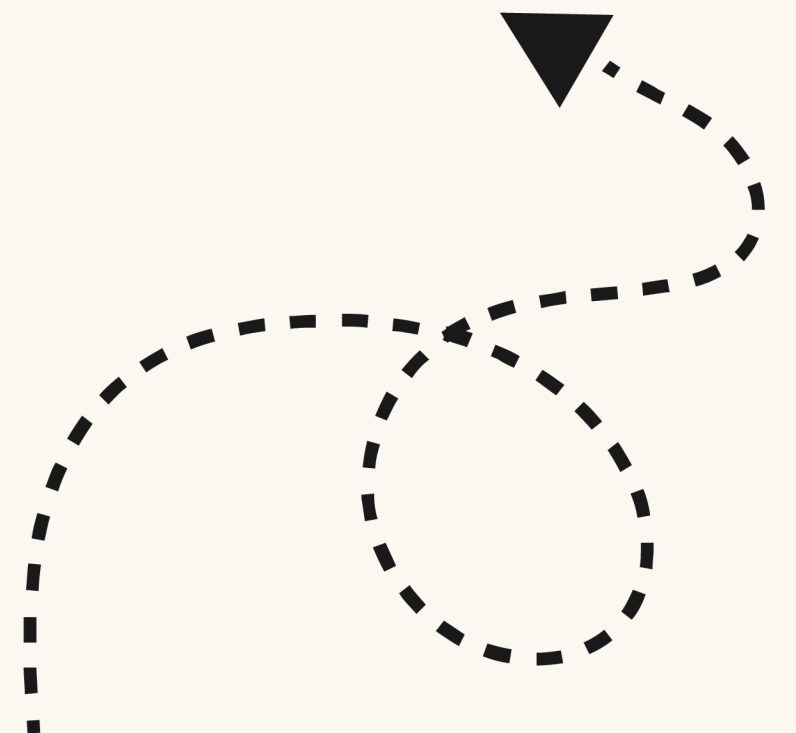


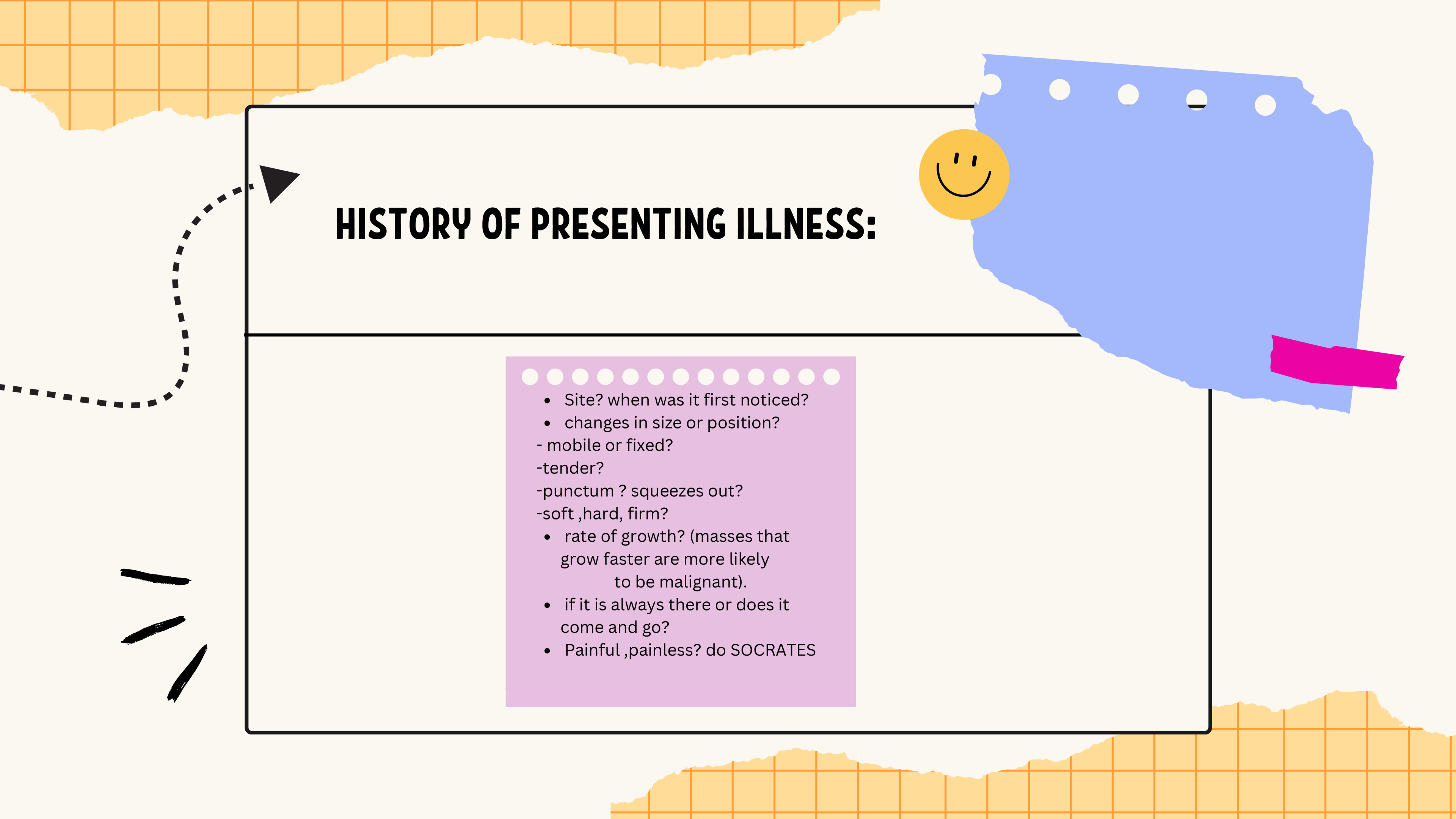


Chief complaint+Duration :



(what brought you to the hospital?)+for how long prior to admission.





HISTORY OF PRESENTING ILLNESS:

- Site? when was it first noticed?
- changes in size or position?
- mobile or fixed?
- tender?
- punctum ? squeezes out?
- soft ,hard, firm?
- rate of growth? (masses that grow faster are more likely to be malignant).
- if it is always there or does it come and go?
- Painful ,painless? do SOCRATES

- **Constitutional symptoms:**

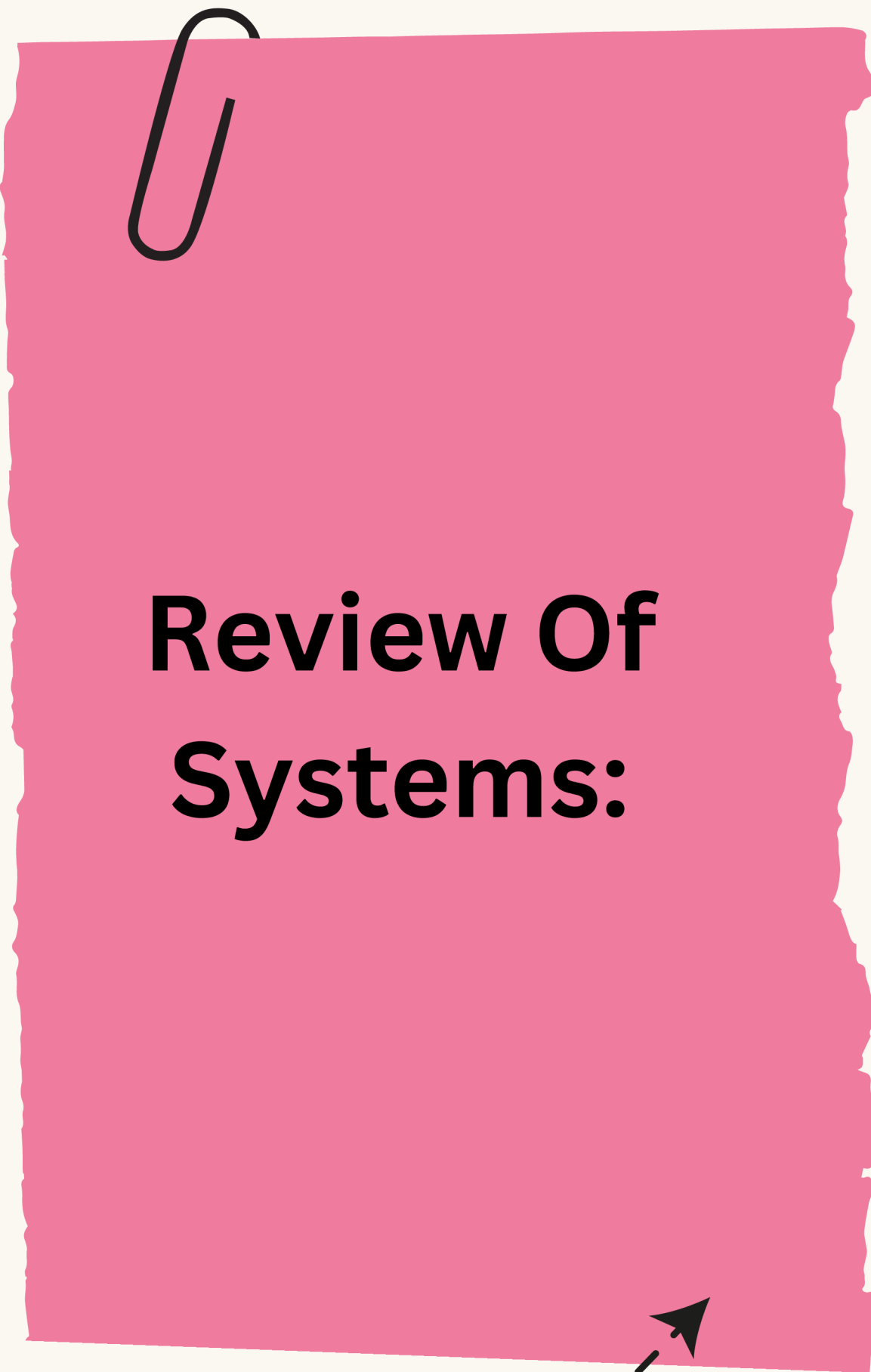
1 Weight loss Anorexia

2 Fatigue

3 Sweating

4 Nausea/vomiting





Review Of Systems:

Genitourinary Do you ever have pain or difficulty passing urine? Do you have to get up at night to pass urine? If so, how often? Have you noticed any dribbling at the end of passing urine? Have your periods been regular?	Respiratory Are you ever short of breath? Have you had a cough? If so, do you cough anything up? What colour is your phlegm? Have you ever coughed up blood?
Cardiovascular Do you ever have chest pain or tightness? Do you ever wake up during the night feeling short of breath? Have you ever noticed your heart racing or thumbing?	Musculoskeletal Do you have any pain, stiffness or swelling in your joints? Do you have any difficulty walking or dressing? Endocrine Do you tend to feel the heat or cold more than you used to? Have you been feeling thirstier or drinking more than usual? Neurological Have you ever had any fits, faints or blackouts? Have you noticed any numbness, weakness or clumsiness in your arms or legs ?

PMH + PSH

- 1-Chronic diseases
- 2-Blood Transfusion
- 3-Surgery

Social Hx

- 1.Smoking
- 2.Insurance
- 3.Pets
- 4.Alcohol
- 5.low fiber diet and high fiber diet

Family Hx

Comorbidities:

Hypertension, DM, H.pylori infection (gastric ca), IBD, colonic polyps

Familial adenomatous polyposis (colon and gastric ca), any family history of ca, gall stones and hemochromatosis

Medication Hx.

- 1-Allergies
- 2-Dose

THANK
YOU!



Physical examination of abdominal mass

1. Inspection
2. Palpation
3. Percussion
4. auscultation

Done by Sara Nafi'

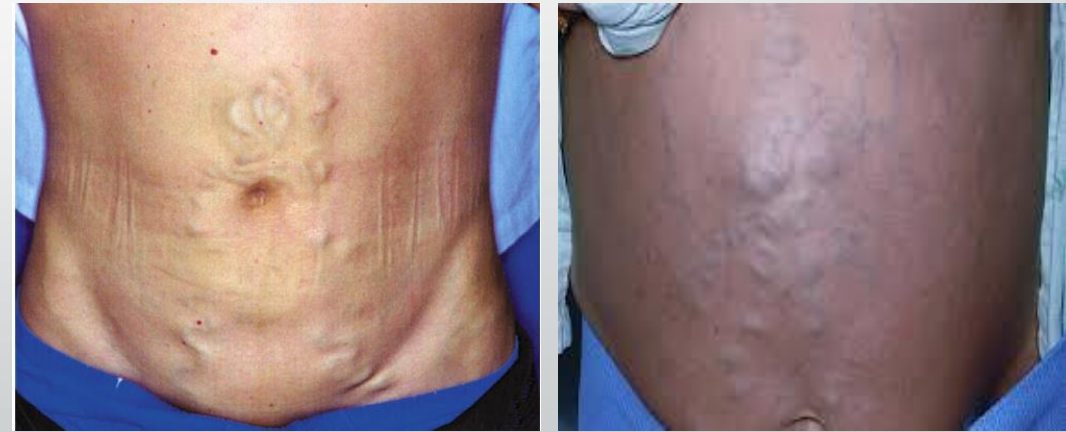


Inspection :

- **position:** the patient should be flat (supine)
- **Skin overlying the swelling :** tense , red , scars , striae , shiny pigmented and engorged veins
- **Abdominal contour :** observe the shape and symmetry of the abdomen
- **Pulsation :** a pulsating mass may suggest an abdominal aortic aneurysm

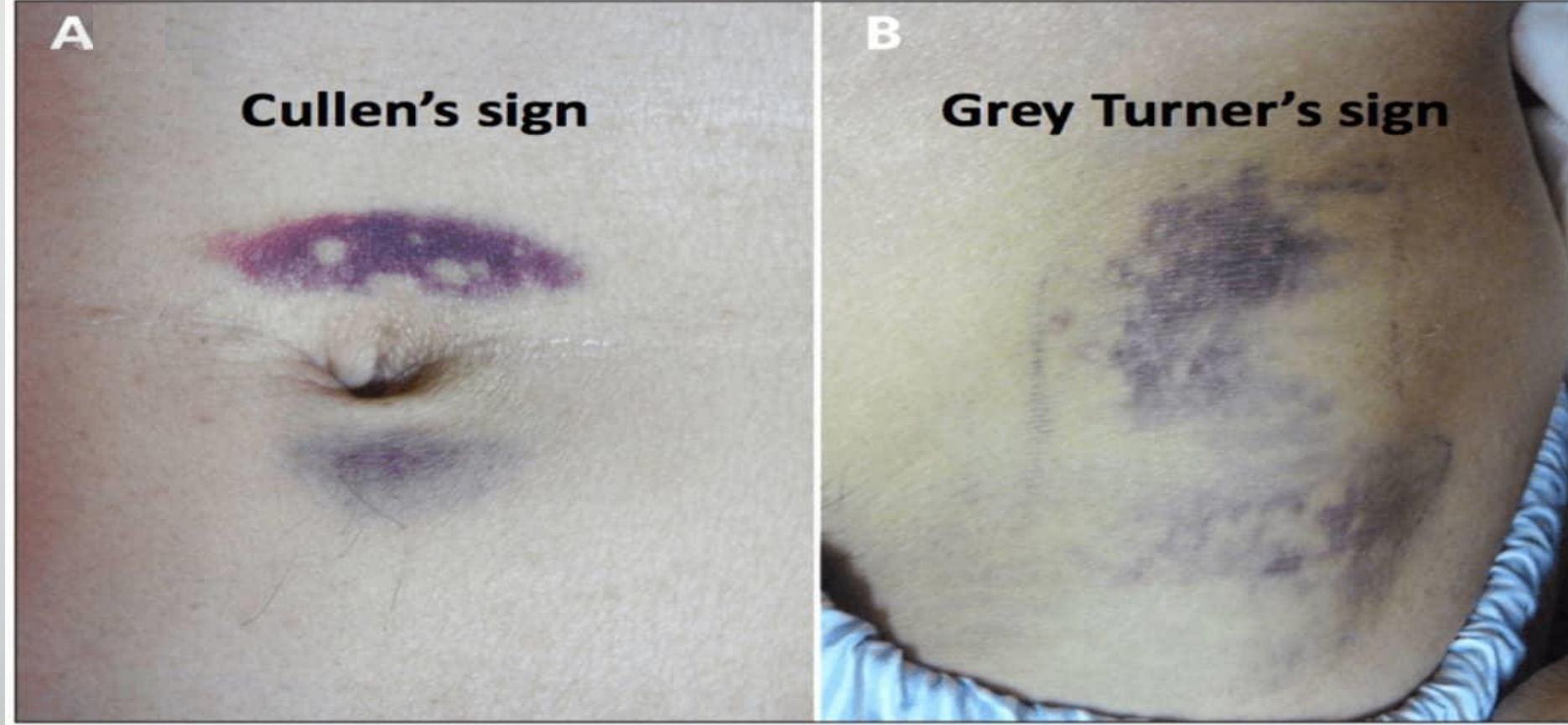
- **Movements with the respiration:** swelling originating from liver ,gallbladder ,spleen and stomach move **freely** with respiration
- Swelling arising from kidneys and suprarenal gland move **very little** with respiration
- If the abdomen **doesn't** move with respiration (**catastrophic sign**) it indicates peritonitis or perforated viscus
- **Umbilicus** : normally center and inverted
 - Deeper than normal → obesity
 - Everted → hernia , tumor , ascites

- **Hair distribution** : suprapubic hair is normal in males but if seen on female may suspect adrenal tumors
- **Dilated veins on the abdominal wall** : radiating tortuous veins around the umbilicus → this reflects portal HT (caput medusa)
- **Hernia orifices** :
 - ✓ Better on standing
 - ✓ Ask the patient to cough
 - ✓ Look for expansile impulse



Caput medusa

Discoloration of abdominal wall skin



cullen's sign : bluish discoloration around the umbilicus from retroperitoneal hemorrhage tracking around to the anterior abdominal wall through the fascia (hemorrhagic pancreatitis)

Grey turner's sign : ecchymosis of the flanks (hemorrhagic pancreatitis)

Palpation :

- Superficial palpation :

- Use the pads of your fingers to gently palpate the abdominal wall
- Asses for tenderness , rigidity or guarding which could indicate inflammation or infection
- Don't forget to be gentle

- Deep palpation :

- **Size:** Measure the mass in terms of it's length , width and depth
- **Shape:** Determine if it's regular or irregular.
- **Consistency:** Assess whether it's soft, firm, or hard or fluctuant (fluid –filled)
- **Mobility:** Check if the mass is fixed or movable.
- **Rebound Tenderness:** which may indicate inflammation , infection or malignancy.
- **Pulsatility :** a pulsating mass is a red flag for a vascular structure (e.g aortic aneurysm)

Is it an enlarged **abdominal organ** or **separate from the organ** ?

If the mass is separate from the solid organs :

Abdominal wall mass

- If attached to the **deep fascia**
→ less mobile
- If arising within the **muscle layer**
→ fixed and remain unchanged in size

Intra-abdominal wall mass

- If **deep to the abdominal wall** (ie within the **peritoneal cavity** or behind the peritoneum)
→ impalpable or less prominent
- If **intraperitoneal in contact with the diaphragm** will move on respiration (i.e swelling arising from liver , gallbladder , spleen , stomach , kidneys and suprarenal)
- If **retroperitoneal** masses are usually fixed

Determinants for any mass or lump

6 Students & 3 Teachers went for **CAMPFIRE**

- Site , skin , shape surface (smooth , nodular , irregular), size , scars
- Temperature , tenderness , transillumination : a lump that transilluminates contains water , serum , lymph , plasma or highly refractile fat.

Blood and tissues don't transilluminate

Consistency

Attachment and Mobility

Pulsation , Fluctuation

(+ve in fluid filled masses)

Reducibility and compressibility

Regional lymph nodes

Edges :

- **Well defined regular** suggests benign mass
- **Well defined irregular** suggests malignant mass
- **Ill defined + diffuse** suggests inflammatory mass

Percussion :

- The normal abdomen on percussion is tympanic
- Air-filled structure → tympanic upon percussion
- An air filled cyst → dull on percussion
- A dull area may draw your attention to a mass that was missed on palpation
- Percussion is useful to determine organ size , such as liver
- Shifting dullness and fluid thrill : when ascites is suspected

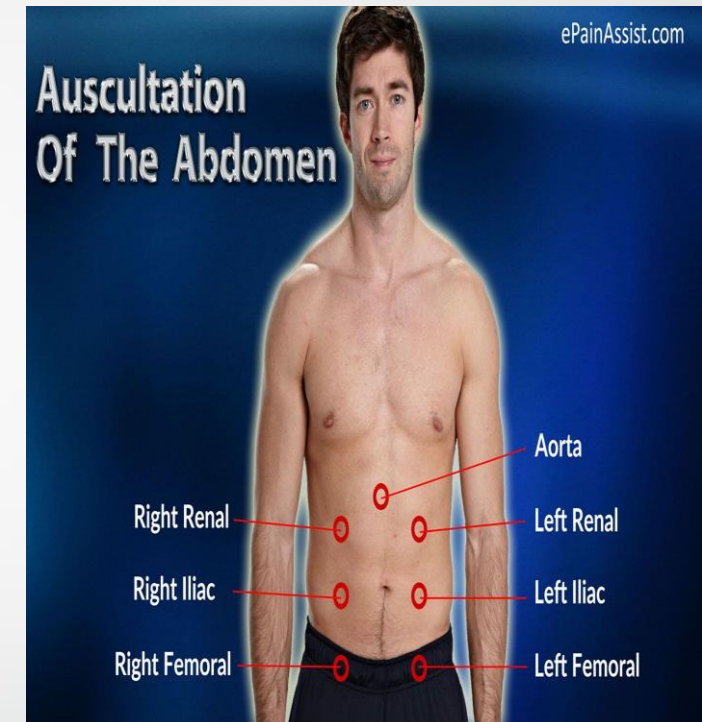
Auscultation :

1. Listen to the bowel sounds

- Normal bowel sounds are **low-pitched** gurgles
- **Absent or diminished** bowel sounds indicate an ileus
- High pitched and “**tinkling**” sounds indicates bowel obstruction

2. Vascular sounds

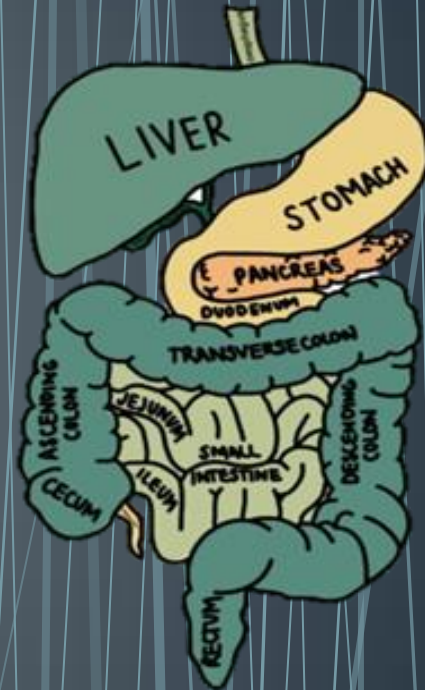
- Bruits (aneurysm) are **wind or whistling** sounds heard over major arteries



INVESTIGATION

DONE BY:

Mosab Al-Safadi



INVESTIGATION

- Investigation means using a tools for reaching to the diagnosis of Abdominal masses
- How are abdominal masses diagnosed?
A healthcare provider will start with a physical examination. They'll review your health history and ask about your symptoms.
- Once your provider completes your exam, they'll probably need to run some additional tests.
These tests may include:
 - A)-Imaging studies
 - B)-Laboratory studies



A)-Imaging studies

- They include (**US , CT , MRI , X-RAY , luminal contrast studies , Laparoscopy , colonoscopy , EGD**).
- In most cases, ultrasound is the first-line investigation for a suspected abdominal mass. Depending on the initial ultrasound findings, further imaging (e.g. CT, MRI) are requested.
- What is the best scan for Abdominal masses?
If you want to assess a bony structure, for instance, then a **CT scan** could be good for that. But if you are trying to distinguish between normal tissue and cancerous tissue, an **MRI** is probably a better choice, **ultrasound exam** offers the benefit of producing images quickly and in real time, so movement can easily be observed on ultrasound. **MRI images** can provide greater detail, but these images are time consuming to capture are typically static

1)-Abdominal Ultrasound

- is a noninvasive procedure used to assess the organs and structures within the abdomen. This includes the liver, gallbladder, pancreas, bile ducts, spleen, and abdominal aorta.
- Possible conditions are : Hepatomegaly ,Splenomegaly
Gallstones ,AAA, Abnormal growths (Cysts,Tumors,abscesses)

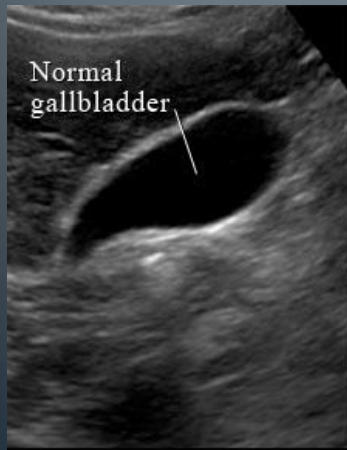
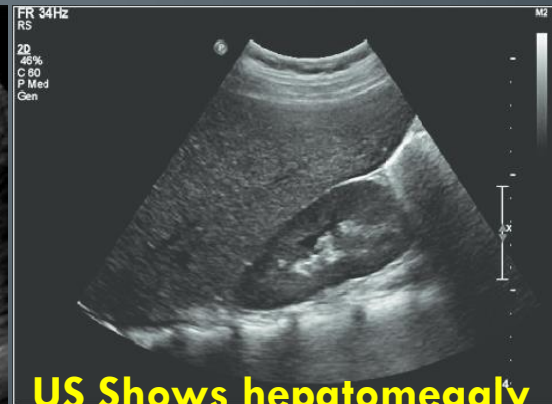


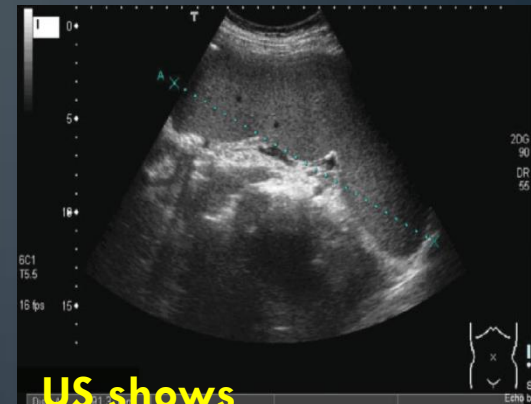
Figure 1



Figure 2



US Shows hepatomegaly with increased hepatic echogenicity.

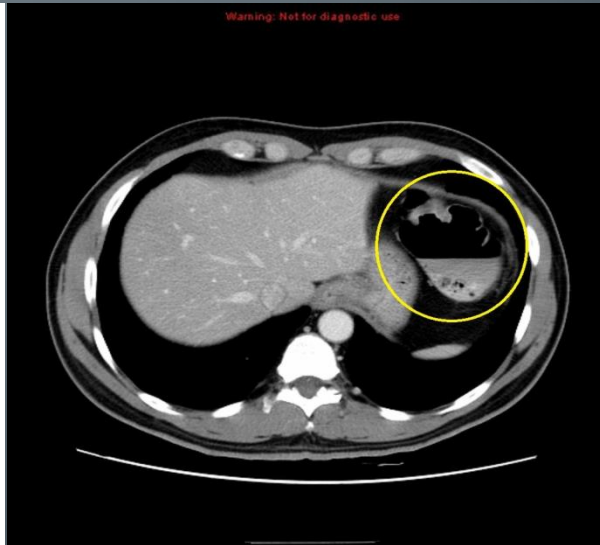
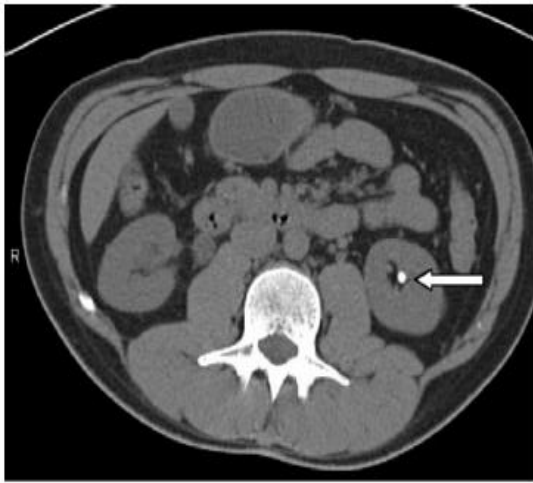


US shows splenomegaly (19 cm) located in normal LUQ

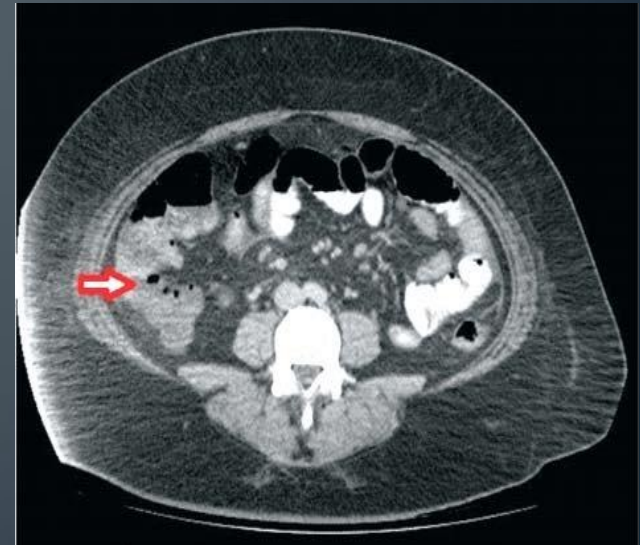
2)-Abdominal Computed Tomography (CT)

- noninvasive diagnostic imaging procedure that uses a combination of X-rays and computer technology .A CT scan shows detailed images of any part of the body, including the bones, muscles, fat, organs, and blood vessels.
- Detect and diagnose: (palpable abdominal mass, kidney stones, intestinal obstruction, cancer, clots, appendicitis, crohns dis.).

Figure 7. Computed Tomography Of Left Kidney Stone



CT shows gastric cancer



CT scan shows acute appendicitis

3)-Abdominal X-RAY

- It shows the size, shape, and position of the liver, spleen, and kidneys. Look for stones in gallbladder, kidneys, ureters, or bladder. Look for air outside of the bowel (intestines)

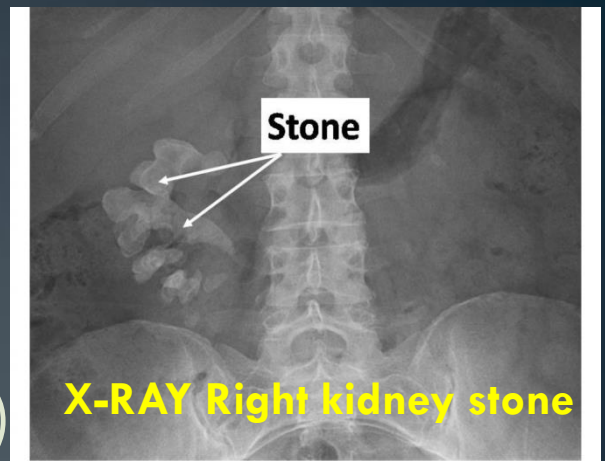


Figure 1

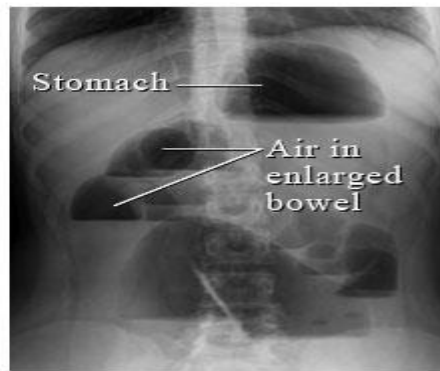
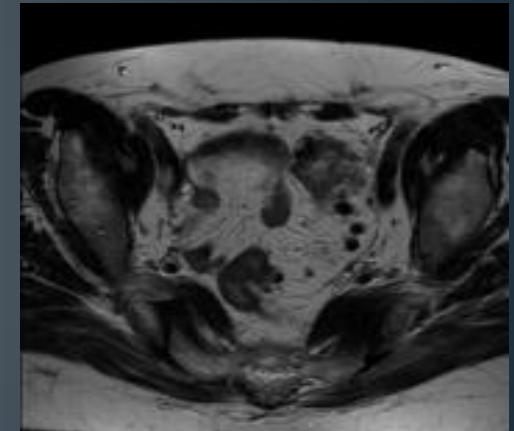


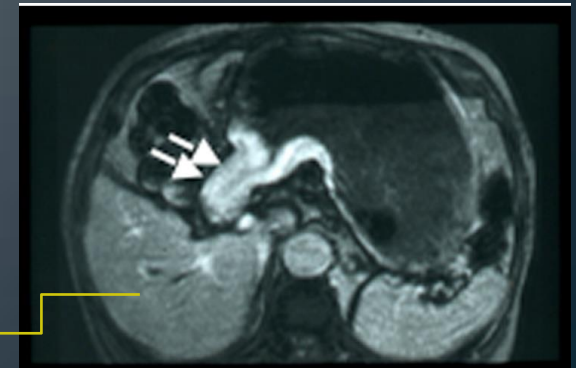
Figure 2

4)-Abdominal MRI

- It's a medical imaging Technique used in radiology to form pictures of the anatomy and the physiological processes of the body.



MRI Acute diverticulitis



MR Imaging of Gastric Carcinoma

5)-Barium Enema

- A barium enema is a radiographic (X-ray) examination of the lower gastrointestinal (GI) tract. The large intestine, Colon, rectum, and Anus. Its made visible on X-ray film by filling the colon with a liquid suspension called barium sulfate (barium). Barium highlights certain areas in the body to create a clearer picture.



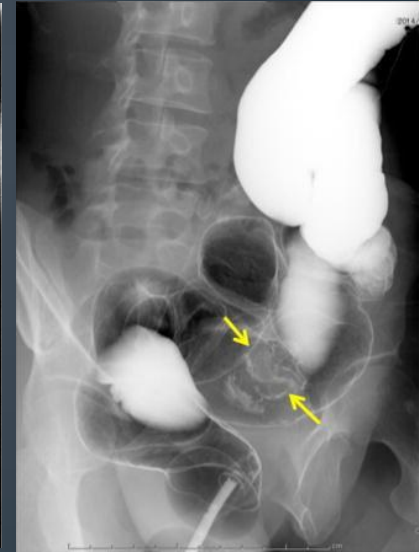
Barium enema showing diverticulosis ,but no signs of sigmoidal obstruction.



Barium enema reveals no obstructive lesions



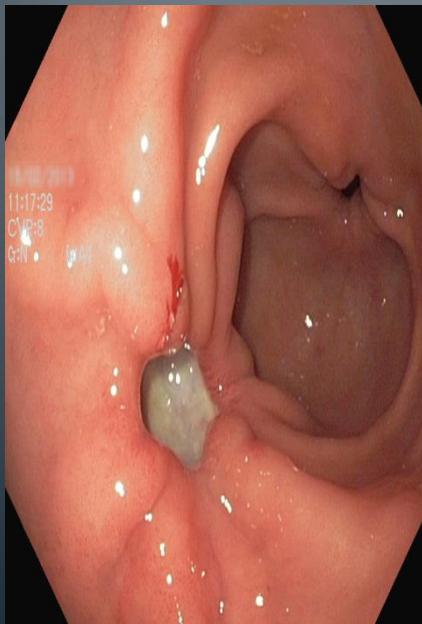
contrast enema revealing obstruction in the ascending colon



Barium enema revealed type 1 sigmoid colon cancer

6)-Esophagogastroduodenoscopy (EGD)

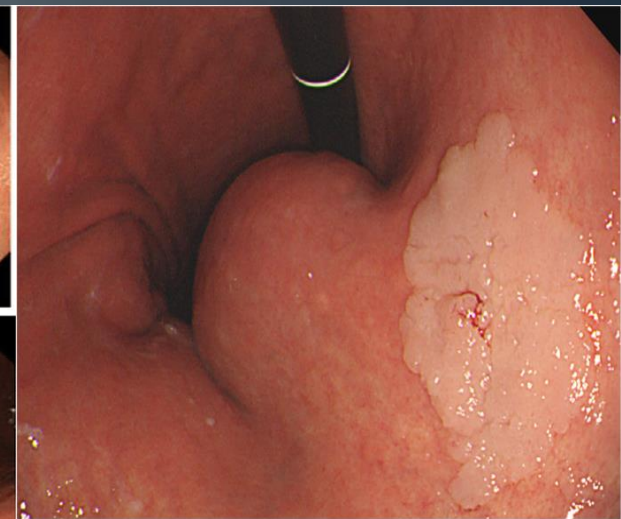
- Its upper Endoscopy test to examine the lining of the esophagus, stomach, and first part of the small intestine (the duodenum).
- Its a flexible tube (scope) with a light and camera at the end.
- **Normal Results** : The esophagus, stomach, and duodenum should be smooth and of normal color. There should be no bleeding, growths, ulcers, or inflammation.



Peptic Ulcer disease



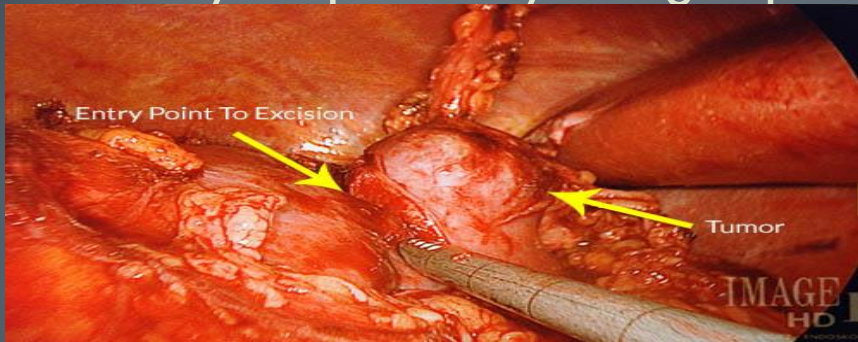
B-follow up shows submucosal tumor-like protrusion instead of ulcer



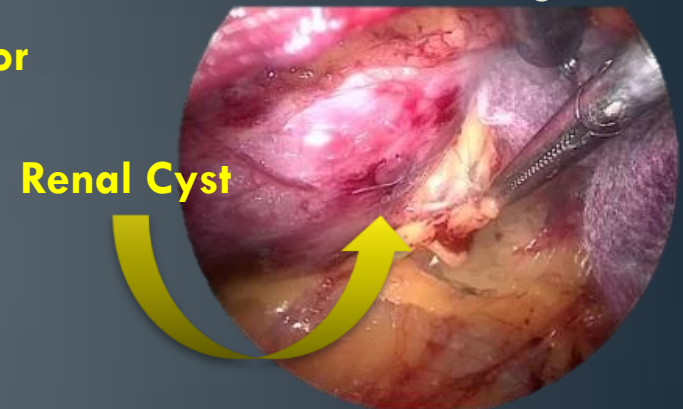
Early gastric cancer with three gastric gastrointestinal stromal tumors

7)-Laparoscopy

- is a type of low-risk ,minimal surgery that lets a surgeon look inside your body without making a large incision (cut). It's used to help diagnose and sometimes treat conditions that develop in your belly or pelvis by using laparoscope to look to Abdominal organs



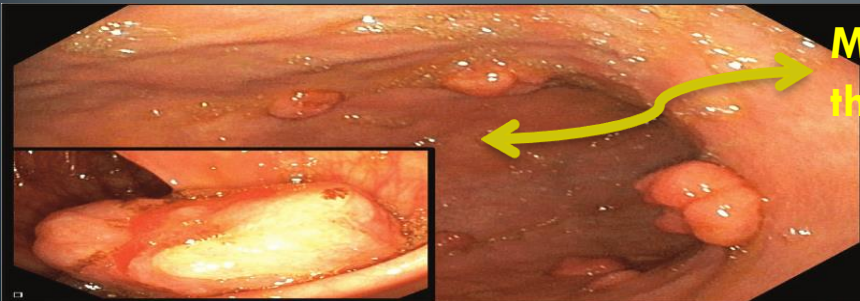
Kidney tumor



Renal Cyst

7)-Colonoscopy

is an exam used to look for changes such as swollen, irritated tissues, polyps or cancer in large intestine (colon) and rectum. During a colonoscopy, a long, flexible tube(colonoscope)is inserted into rectum



**Multiple polyps
throughout the colon**

**DIVERTICULAR
DISEASE**



B)-Laboratory studies

- Routine blood tests are usually the next step in diagnosis after a thorough medical history and physical examination.
- They should include a full blood count, blood urea nitrogen (BUN), creatinine, and liver function tests such as albumin, international normalized ratio (INR), partial thromboplastin time (PTT), serum amylase and total bilirubin (TBIL). If late-stage liver disease is suspected, then a serum glucose may be appropriate.
- **An abnormal laboratory value plays an important role in establishing the pathogenesis of an abdominal masses.**
- we can measure : Blood urea nitrogen (BUN)/creatinine , Complete blood count (CBC) , LFTs, Urinalysis , Beta-human chorionic gonadotropin , Electrolytes , Tumor markers (if concern is malignancy), Toxicology screen , Blood culture (if concern is infection)

Abnormal laboratory values:

- **1. Albumin levels are decreased in chronic liver disease, such as cirrhosis.**
- **2. Alkaline phosphatase (ALP) levels in plasma will rise with large bile duct obstruction, intrahepatic cholestasis or infiltrative diseases of the liver.**
- **3. AST/ALT elevations instead of ALP elevations favor liver cell necrosis such as liver tumors.**
- **4. If direct bilirubin is elevated, then the liver is conjugating bilirubin normally, but is not able to excrete it. Bile duct obstruction by gallstones or cancer should be suspected.**
- **5. Tumor markers (e.g., carcinoembryonic antigen [CEA], the cancer antigens CA 19-9 and CA 125, and α -fetoprotein [AFP]).**
- **6. Serum amylase is increased in at least 75% of pancreatitis cases as well as pancreatic pseudocysts.**

MANAGEMENT

Done by : Mohammed Alakhras

TREATMENT

- The treatment of Abdominal mass is approached by the treatment of the underlying cause of the mass and could vary depending on the severity and urgency of the case.

- Generally, treatment methods include :
 - Medications to treat the cause of the mass or to balance the hormones.
 - Surgery to remove the mass.
 - Radiotherapy or chemotherapy either to fully treat the mass or to shrink the mass before surgery.

TREATMENT. CONT.

- Surgical intervention is the most common treatment approach for cysts or cancerous/non-cancerous tumors.
- Surgical removal of a cyst is preferred but in cases where the cyst can not be fully removed, the doctor may drain the cyst and remove some of its parts.
- Tumors are also removed by surgical removal of the tumor but if the removal is dangerous, Chemotherapy can be done to shrink the mass instead and then the mass can be removed.

COMMON CAUSES OF ABDOMINAL MASS AND THEIR TREATMENT.

Cysts:

- Watchful Waiting : Small, asymptomatic cysts may be monitored with periodic ultrasounds to check for changes.
- Medications : Hormonal contraceptives can prevent new cysts from forming but won't shrink existing ones.
- Surgery : Large, persistent, or symptomatic cysts may require surgical removal. Options include cystectomy (removal of the cyst) or oophorectomy (removal of the ovary)

CONT.

❑ Tumors :

- Surgery: Often the first line of treatment to remove tumors.
- Radiation Therapy: Uses high-energy rays to kill cancer cells.
- Chemotherapy: Uses drugs to kill cancer cells or stop them from growing.
- Targeted Therapy: Focuses on specific molecules involved in cancer growth.
- Immunotherapy: Boosts the body's immune system to fight cancer.

CONT.

❑ Enlarged organs :

- Lifestyle Changes : Diet, exercise, and weight loss can help manage conditions like fatty liver disease.
- Medications :To treat underlying conditions such as hepatitis or heart failure.
- Surgery: In severe cases, surgery may be needed to remove part of the enlarged organ.

❑ Aneurysms :

- Monitoring : Small aneurysms may be monitored with regular imaging.
- Medications :To control blood pressure and reduce the risk of rupture.
- Surgery : Large or symptomatic aneurysms may require surgical repair, either through open surgery or endovascular stent grafting.

References

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THANK YOU