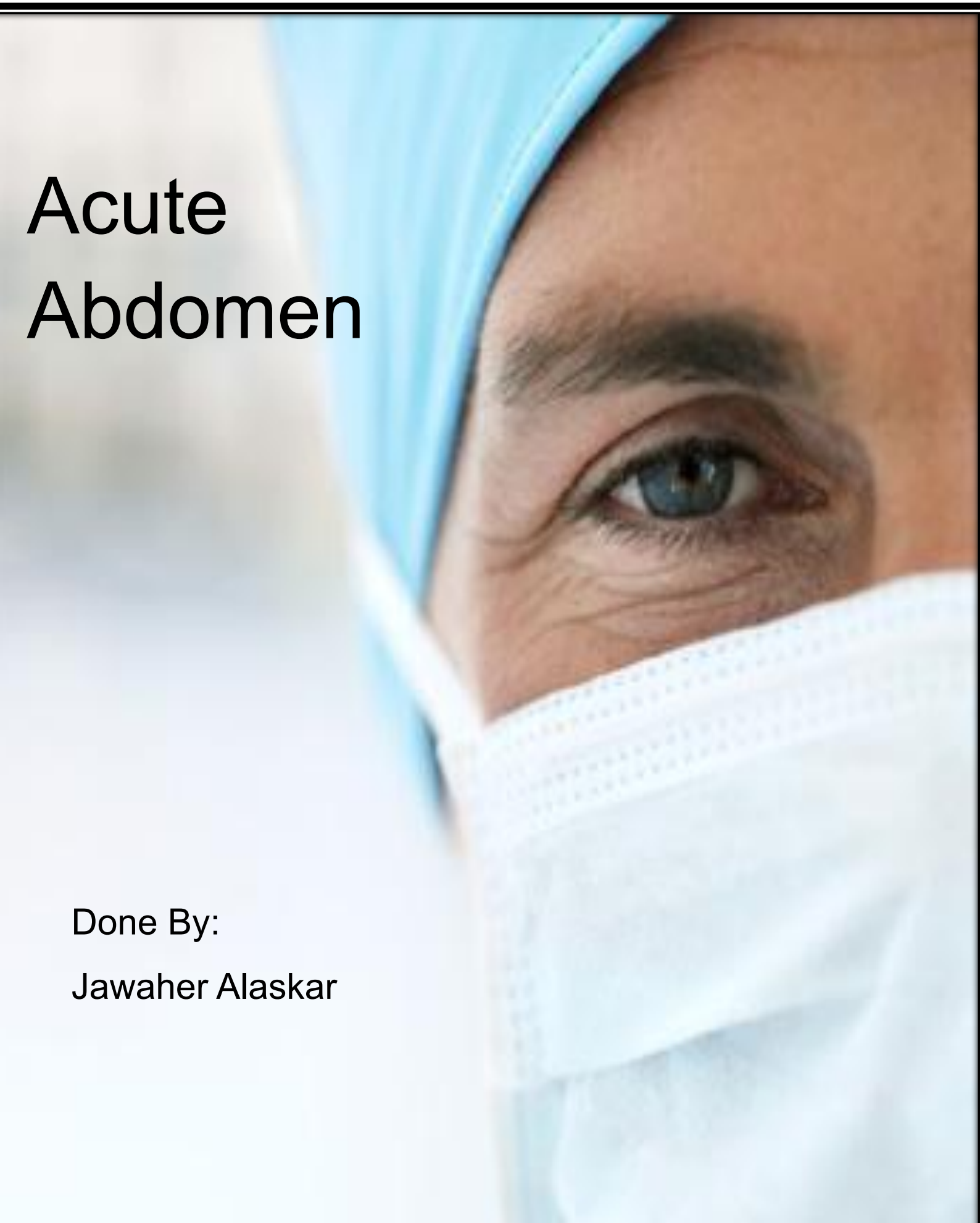
430 Surgery Team



Acute Abdomen

Done By:

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Objectives:

- Define acute abdomen
- Describe a general approach to acute abdomen
- Discuss common causes of acute abdomen through case scenarios

Definition:

- Acute abdomen denotes any sudden onset, spontaneous (goes by it self not inflected by something), non-traumatic disorder in the abdominal area that requires urgent surgery in some cases (most of them)

General Approach to Acute Abdomen:

- **If a Patient was in the ER with acute abdomen, how can you approach him? By (SOUP)**
- **Standardized approach for all acute abdominal disorders**
- **S**ubjective (data) – History Taking
- **O**bjective (confirm) - Physical Examination
- **A**ssessment – Investigations
- **P**lan – Treatment (based on the final diagnosis)
- Not that much different from an elective case.
- Except in patients where they're hemodynamically unstable and will go into a shock, so you have to resuscitate them first.
- It's not preferable to give a patient painkiller (analgesics) until you reach the diagnosis.

History:

- Age imp, how can age help us? E.g.:
  - If a newborn child present with acute abdominal pain ⟶ most likely it's a digestive disease (bowel atresia -Congenital Anomaly in which there is incomplete development of the intestinal tract, typically with closures and "dead ends" that block flow through the intestines. or meconium ileus - Obstruction of the intestine (ileus) due to overly thick meconium).
  - Child present with acute abdominal pain ⟶ (mesenteric adenitis-general term for an inflammation of a gland or lymph node).
  - 12-year-old baby present with acute abdominal pain⟶ appendicitis.
  - Elderly patient present with acute abdominal pain ⟶ obstruction due to cancer or acute diverticulitis

- Pain

  - Site give you an idea about what is the organ involved so if the pain in the:
    - Rt. Upper quadrant think about gall bladder or liver
    - Left lower quadrant think about diverticulitis
    - Right lower quadrant most likely it is appendicitis
  - Onset
    - Sudden
    - Gradual
  - Character
    - Dull “mild pain”
    - Trooping “in wounds”
    - Stabbing “ something in closed space like gallbladder and renal colic”
    - Compression ”MI”
    - Burning “gastritis”
    - Colicky in nature “bowel obstruction”
  - Radiation
    - Cholecystitis to the tip of right shoulder
    - Pancreatitis to the back
  - Timing important to decide management
    - Patient have pain in right lower quadrant most likely it is appendicitis, if he told you the pain start last night do surgery
    - But if he/she tells you that he had this pain since 4-5 days ago then pain is getting worse then you diagnose him/her with appendicular mass your approach will be conservative not surgical.
  - Severity
    - Pain scale from 1 to 10 you ask the patient “ where you put yourself in
    - That scale”
    - 0 no pain \ 10 worst pain
    - Mild pain (0-4), moderate (5-7), severe (8-10) "acute abdomen in sever category"

- Relieving and aggravating factors
  - Fatty food elicit biliary colic antacid is a good example for relieving factor if patient tell you that he has burning pain in epigastrium, milk temporarily relieve the pain but after an hour, pain will become worse (milk contain protein --> protein increase gastric acid secretions "temporal buffer"
- Progression
- Associated symptoms.
  - Nausea and vomiting "with severe pain"

- Vomiting:
  - Hematemesis "blood"
  - Volume "small or large amount"
  - Projectile "force"
    - In children → usually due to pyloric stenosis
    - In newborn → due to congenital hypertrophy of pylorus
    - In adult → gastric outlet obstruction
  - (Causes of gastric outlet obstruction)
    - scarring due to chronic peptic ulcer
    - Gastric cancer obstruct the pylorus
    - Superior mesenteric artery syndrome →

    (characterized by compression of the third or transverse portion of the duodenum between the aorta and the superior mesenteric artery. This results in chronic, intermittent, or acute complete or partial duodenal obstruction)

    - In Bezoar Psychiatric patient who eats Foreign Bodies e.g. hair forming a ball that obstructs the gastric
  - Frequent or occasional
  - Does vomiting relieve the pain or not:
    - Most of abdominal colic's relieved by vomiting
  - Content:
    - Undigested food
    - Digested food: greenish

- Defecation:
  - It's important to ask about the bowel habits.
  - Constipation for 2 days with acute abdominal pain means there's an obstruction
    - Ask them are they can pass gases or not if not it's called **obstipation** "complete bowel obstruction".
  - Diarrhea with acute abdomen usually infection "gastroenteritis usually does not cause acute abdominal pain unless bowel perforation happened.
    - "Salmonella" lead to typhoid fever and typhoid fever can cause gastroenteritis that lead to bowel perforation and acute abdominal pain.
  - Acute abdominal pain with severe diarrhea
    - Ulcerative colitis
    - Bowel ischemia

    → Diarrhea mixed with blood
    - Crohn's disease

- Fever:
  - Any term that ends with –"itis" means it's an inflammatory process
    - E.g. peritonitis
    - Rigors with acute abdominal pain means Sepsis due to cholangitis
- Past History:
  - Similar episodes of UC or Crohn's disease but in less degree
  - Past abdominal surgery ⟶ adhesion ⟶ bowel obstruction, bowel strangulation or ischemia
  - Hernia ⟶ bowel obstruction
  - Peptic ulcer⟶ perforation (a hole in the wall often leads to catastrophic consequences. Erosion of the gastro-intestinal wall by the ulcer leads to spillage of stomach or intestinal content into the abdominal cavity. Perforation at the anterior surface of the stomach leads to acute peritonitis, initially chemical and later bacterial peritonitis. The first sign is often sudden intense abdominal pain)
  - Gall stones ⟶ Obstruction ⟶
    - Acute cholecystitis (is a sudden inflammation of the gallbladder that causes severe abdominal pain)
    - Pancreatitis
    - Ascending cholangitis

<u>Physical Examination:</u>

- General look:
  - Lying on bed and they look ill and in pain, uncomfortable moving because they want to obtain a position that relieves them from peritoneal irritation, some time they roll in bed "in renal colic or sometimes in acute cholecystitis when gallbladder get contracted with stones" -so anything related to stone make patient roll in bed
  - "Appendicitis dull aching pain that not make patients role in bed"
- Vital sings:
  - Important to see the hemodynamic states of the patient wither if the patient is tachycardic, tachypenic or hypotensive must be treated immediately or they'll come with shock.
- Head and neck:
  - Check for eyes: jaundice + fever+ abdominal pain ⟶ cholangitis
  - JVP: in acute abdomen patient will be hypovolemic hence the JVP will disappear
  - Mucus membrane: sings of dryness
  - Lymph node may with lymphadenopathy
- Chest:
  - pleural effusion caused by pneumonia ⟶ lower pneumonia⟶ lobar pneumonia you'll hear crackles and bronchial breathing ⟶ acute abdomen
- Abdomen:
  - Inspection: distended, doesn't move with respiration because the peritoneum contracting the muscles of the abdomen, might see other signs (ex. In chronic liver disease...etc)

- Palpation: start superficial away from the site of pain, if it localized peritonitis (look of a mass)
- Percussion
  - Dullness → Fluid → ascites
  - Tympanic or tympanitic, drum-like sounds heard over air filled structures during the abdominal examination >>>>> bowel obstruction
- Auscultation:
  - Paralytic ileus because of infection absence of bowel sounds.
  - Mechanical obstruction (bowel obstruction, UC, Strangulation Condition in which circulation of blood to a part of the body is cut off by constriction, Enteritis) → hyperactive bowel sounds.
- Rectal Examination:
  - Trickling of exudates in the Douglas pouch
  - Between the rectum & uterus in female
  - Rectum & bladder in male
  - Pressing interiorly to see if there is tenderness
  - Look for blood & malena.
  - Any mass specially in elderly
- Vaginal Examination:
  - Ectopic pregnancy by moving the uterus "put your finger till you reach cervix then you move the cervix" but more commonly you inspect with speculum you see pelvic inflammatory disease manifest by exudates\ pus "vaginal discharge"
  - Rule out Salpingitis (an infection and inflammation in the fallopian tubes).

<u>Investigations:</u>

- Complete Blood Count:
  - High WBC "Leukocytosis" more than 40,000 → appendicitis
  - Low hemoglobin indicates → hemorrhage, UC, Ischemia, Ulcer, anemia.
  - Platelet count and see if the patient thrombocytopenic because sometimes thrombocytopenia can happen due to sever sepsis also it is an indication of a problem that might prevent you from doing surgery or in spleenomegaly. (Normal spleen: Stores red blood cells and platelets, the cells that help your blood clot, An enlarged spleen it begins to filter normal red blood cells as well as abnormal ones, reducing the number of healthy cells in your bloodstream. It also traps too many platelets. Eventually, excess red blood cells and platelets can clog your spleen, interfering with its normal functioning).
- Electrolytes, BUN, Creatinine:
  - In acute abdomen there will be loss of fluid in contrast electrolytes will go down
    - Hypokalemia from upper GI cause (In vomiting you expect low potassium)
    - Hyponatremia from lower GI cause (diarrhea)
  - BUN & Creatinine if elevated? → In acute abdomen hypovolemic → pre-renal azotemia → insufficient profusion to the kidney → renal failure
- LFT:
  - If you suspect jaundice, biliary disease and cholangitis

- High bilirubin high alkaline phosphatase → cholangitis
- High ALT, AST → Hepatitis

- Serum Amylase:
  - It will be high in pancreatitis but it will go down after 2-3 days so check lipase this one will persist high in pancreatitis
- Lactate:
  - (Product of anaerobic metabolism): if there is bowel ischemia
- ABGs:
  - Reflex the respiratory and metabolic states
  - Do it if u suspect ischemia, severe sepsis, metabolic acidosis and before anesthesia
- CXR:
  - Perforation of hollow viscous (commonly duodenal ulcer perforation), see air under the diaphragm. Ask for upright chest x ray
- AXR – KUB:
  - In bowel obstruction the abdomen will look distended this is in supine
    - Other AXR we ask the patient to stand we call it erect "upright" look for air fluid level, if more than 3 it mean there's significant obstruction
  - In gastroenteritis you can see dilated loops of small or large bowel but not necessary to have obstruction.
  - KUB- for renal stones
- Abdominal Ultrasound:
  - Mainly used to rule out stones (gall bladder or renal), ascites, pyelonephritis, polycystic ovarian disease
- Abdominal CT:
  - To diagnose difficult echo vocal "not sure" appendicitis (diagnosis of appendicitis commonly is clinically), rule out pancreatitis and tumors and bowel ischemia.
- Angiography / Duplex Scanning:
  - If we suspect mesenteric ischemia so we can see the blood vessels causes of ischemia (thrombus, embolus)
  - We usually do CT and angiography
    - CT to see the bowel
    - Angiography to see blood Vessels
    - If they match no blood in the vessel and bowel is edematous this is gangrene
  - Duplex: for peripheral Blood vessels

<u>Diagnosis:</u>

- Acute Abdomen + Shock – Acute Pancreatitis/ Ruptured AAA (abdominal aortic aneurysm) resuscitate & immediate surgery otherwise patient may died in minutes
- Generalized Peritonitis – Ruptured Viscus
- Localized Peritonitis - for ex. RLQ rebound tenderness Acute Appendicitis
- Bowel Obstruction (distention of the abdomen no movement during respiration)
- Medical Causes (Lobar Pneumonia, Acute Inferior MI "if the patient have epigastric pain and you think of MI you can rule it out by doing ECG or Cardiac enzyme troponin")

Management:

- Immediate operation – Ruptured AAA
- (Amount of bleeding is huge so if you don't stop it immediately patient will die so you have to do surgery immediately and stop it)
- Preoperative preparation and urgent operation within 6 hours
- Because the condition can get worse if you operate immediately (ruptured Viscus but hypertensive, dehydrated, quit septic so if you take him immediately to operation he might die, to prevent mortality in such condition resuscitate the pts and prepare them for surgery by giving fluids, antibiotics (when they become stable usually they do it in ICU).
- Urgent operation within 24 hours
- Especially in cases of acute appendicitis
- Conservative treatment
- In acute (pancreatitis operation will worsen the condition - except when there is pancreatic abscess or necrosis we operate on them)
- IBD
- Cholecystitis
- Observation
- Patients come with sudden onset acute abdominal pain, you examine them and if there was tenderness but the diagnosis not established yet admit and observe them (check on them every 2-4 hours tell next day if they have a disease it will manifest).
- E.g. early appendicitis after 24 hours will be obvious
- Or if there is a follicle somewhere or ruptured Graafian follicle next day they feel better then you can discharge the patient at this step.
- Discharge

Scenarios:

1- A 35 year-old male presented to the ER with 2 days history of abdominal pain. He took antacids but did not help him at all!

2- A 55 year-old businessman presented to the ER with severe abdominal pain since 6 hours when he felt something like a burst in his abdomen. He is known with PUD and H-pylori but he was not taking his medications regularly.

3- A 73 year-old male developed atrial fibrillation while recovering from an acute MI in the medical ward. The surgery team was consulted to evaluate a new onset of severe mid-abdominal pain.

4- A 54 year-old lady presented to the ER complaining of generalized abdominal pain associated with vomiting, constipation for 2 days, and abdominal distention. She had an emergency Cesarean Section for her 5th baby 5 years back.

USE THE SOAP METHOD TO DIAGNOSE AND TREAT.