



# 432 Surgery Team

## 21 Acute Abdomen



Done By:  
Shaden Alfayez

Reviewed By:  
Omar Alzuman

جامعة  
الملك سعود  
King Saud University



COLOR GUIDE: • Females' Notes • Males' Notes • Important • Additional

# Objectives

1. Define acute abdomen.
2. Describe a general approach to acute abdomen.
3. Discuss common causes of acute abdomen through case scenarios.

# Acute abdomen:

## Definition:

Acute abdomen denotes any **sudden**, spontaneous (**not trigger by patient or intervention**), non-traumatic disorder in the abdominal area that requires urgent surgery in some cases.

### **Note(s):**

*Pain is not a necessity in acute abdomen, sometimes there is only distention.*

*Example of acute abdomen that needs medical treatment: **pancreatitis**.*

***Mesenteric adenitis** is general term for an Inflammation of a gland or lymph node*

## General Approach to Acute Abdomen:

- Subjective – History Taking.
- Objective - Physical Examination.
- Assessment – Investigations.
- Plan – Treatment.

System to deal with acute abdomen → SOAP

## History:

### 1. Age: certain cases differ according to age.

**Newborn child** presents with acute abdominal pain, **no meconium** and **distended abdomen**; most likely, it is 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** who present with an acute abdominal pain, mesenteric adenitis is suspected.

**12 year old** boy who present with an acute abdominal pain, **appendicitis**, **mesenteric adenitis** is suspected.

**Young patient** with **sudden** acute abdominal pain; **perforated ulcer** is suspected

**65 year old** patient presents with acute abdominal pain the **left lower quadrant**, **tenderness** and **distention**; most likely, it is a **tumor (Colon cancer)** or **acute diverticulitis is highly suspected**.

## 2. Pain (SOCRATES):

a. **Site (S):** Site will give an idea about what is the organ involved

+ **Right upper quadrant:** think about **gall bladder** or **liver**.

+ **Right lower quadrant** most likely it is **appendicitis**, in females think also about (**ruptured ovarian follicle**).

+ **Left lower quadrant** think about **diverticulitis**, **sigmoid cancer**.

b. **Onset (O):**

Sudden or gradual.

c. **Character (C):**

1. Dull (mild pain)
2. Trooping (in wounds)
3. Stabbing (something in closed space like gallbladder and renal colic)
4. Compression (MI)
5. Burning (gastritis)
6. Colicky in nature (bowel obstruction)

### **Note(s):**

*Distention is colicky in nature.*

*Pain is not necessary in acute abdomen:  
Acute abdomen with no pain → bowel ischemia in immune-compromised patients (diabetic patients).*

d. **Radiation(R):** The pattern of **radiation of pain** may provide important clues to its origin.

For example, pain which initially is located in the **periumbilical** area and then moves to the RLQ occurs with **appendicitis**, whereas pain in the **epigastrium** which radiates to the **tip of the right scapula** (the right shoulder) is frequently found with acute **cholecystitis**.

**Cholecystitis** : to the tip of the right shoulder (Neural cause) → **Inflammation of gall bladder** may cause irritation of the sub-diaphragmatic parietal peritoneum which is supplied in a part by **phrenic nerve (C3,4,5)**, this may give rise to **referred pain over the shoulder**, because the skin in this region is supplied by **supraclavicular nerve (C3,4)**.

**Appendicitis**: **Vague periumbilical pain** resulting from **referred visceral sensation** → **localized irritation** → **specific somatic inflammation**.

### e. Associated symptoms(A):

Nausea and vomiting with severe pain

### f. Timing (T): important to decide management

Patient with pain in **the right lower quadrant**, most likely it is **appendicitis**, if the patient reported that the pain started **last night**, **surgery** is the likely choice of management.

If the same patient reported that he/she had this **pain 4-5 days ago** and the pain is getting worse then you diagnose him/her with **appendicular mass**, the approach will be **conservative** rather than surgical.

### g. Exacerbating and Relieving factors(E):

- + **Fatty food** elicits biliary colic.
- + **Antacid** for burning pain in the epigastrium.

### h. Severity(S):

- + Pain scale from 1 to 10, 0 no pain \ 10 worst pain.
- + Mild pain (0-3), moderate (4-6), severe (7-10).
- + Acute abdomen is in the **severe category**.

#### **Note(s):**

*Patient with acute abdomen that started at 2am; most likely it **duodenal ulcer (empty stomach)***

*Both types of ulcer cause pain, particularly gastric pain. However, with a gastric ulcer, pain cannot be relieved by eating foods. In a duodenal ulcer, it can be relieved by eating. In a duodenal ulcer*

### 3. Vomiting:

- + Hematemesis
- + Volume: small or large amount
- + Projectile (force because of increase intra-abdominal pressure) in children usually due to **pyloric stenosis**, In newborn due to congenital hypertrophy of pylorus. In adults, **gastric outlet obstruction**.

Causes of gastric outlet obstruction:

- **Scarring due to chronic peptic ulcer**
- Gastric cancer obstructs the pylorus
- Superior mesenteric artery syndrome
- 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:

1. Bilious → greenish (distal to duodenum).
2. Non bilious → above the 2nd part of duodenum ( stomach – 1st part of duodenum )
3. coffee ground → old and digested blood ( cancer –gastritis – chronic peptic ulcer)
4. hematemesis → fresh blood ( peptic ulcer- esophageal varices – mallory weiss tear)
5. small bowel obstruction: thick material

#### Note(s):

*Superior mesenteric artery syndrome is 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*

### 4. DEFECATION: It is important to ask about the bowel habits.

- + Constipation for 2 days with acute abdominal pain means there's an obstruction
- + Ask them can they pass gases or not, if not it's called **Obstipation** "complete bowel obstruction".

- + Diarrhea with acute abdomen usually means infection; **gastroenteritis** usually does not cause acute abdominal pain unless **bowel perforation happens**.
- + Salmonella lead to typhoid fever and typhoid fever can cause gastroenteritis that lead to bowel perforation and acute abdominal pain.

## 5. FEVER (indicate infection)

Rigors with acute abdominal pain means sepsis due to cholangitis

## 6. PAST HISTORY :

- + Similar episodes of UC or Crohn's disease but in less degree
- + Past abdominal surgery adhesion, bowel obstruction, bowel strangulation or ischemia
- + Bowel obstruction due to hernia
- + Peptic ulcer perforation
- + Gall stones obstruction
- + Acute cholecystitis (is a sudden inflammation of the gallbladder that causes severe abdominal pain)
- + Pancreatitis o Ascending cholangitis

+ e.g. pt who know to have peptic ulcer, **he was not taking his medication** regularly. He comes now with **hematemesis**. The diagnosis is posterior duodenal ulcer goes to gastroduodenal artery **(perforated peptic ulcer)**

### **Note(s):**

*Peptic ulcer perforation is 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*

# Physical Examination:

## 1. General look:

a. 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, sometimes they roll in bed in **renal colic** or sometimes in **acute cholecystitis** when gallbladder get contracted with stones.

- i. Anything related to **stone** make patient roll in bed
  - ii. Appendicitis dull aching pain that **does not** make patients roll in bed
- b. obtunded patient = about to lose his consciousness

### **Note(s):**

*Signs: very sick – dehydrated – **flushing***

***Flushing** is due to toxicity (appendicitis – inflammation).*

## 2. Vital signs:

Important to see the **hemodynamic state** of the patient wither if the patient is tachycardia, tachypnea or hypotensive, they must be treated immediately (**resuscitation**) or they will go into shock.

## 3. Head and neck.

- ✚ Check the eyes for jaundice. "jaundice+ fever+ abdominal pain to diagnose **cholangitis**.
- ✚ JVP: in acute abdomen, patient will be **hypovolemic** hence the JVP will disappear
- ✚ Mucus membrane: sings of dryness d. **Lymph node may present with lymphadenopathy**

**Virchow's node** (or **signal node**) is a lymph node in the **left supraclavicular fossa** (the area above the left clavicle). It takes its supply from lymph vessels in the abdominal cavity. The finding of an **enlarged, hard node** has been regarded as strongly indicative of the presence of cancer in the abdomen, specifically **gastric cancer**, which has spread through the lymph vessels.



## 4. Chest:

- + inferior MI → acute abdomen (epigastric pain)
- + Pleural effusion caused by pneumonia. In lower pneumonia or lobar pneumonia you'll hear crackles and bronchial breathing (epigastric pain)

## 5. Abdomen:

- + **Inspection:** distended, does not 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.
- + **Percussion:**
  - Dullness fluid ascites
  - Tympanic or tympanitic, drum-like sounds heard over air filled structures during the abdominal examination which suggest 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) will lead to hyperactive bowel sounds.
- + Pain and tenderness in the epigastric region: gastric ulcer – pancreatitis – ruptured aortic aneurysm.
- + RLQ → appendicitis – ruptured ovarian follicle.
- + LLQ → diverticulitis – sigmoid cancer.
- + LUQ → spleen- kidney.

### Note(s):

*Duodenal ulcer mimics the gall stone.*

*Patient present with rigid abdomen + guarding-distention.*

## 6. Rectal Examination:

- + Trickling of exudates in the **Douglas pouch**.
- + Between the rectum & uterus in **female**.
- + Rectum & bladder in male.
- + Pressing inferiorly to see if there is tenderness.
- + Look for blood & melena.
- + Any mass specially in elderly.
- + **Important examination because if the patient have bowel obstruction can be diagnose by that. Also, patient with lower abdominal pain for 12 hours & look toxic. In rectal exam they have sever tender inferiorly it's perforating appendicitis because pus is accumulating in Douglas pouch.**

## 7. Vaginal Examination: (we have to do it in all cases of acute abdomen pain)

- + **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 to check for **pelvic inflammatory disease**, it manifests by **exudates\ pus** “vaginal discharge”
- + **Rule out salpingitis** (infection and inflammation in the fallopian tubes).

# INVESTIGATIONS:

## 1. Complete Blood Count:

- a. High WBC "Leukocytosis" more than 40,000 is a suggestive of appendicitis
- b. Low hemoglobin indicates **hemorrhage, UC, Ischemia, Ulcer, anemia.**
- c. Platelet count, if the patient is thrombocytopenic because sometimes thrombocytopenia can happen due to severe sepsis also it is
- d. An indication of a problem that might prevent you from doing surgery or in splenomegaly.
- e. neutrophilia suggests bacterial infection, lymphocytosis suggest viral or TB and eosinophilia suggests parasitic infection.

## 2. Electrolytes, BUN, Creatinine:

- a. In acute abdomen, there will be loss of fluid in and electrolytes will decrease
- b. Hypokalemia from upper GI cause (In vomiting you expect low potassium). **Also, in persistence vomiting there will be metabolic alkalosis, for which we give normal saline.**
- c. Hyponatremia from lower GI cause (diarrhea) and **could cause metabolic acidosis and here we give Ringer's lactate.**
- d. BUN & Creatinine if elevated? In acute abdomen, hypovolemic prerenal azotemia, insufficient perfusion to the kidney that will lead to renal failure.

## 3. Liver Function Tests:

- a. If you suspect jaundice, biliary disease and cholangitis.
- b. High bilirubin and high alkaline phosphatase are suggestive of cholangitis.

c. High ALT and AST are suggestive of Hepatitis.

#### 4. Serum Amylase:

a. It will be high in **pancreatitis** but it will go down after 2-3 days, so check **lipase** because it will persist high in pancreatitis.

#### 5. Lactate:

a. (Product of anaerobic metabolism): if there is bowel ischemia.

#### 6. Arterial blood gases [ABGs]:

- a. Reflex the respiratory and metabolic states.
- b. Do it if ischemia is suspected, severe sepsis, metabolic acidosis and before anesthesia.

#### 7. Chest x-ray:

a. **Perforation of hollow viscous** (commonly duodenal ulcer perforation), see air under the diaphragm. Ask for upright chest x-ray

#### 8. Abdominal X-Ray – KUB:

- a. In bowel obstruction the abdomen will look **distended** in supine position.
- b. Other AXR is erect “upright” position to look for air fluid level, if more than 3 it mean there's **significant obstruction**
- c. In gastroenteritis you can see dilated loops of small or large bowel but not necessary to have obstruction.
- d. KUB- for **renal stones**.

#### 9. Abdominal Ultrasound:

a. Mainly used to rule out stones (gall bladder or renal), ascites, pyelonephritis, polycystic ovarian disease.

#### **Note(s):**

*In acute cholecystitis it will show 3 signs : thickened wall + acoustic shadow + pericholecystic fluid.*

## 10. Abdominal CT:

- a. To diagnose difficult echo **vocal appendicitis** (diagnosis of appendicitis is commonly clinical), rule out pancreatitis, tumors and bowel ischemia.
- b. If we suspect mesenteric ischemia so we can see the blood vessels causes of ischemia (thrombus, embolus)
- c. We usually do CT and angiography
- d. CT to see the bowel

e.g. Young female with mid cyclic pain + lower abdominal pain that is similar to acute appendicitis but we are not sure  
→ CT will help us.

## 11. Angiography to see blood vessels/ Duplex

### Scanning: (Ruptured Aortic aneurysm)

- a. If they match no blood in the vessel and bowel is edematous this is **gangrene**.
- b. Duplex: for peripheral blood vessels.

## DIAGNOSIS:

- + Acute Abdomen + Shock → Acute Pancreatitis/ **Ruptured AAA** (abdominal aortic aneurysm) **resuscitate & immediate surgery otherwise patient may die in minutes.**
- + Generalized Peritonitis → Ruptured Viscus.
- + Localized Peritonitis, Example: RLQ rebound tenderness means **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:

1. **Immediate operation** – Ruptured AAA (Amount of bleeding is huge so if you don't stop it immediately patient will die, do surgery immediately and stop it)
2. **Pre-operative** preparation and urgent operation within 6 hours → Because the condition can get worse if you operate immediately (ruptured Viscus but preoperatively is hypotensive dehydrated, has electrolyte abnormalities, quite septic, if you take him immediately to operation he might die, to prevent mortality in such condition resuscitate the patient and prepare them for surgery by giving fluids, antibiotics (they do it in ICU usually).
3. **Urgent operation** within 24 hours. Especially in case of acute appendicitis
4. **Conservative treatment** In acute pancreatitis (operation will worsen the condition – except when there is pancreatic abscess or necrosis we operate on them), IBD, Cholecystitis
5. **Observation** → Patients with sudden onset acute abdominal pain, tender on examination but the diagnosis was not established yet. You should observe them (check on them every 2-4 hours tell next day if they have a disease it will manifest). o E.g. early appendicitis, after 24 hours will be obvious o If there is a follicle somewhere or ruptured Graafian follicle in the ovary, next day they feel better then you can discharge the patient at this step.
6. **Discharge**

# SCENARIOS:

## Case1:

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!

### + Subjective– History Taking:

35 year old, male, 2 days history of abdominal pain. He took antacids but there is no effect on him

### + Objective - Physical Examination:

When you examine the patient try to avoid the painful area in the beginning of the examination.

### + Assessment – Investigations:

1. CBC
2. Electrolytes
3. Chest x-ray

### + DDx:

1. Acute appendicitis
2. PUD
3. Bowel obstruction.

### + Plan - Treatment:

1. IV antibiotics
2. Appendectomy

## Case2:

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.

Answer:

### + Subjective– History Taking:

55 year old, male, known case **PUD** (Peptic Ulcer Disease) and H-pylori. Presented to the ER with severe abdominal pain **for 6 hours**.

### + Objective - Physical Examination:

The patient is uncomfortable and in pain.

### + Assessment – Investigations:

1. CBC
2. Electrolytes
3. Chest x-ray

### + DDx:

1. Peptic ulcer perforation
2. peritonitis

### + Plan – Treatment :

1. Aggressive fluid resuscitation
2. Antibiotics to eradicate Helicobacter pylori (H. pylori)
3. Surgery



## Case3:

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.

Answer:

### + Subjective– History Taking:

73 year old, Male, History of an **acute MI** complicated by Afib, complaining of new onset **severe mid** abdominal pain.

### + Objective - Physical Examination:

pain with subjective symptoms disproportionate to their objective findings.

### + Assessment – Investigations: Any patient with an arrhythmia such as atrial fibrillation who complains of abdominal pain is highly suspected of having embolization to the superior mesenteric artery until proved otherwise, **As soon as AMI is suspected:**

1. Surgical consultation
2. CT angiography

### + DDX:

1. Cholangitis
2. Cholecystitis
3. Acute mesenteric ischemia
4. Ileus
5. Gastric Volvulus

### + Plan - Treatment:

1. Surgical revascularization
2. vascular interventional radiological
3. thrombolytic medical treatment

## Case4:

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.

Answer:

### + Subjective– History Taking:

54 year old, Female, C.C. of **generalized abdominal pain with vomiting, constipation** and abdominal **distention for 2 days**, came through ER, had an emergency **cesarean Section for her 5th baby 5 years back**.

### + Objective - Physical Examination:

Abdominal distention is present. Hyperactive bowel sounds occur early as GI contents attempt to overcome the obstruction; hypoactive bowel sounds occur late.

Exclude incarcerated hernias of the groin, femoral triangle, and obturator foramina. Proper genitourinary and pelvic examinations are essential. Check for symptoms commonly believed to be more diagnostic of intestinal ischemia, including the following:

1. Fever (temperature >100°F)
2. Tachycardia (>100 beats/min)
3. Peritoneal signs

+ **Assessment – Investigations:** The most common cause is postsurgical adhesions. And since the patient had an operation 5 years ago she might have a chronic obstruction.

- Serum chemistries
- Blood urea nitrogen (BUN) level
- Creatinine
- Complete blood count (CBC)
- Lactate dehydrogenase tests

- Urinalysis
- Type and crossmatch
- Phosphate level
- Creatine kinase level
- Liver panels ☒
- Abdominal X-ray: **Dilated small-bowel loops with (more than six) air-fluid levels in supine and erect abdominal radiographs.**
- CT
- US

 **DDx:**

1. Incarcerated groin hernia
2. Malignant tumor
3. Small bowel obstruction
4. Hernia

 **Plan – Treatment (based on the final diagnosis)**

- Aggressive fluid resuscitation
- Bowel decompression
- Administration of analgesia and antiemetic
- Early surgical consultation
- Administration of antibiotics. (Antibiotics are used to cover against gram- negative and anaerobic organisms.)
- Blood pressure and cardiac monitoring

## SUMMARY

1. Acute abdomen denotes any sudden, spontaneous (not triggered by patient or intervention), non-traumatic disorder in the abdominal area that requires urgent surgery in some cases.
2. Subjective – History Taking and Objective - Physical Examination are the most important parts of SOAP in acute abdomen.
3. certain cases differ according to age → Newborn child presents with acute abdominal pain, no meconium and distended abdomen (**Bowel atresia**) – Elderly patient with acute abdominal pain in the left lower quadrant & tenderness, obstruction due to (**cancer or acute diverticulitis**) – young patient and sudden pain (**perforated peptic ulcer**).
4. The pattern of radiation of pain may provide important clues to its origin.
5. In vital signs it is important to see the **hemodynamic** state
6. We have applied this general approach to some case scenarios such as acute appendicitis, perforated DU, acute mesenteric ischemia, and small bowel obstruction.

# IMPORTANT NOTES FROM EXTERNAL RESOURCES

## Notes

### Principles & Practice of Surgery

- ✚ there are **two** main underlying pathological processes involved in acute abdomen: **inflammation** and **obstruction**.
- ✚ In inflammation, there is **reactive hyperaemia** of the injured tissue as a result of capillary and arteriolar **dilatation**. Finally, there is migration of leucocytes from the vessels into the inflamed tissues.
- ✚ The term '**obstruction**' refers to impedance of the normal flow of material through a hollow viscus. It may be caused by the presence of a lesion within the lumen of the viscus, an abnormality in its wall, or a lesion outside the viscus causing extrinsic compression.
- ✚ The smooth muscle in the wall of the obstructed viscus will contract reflexly in an effort to overcome the impedance. This reflex contraction produces 'colicky abdominal pain'.
- ✚ Inflammation produces a **constant pain** made worse by **movement or coughing** which suggests inflammation of the parietal peritoneum. In this situation, **the patient will often be seen to lie very still in order not to exacerbate the pain**.
- ✚ Obstruction of a muscular viscus produces a colicky pain which **comes and goes** in 'spasms'. The pain itself is severe and may be helped by **moving around or drawing the knees up towards the chest**.
- ✚ Pain from a **duodenal ulcer may radiate through to the back**, ureteric pain radiates to the tip of the penis in men and to the labium majoris in women.
- ✚ The onset of pain can be sudden or gradual. Typically, pain from a perforation is sudden and that from inflammation is gradual.
- ✚ A pregnancy test should be performed in all women of childbearing age who present with acute abdominal pain → possibility of an **ectopic pregnancy**

**TABLE 12.1** Possible causes of acute abdominal pain

**Surgical Inflammation**

- Inflammatory bowel disease
- Acute appendicitis
- Acute diverticulitis
- Acute pancreatitis
- Acute cholecystitis
- Acute cholangitis
- Meckel's diverticulitis

**Obstruction**

- Intestinal obstruction
- Biliary colic
- Ureteric colic
- Acute retention of urine

**Ischaemia**

- Mesenteric ischaemia
- Torsion of a viscus

**Perforation**

- Perforated peptic ulcer disease
- Perforated diverticular disease
- Perforated appendix
- Toxic megacolon with perforation
- Acute cholecystitis and perforation
- Perforated oesophagus
- Perforated bladder
- Perforation of a length of strangulated bowel
- Ruptured abdominal aortic aneurysm

**Medical Cardiovascular**

- Myocardial ischaemia
- Myocardial infarction (inferior)

**Gastrointestinal**

- Gastritis
- Gastroenteritis
- Mesenteric adenitis
- Hepatitis
- Hepatic abscess
- Curtis–FitzHugh syndrome
- Primary peritonitis

**Abdominal wall conditions**

- Rectus sheath haematoma

**Genitourinary**

- Urinary tract infection
- Pyelonephritis

**Neurological**

- Tabes dorsalis

**Haematological**

- Sickle cell disease
- Malaria
- Hereditary spherocytosis

**Endocrine**

- Diabetes mellitus
- Thyrotoxicosis
- Addison's disease

### **Metabolic**

- **Uraemia**
- **Hypercalcaemia**
- **Porphyria**

### **Infective**

- **Herpes zoster**

### **Gynaecological**

- **Ectopic pregnancy**
- **Ovarian cyst**
  1. **Torsion**
  2. **Rupture**
  3. **Haemorrhage**
  4. **Infarction**
  5. **Infection**
- **Pelvic inflammatory disease**
- **Fibroid degeneration**
- **Salpingitis**
- **Mittelschmerz**
- **Endometriosis**

## Questions

1) 65 year old patient presents with acute abdominal pain the left lower quadrant, tenderness and distention, what is the most likely diagnosis?

- a. perforated peptic ulcer
- b. pyloric stenosis
- c. colon cancer
- d. mesenteric adenitis

2) Which one of the following need immediate operation?

- a. Ruptured AAA
- b. acute appendicitis
- c. chronic pancreatitis
- d. cholecystitis



### **Answers:**

1st Questions: c

2nd Questions: a