



بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ  
الحمد لله رب العالمين  
والصلاة والسلام على  
سيدنا محمد وآله الطيبين  
الطاهرين

# Acute Abdominal Pain

*By*

*Dr. Ashraf ELFakhry MD*



# Definition:

**It** means sudden severe abdominal pain. It is one of the most common presenting complaints in the emergency department accounting for 5-10% of all ED visits.

# Type of pain:

- 1- Visceral pain.
- 2- Somatic pain.
- 3- Referred pain.

Common causes of acute abdominal pain: conditions in italic type often require surgery.

## ■ **Gastrointestinal tract disorders**

- *Nonspecific abdominal pain*
- *Appendicitis*
- *Small and large bowel obstruction*
- *Incarcerated hernia*
- *Perforated peptic ulcer*
- *Bowel perforation*
- *Meckel's diverticulitis*
- *Boerhaave's syndrome*

- **Diverticulitis**
- **Inflammatory bowel disorders**
- **Mallory-Weiss syndrome**
- **Gastroenteritis**
- **Acute gastritis**
- **Mesenteric adenitis**

## ■ **Liver, spleen, and biliary tract disorders**

*Acute cholecystitis*

*Acute cholangitis*

*Hepatic abscess*

*Ruptured hepatic tumor*

*Spontaneous rupture of the spleen*

Splenic infarct

Biliary colic

Acute hepatitis

## ■ **Pancreatic disorders**

Acute pancreatitis



## ■ **Urinary tract disorders**

Ureteral or renal colic

Acute pyelonephritis

Acute cystitis

Renal infarct

## ■ **Gynecologic disorders**

*Ruptured ectopic pregnancy*

*Twisted ovarian tumor*

*Ruptured ovarian follicle cyst*

Acute salpingitis

Dysmenorrhea

Endometriosis

- **Vascular disorders**

- Ruptured aortic and visceral aneurysms*

- Acute ischemic colitis*

- Mesenteric thrombosis*

- **Peritoneal disorders**

- Intra-abdominal abscesses*

- Primary peritonitis

- Tuberculous peritonitis

- Retroperitoneal disorders

Retroperitoneal hemorrhage

- Neurogenic causes

- Herpes zoster.

- Spinal disc disease.

- Crisis of tabes dorsalis.

- Psychogenic pain.

**How to approach the  
patient with acute  
abdominal pain?**

**In** most cases, the correct diagnosis can be established with a detailed history and careful physical examination alone. Laboratory tests are usually needed for diagnostic confirmation.

**Problem:** A 34 years-old woman admitted for control of her diabetes develops acute abdominal pain that increases in severity over several hours.

# Immediate questions:

## A- What are the patient' vital signs?

Tachycardia and hypotension suggest circulatory or septic shock from perforation, hemorrhage or fluid loss into the intestinal lumen or peritoneal cavity.

Fever occurs in inflammatory conditions such as cholecystitis and appendicitis.

Fever may not be present in: elderly patients, patients on corticosteroids and patients who are immunocompromised.

## **B- where is the location of pain?**

- Visceral pain is dull pain located in the midline and poorly localized.
- Unilateral pain: is caused by organs with unilateral innervation such as the kidney, ureter, or ovary.
- Mid epigastric pain: is caused by diseases in the stomach, duodenum, pancreas, liver and biliary tract.



**Periumbilical** pain: is caused by diseases in the small intestine, appendix, upper ureters, testes and ovaries.

**Lower** abdominal pain is caused by diseases in the colon, bladder, lower ureters and uterus.

**Parietal** peritoneum inflammation results in more severe pain well localized to the area of inflammation.

## C- Does the pain radiate?

**Biliary** pain can radiate from the right upper quadrant to the right inferior scapula.

**Pancreatic** and abdominal aneurysmal pain may radiate to the back.

**Ureteral** colic classically is referred to the groin and thigh.

**Diaphragmatic** irritation due to subphrenic collections of pus or blood often radiates to the supraclavicular area.

**Pain** that becomes rapidly generalized means perforation and leakage of fluid into the peritoneal cavity.

## D- When did the pain begins?

Sudden onset suggests:

- perforated ulcer
- mesentric occlusion
- ruptured aneurysm.
- ruptured ectopic pregnancy

More gradual onset (>1hour) suggests an inflammatory cond.

- appendicitis, cholecystitis
- diverticulitis
- bowel obstruction.

## E- what is the quality of pain?

**Intestinal** colic is cramping abdominal pain interposed with pain-free intervals.

**Biliary** colic is not a true colicky but it is usually sustained persistent pain.

**The** terms sharp, burning, dull and tearing seldom assist in diagnosis.

## **F- What relieves the pain or makes it worse?**

- Pain with deep inspiration is associated with diaphragmatic irritation is associated with pleurisy upper abdominal inflammation.
- Coughing increases the abdominal pain due to peritonitis.
- Patients with peritonitis take some relief of pain by avoiding all motions whereas patients with intestinal or ureteral colic are usually restless and active.

## G- Are there any associated symptoms?

- Vomiting → intestinal obstruction.

Visceral reflex due to the pain

N.B: In acute surgical conditions, the vomiting follows the onset of pain.

- Haematemesis → gastritis or peptic ulcer disease

- **Diarrhea** → Gastro enteritis  
Ischemic colitis  
Inflammatory bowel disease.
- **Absolute constipation** → Mechanical intestinal obstruction.
- **Haematuria** → Urinary tract disease.
- **Coughing and sputum** → lower lobe pneumonia.



## H. For women, what is the patients menstrual history?

- Missed period → disturbed ectopic pregnancy .
- Foul vaginal discharge → pelvic inflammatory disease.

# I. What is the patient's past medical history?

- Peptic ulcer disease, gall stones, diverticulosis, alcohol abuse, abdominal operations suggesting adhesions.
- Abdominal aortic aneurysm or cardiac disease which may suggest embolization.

# Physical examination key points

## 1- Vital signs & general exam:

- Tachycardia
- Hypotension
- Fever
- Posture
- Jaundice

## 2- Lungs:

- Evidence of consolidation.
- Friction rub.
- Effusion.

## 3- Heart:

- Arrhythmias.
- Valvular lesion.
- Heart failure.

## 4- Abdomen:

### a- Inspection:

- Distension → obstruction, ileus, ascites.
- Ecchymoses → haemorrhagic pancreatitis.
- Surgical scars → adhesions.

## **b- Palpation:**

- Tenderness & rigidity
- Organomegaly.

## **c- Percussion:**

- Tympany → distended bowel loops.
- Shifting dullness → suggests ascites with peritonitis

## d- Auscultation: bowel sounds:-

- Absent → ileus.
- Hyper peristaltic → gastroenteritis.
- High pitched rushes → small bowel obstruction.

## e- Other sign:

- Psoas sign.
- Obturator sign
- Rovsing's sign

**Acute  
appendicitis**



# 5- Rectum

- Mass
- Lateral tenderness.
- If stool is present, evaluate for occult blood.

# 6- Female genitalia

- Pain with cervical motion
  - Cervical discharge
- } Pelvic inflammatory diseases
- Adnexal masses → ectopic pregnancy
    - ovarian abscess
    - cyst
    - neoplasm

# Laboratory investigations:

## ■ Value:

1- In cases in which the etiology is unclear.

2- Preoperative assessment.

# Hemolgy:

- ↑ Hematocrit suggests hemoconcentration from volume loss as in cases of pancreatitis.
- ↓ Hematocrit suggests intra abdominal or acute G.I hemorrhage.
- ↑ WBCS suggests an inflammatory process as acute appendicitis and cholecystitis.

## 2- Electrolytes and S. creatinine

- Bowel obstruction → hypokalemia, azotemia and alkalosis
- Volume depletion and G.I bleeding  
→ ↑ s.creatinine.

# 3- liver function tests

**Including** bilirubin, transaminases and alkaline phosphatase.

**The** results are elevated in cases of acute hepatitis, cholecystitis, and other biliary tract diseases.

## 4- Amylase / lipase:

**They** are markedly elevated in cases of acute pancreatitis.

**In** up to 30% of patients with acute pancreatitis, amylase may be normal.

S.amylase is also elevated in cases of

- Perforated peptic ulcer.
- Strangulated small bowel.
- Ruptured ectopic pregnancy

S.lipase will help differentiate pancreatitis from other causes of hyperamylasemia.

5- Pregnancy test

6- Urine analysis for haematuria and/or pyuria.

7- Cervical culture → PID.



# C- Radiology:

## 1- Erect and supine abdominal films: looking for :

- Air-fluid levels
- Evidence of bowel dilation.
- Pancreatic, biliary or renal calcifications.
- Loss of psoas margin suggesting retro peritoneal bleeding.
- Aortic calcification.
- Presence or absence of air in the biliary tract.

## 2- Chest x ray : looking for

- Lower lobe pneumonia
- Pleural effusion.
- Elevation of a hemidiaphragm.
- Free air under the diaphragm.

# 3- Ultra sound: looking for

- Gall stones or biliary tract dilatation.
- Ectopic pregnancy.
- Free fluid in the peritoneal cavity.

**4- CT: very sensitive in many possible diagnoses.**

**5- Barium studies.**

**6- I.V.P**

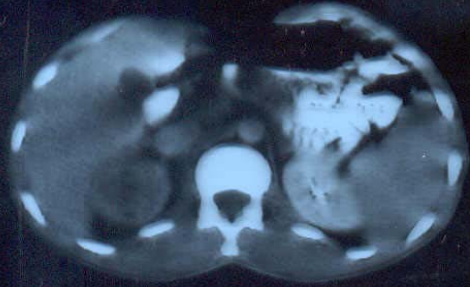
**D-** ECG: in patients with acute upper abdominal pain to rule out acute myocardial infarction or pericarditis.

**E-** paracentesis.

**F-** Endoscopic studies: upper or lower G.I endoscopy or ERCP.

**G-** Arteriography in cases of suspected acute mesenteric artery ischemia.

+179  
R4000.4  
S412 C  
IC+250MM  
13MM  
+100\*



LEVEL  
+58  
WINDW  
200

R

L

FROM BOTTOM  
1200 VP LCM

+160  
R4000.4  
S412 C  
IC+270MM  
13MM  
+100\*



LEVEL  
+60  
WINDW  
200

R

L

FROM BOTTOM  
1200 VP LCM

+160  
R4000.4  
S412 C  
IC+250MM  
13MM  
+100\*



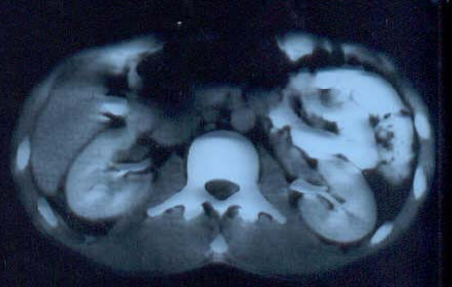
LEVEL  
+60  
WINDW  
200

R

L

FROM BOTTOM  
1200 VP LCM

+160  
R4000.4  
S412 C  
IC+250MM  
13MM  
+100\*



LEVEL  
+60  
WINDW  
200

R

L

FROM BOTTOM  
1200 VP LCM

+185  
R4000.4  
S412 C  
IC+250MM  
13MM  
+100\*



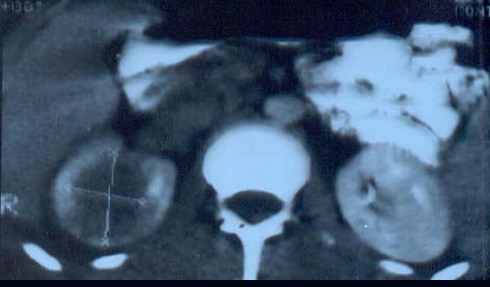
LEVEL  
+60  
WINDW  
200

R

L

FROM BOTTOM  
1200 VP LCM

+170  
R4000.4  
S412 C  
IC+250MM  
13MM  
+100\*



LEVEL  
+70  
WINDW  
200

R

L

FROM BOTTOM  
1200 VP LCM

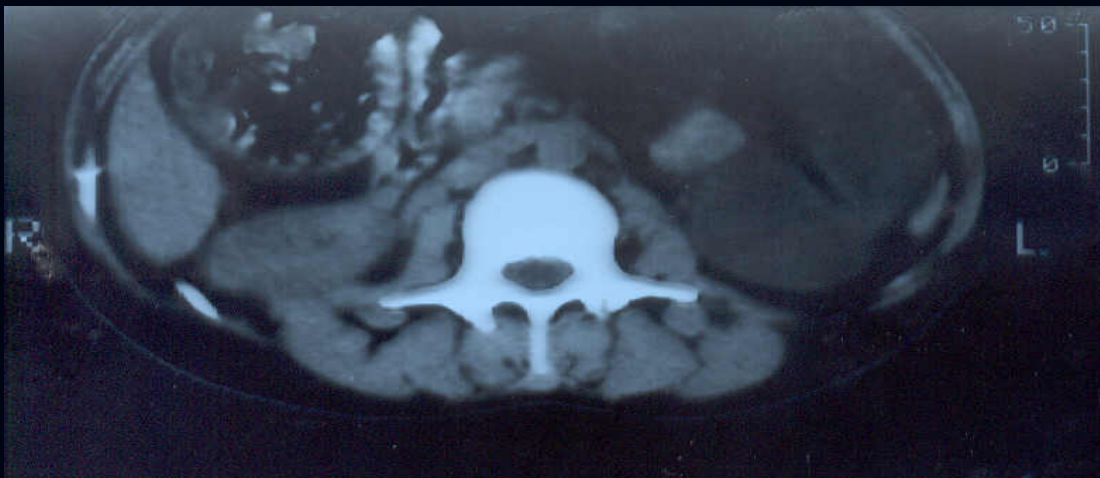


IMAGE 1.37  
FROM BOTTOM  
120KVP LOW

P

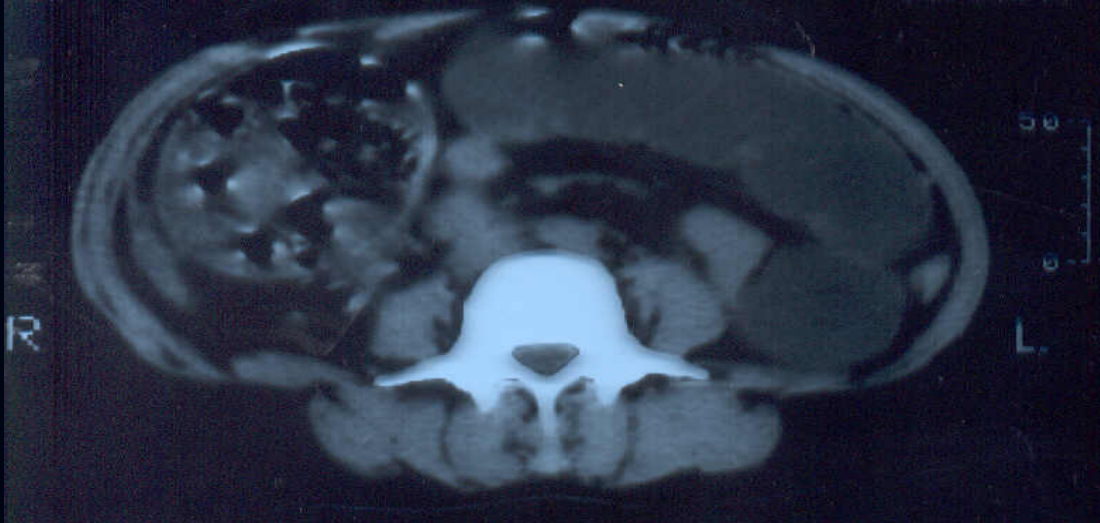
ID: H30  
R# 10227  
S# 02  
IC# 010MM  
10MM  
400°

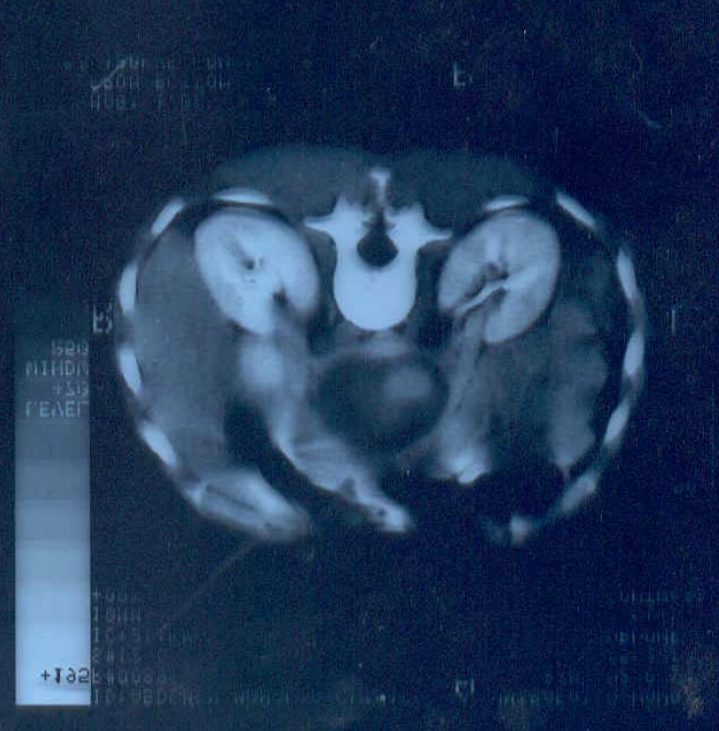
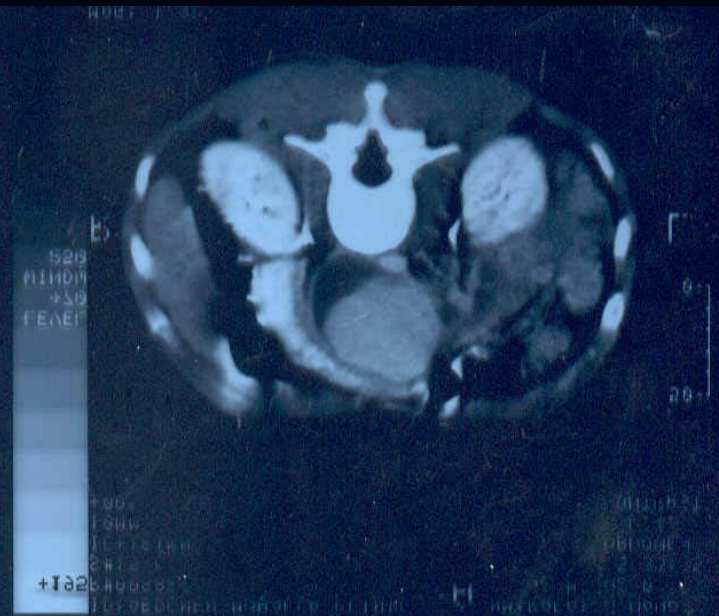
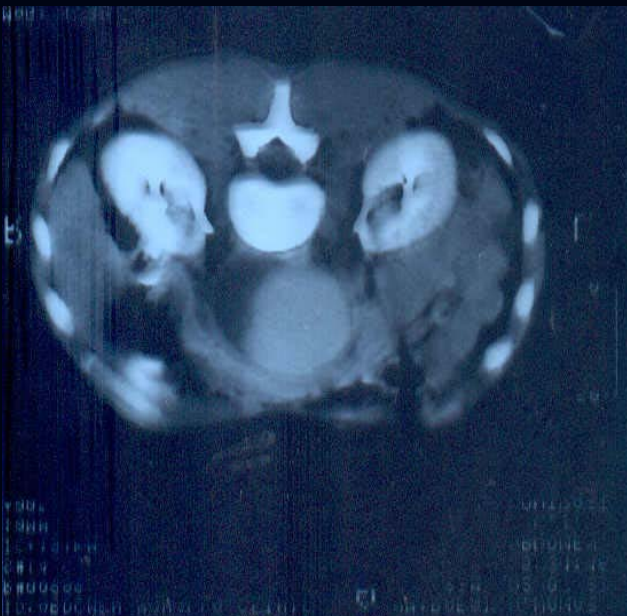
PHYSICIAN: IMAGING

H

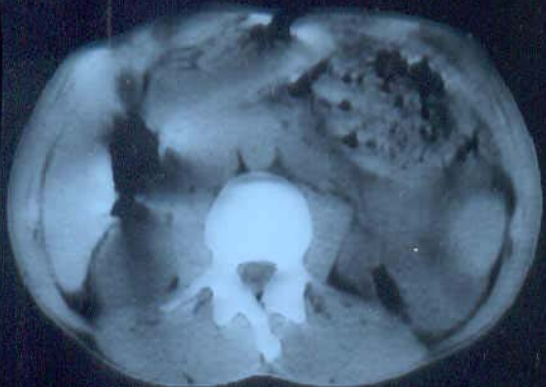
PHYSICIAN: 35F

MUSTRICH  
01/04/24  
14:25:12  
REDOMENTAL  
4.7.7.  
\*\*\*\*\*

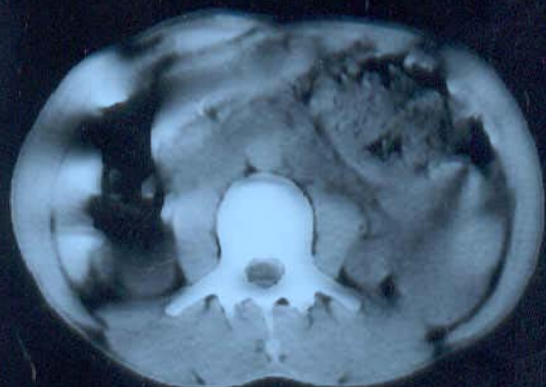








LEVEL  
+30  
WINDU  
200



HAG 1.21  
FROM BOTTOM  
120KV, LOW

HAG 1.21  
FROM BOTTOM  
120KV, LOW

IC-10240  
RW-10240  
SW-0  
IC-040mm  
10MM  
100°

HAG 1.21  
FROM BOTTOM  
120KV, LOW

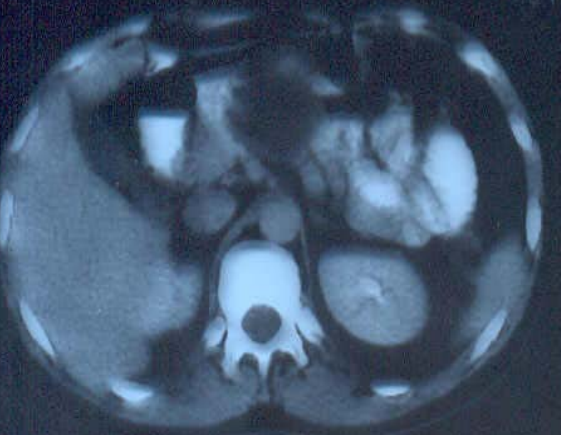
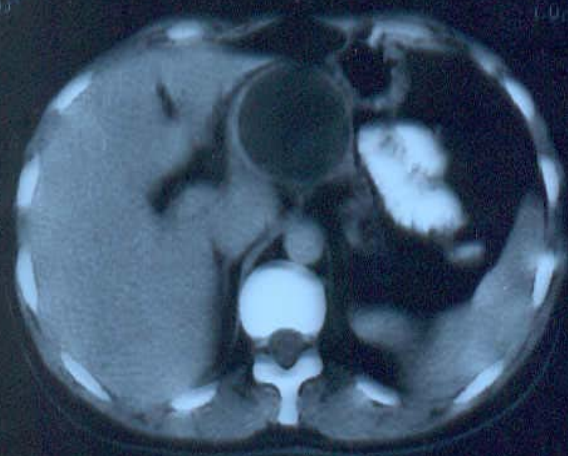
+105

IC-10240  
RW-10240  
SW-0  
IC-040mm  
10MM  
100°



LEVEL  
+105  
WINDU  
150





# Plan:

- The initial goal is to determine whether surgical treatment is needed or not.
- A. observation: include
  - Serial clinical examinations by the same clinician.
  - I.V fluids in cases of septic shock or fluid loss
  - Gastric decompression → in cases of mechanical intestinal obstruction.
  - Surgical consultation.
  - Judicious use of analgesics.
- B. Surgery.

**Indication for urgent  
operation in patients with  
acute abdomen**

## ■ Physical findings

- Involuntary guarding or rigidity, especially if spreading.
- Increasing or severe localized tenderness.
- Tense or progressive distension.
- Tender abdominal or rectal mass with high fever or hypotension.
- Rectal bleeding with shock or acidosis.

## ■ Radiologic findings

- Pneumoperitoneum
- Gross or progressive bowel distension
- Free extravasation of contrast material
- Space-occupying lesion on CT scan with fever
- Mesenteric occlusion on angiography

## ■ Endoscopic findings

- Perforated or uncontrollably bleeding lesion

## ■ Paracentesis findings

- Blood, bile, pus, bowel contents, or urine

# Undiagnosed (non specific) acute abdominal pain

**In** a large proportion of patients with acute abdomen a specific diagnosis can not be reached. The incidence of these patients varies considerably in different studies (varying from 15-42%).

**The** psychological results demonstrated that the NSAP group had the same level of anxiety and depression as the control group and also had no evidence of increased preceding life events.

- The majority of these patients will be recovered. However, some patients will worsen and require subsequent hospitalization & surgery.
- The emergency physician should avoid labeling non specific abdominal pain as gastritis or gastroenteritis or other similar terms.



- Scheduled out-patient follow up & reassessment is necessary.
- Patients should not be told that nothing is wrong or that they are not having pain. But, they should be reassured and advised that by means available today, it is not possible to identify the cause of their pain.
- Patients may be better managed by referral to a pain clinic as the pain has an impact on the quality of life.

**In** a retrospective study, we reviewed the medical records of 6476 patients admitted to Mansoura Emergency Hospital with 19 weeks

We found 514 patients admitted with acute abdominal pain representing 7.93% of the total hospital admissions.

**Specific** diagnosis was reached in 388 patients (75.5%) while 126 patients were undiagnosed (24.5%).

- Surgical causes were found in 268 patients 52.1%.
- Nonsurgical causes were found in 226 patients 44%.
- Gynaecological causes were found in 20 patients 3.6%.

## Frequency of medical causes of acute abdominal pain & their percent of total cases with acute abdomen

Sub-groups	Final diagnosis	Frequency	% of total cases (514)
G.I.T.	Acute pancreatitis	4	0.8
	Acute gastritis	10	1.9
	Typhoid fever	2	0.4
	Gastroenteritis	1	0.2
	Duodenal ulcer	2	0.4
	Lower esophageal ulcer	1	0.2
Hepatobiliary	Acute cholecystitis	31	6.0
	Spontaneous bacterial peritonitis	7	1.4
Cardiovascular	Inferior wall ischaemia	1	0.2
	Unstable angina	5	1.0

<b>Endocrine</b>	<b>Diabetic keto-acidosis</b>	<b>7</b>	<b>1.4</b>
<b>FMF</b>	<b>Familial Mediterranean fever</b>	<b>2</b>	<b>0.4</b>
<b>Renal</b>	<b>Renal impairment</b>	<b>1</b>	<b>0.2</b>
	<b>Urinary tract infection</b>	<b>6</b>	<b>1.2</b>
<b>Toxins</b>	<b>Ergot alkaloid toxicity</b>	<b>1</b>	<b>0.2</b>
	<b>Snake bite</b>	<b>1</b>	<b>0.2</b>
<b>Abdominal malignancy</b>	<b>Leaking hepatoma</b>	<b>9</b>	<b>1.8</b>
	<b>Inoperable cancer colon</b>	<b>2</b>	<b>0.4</b>
	<b>Disseminating abdominal malignancy</b>	<b>1</b>	<b>1.2</b>
<b>Hematological</b>	<b>Hemolytic crises</b>	<b>1</b>	<b>0.2</b>
<b>Non-specific</b>	<b>Non-specific acute abdominal pain</b>	<b>126</b>	<b>24.5</b>
<b>Total</b>		<b>226</b>	<b>44.0%</b>

# Frequency of surgical & Gynaecological causes of acute abdominal pain & their percent of total cases with acute abdomen.

Sub-groups	Final diagnosis	Frequency	% Of total cases (514)
Surgical	Appendicitis	218	42.4
	Intestinal obstruction	12	2.3
	Strangulated abdominal hernia	12	2.3
	Mesenteric vascular occlusion	4	0.8
	Operable cancer colon	3	0.6
	Intussusception	2	0.4
	Large amoebic liver abscess	1	0.2
	Splenic infarction	1	0.2
	Septic peritonitis	15	3
	Intestinal perforation	4	0.8
	Perforated duodenal ulcer	2	0.4
	Perforated gastric ulcer	2	0.4
	Subphrenic collection	1	0.2
	Secondary peritonitis	6	1.2
<b>Total</b>		<b>268</b>	<b>52.1%</b>

<b>Gynecological</b>	<b>Complicated ovarian cyst</b>	<b>15</b>	<b>3</b>
	<b>RT salpingo ovarian abscess</b>	<b>2</b>	<b>0.4</b>
	<b>Rupture ectopic pregnancy</b>	<b>2</b>	<b>0.4</b>
	<b>Post D&amp;C rectal perforation</b>	<b>1</b>	<b>0.2</b>
	<b>Total</b>	<b>20</b>	<b>3.9%</b>

**Acute** appendicitis was the most common cause of acute abdomen, in general, where it was diagnosed in (42.4%) of patients with acute abdomen. Gastrointestinal tract diseases & hepatobiliary diseases came in the second order of frequency where it was diagnosed in (12.6%) of patients with acute abdomen.



**Among** geriatrics, it was found that acute cholecystitis is the most common cause of acute abdomen and abdominal malignancies is the second most common cause.

**Mortality** from non-surgical acute abdominal pain was low, it represented (1.0%) of all studied cases. It was found that mortality was higher among older age group (80% of died cases were above 60 years old).

**In** patients with an unclear aetiology for their abdominal pain, diagnostic accuracy can be improved by serial evaluation, observation and repeated examinations of these patients. Follow up of these patients is highly recommended specially in elderly patients since there is higher incidence of hidden abdominal malignancy in such age group.

Thank  
You

