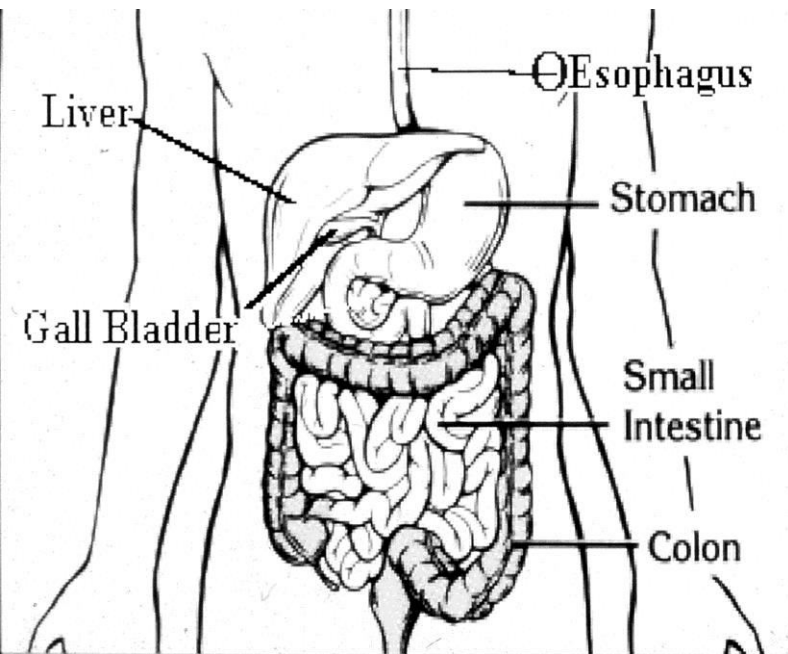


Diagnostic challenge in acute abdomen



Case Supervision:

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م. ح / 49 سنة / الموصل / عامل/متزوج

The patient sustained blunt trauma by a hand fist focused directly to the lower abdomen. 1-h later, he started to have a little discomfort in the epigastric region then the pain became generalized & agonizing in nature, increasing in severity with walking & breathing not radiated any where associated with low grade fever but no vomiting or diarrhea with good appetite & no acidity. The patient gave history of lassitude & flue- like illness 1 week prior to trauma

REVIEW OF OTHER SYSTEMS:

No relevant symptoms

PAST SURGICAL HISTORY:

The patient had asymptomatic right inguinal hernia for 30 years

PAST MEDICAL HISTORY:

Gastroenteritis one year ago -took RANITIDIN for a while

Chronic dyspepsia & infrequent epigastric pain on irregular treatment for 5 years.

Medications

- No medications or allergies

Family History

Parents and sister (7) well

Socially

No infectious contacts,

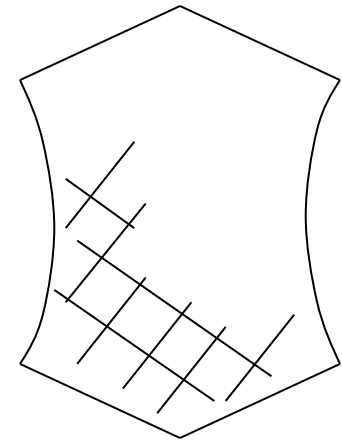
Just quit smoking 3 pk/wk,

EXAMINATION: GENERAL:

Ill, dehydrated, pale, sweaty,
PR:90B/M regular & good vol. → 110B/M preop
BP:130/80 mmHg → 110/70mmHg after 3 hrs of observation
temp 37.7 oc

EXAMINATION: ABDOMINAL:

Central distension
Restricted movement with respirations.
No scar, no sign of bruises
no rash no palpable mass.
Tenderness & guarding in the RIF & R lumbar regions
Dull percussion note centrally.
B.S. sluggish
PR-exam. loaded with feces.
Reducible RIH



R.B.S=110mg%

B. urea=55 mg %

Hb=14 g%

G.U.E= pus cells ++

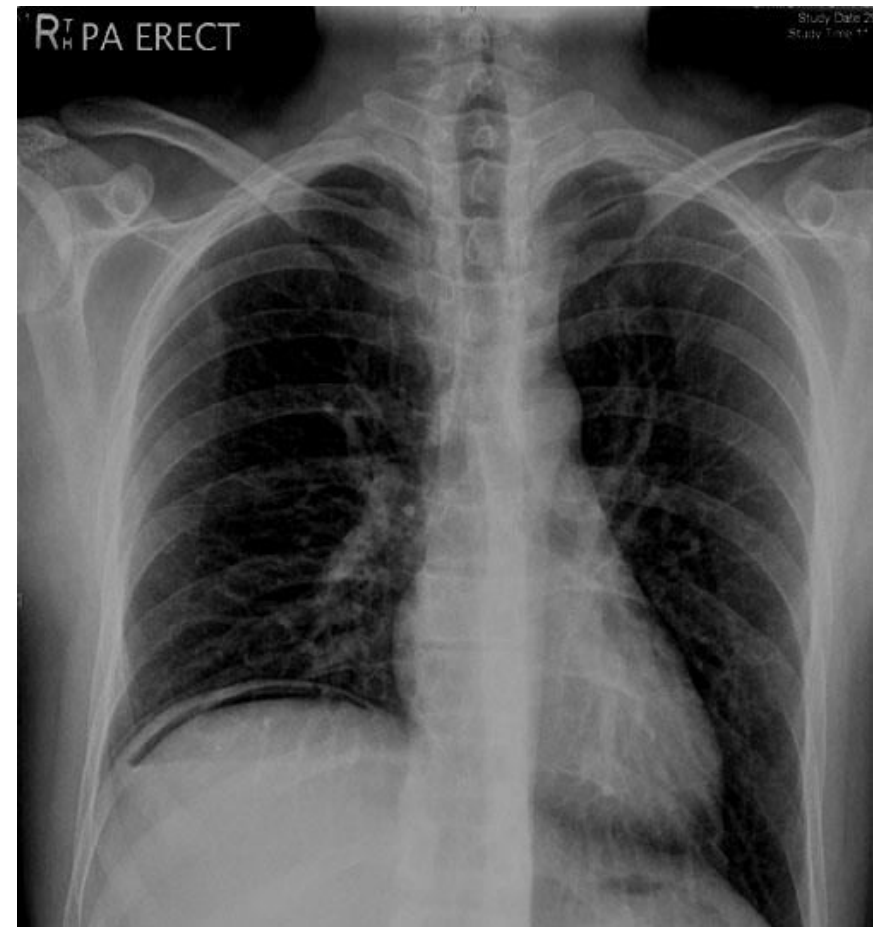
W.B.C= 13×10

What radiographic test is needed?

Investigations in ER

QUESTION

1. What are the findings?
?
2. What is the likely diagnosis?
3. Name two other DDx



ANSWER

Diagnosis

**x-ray of the chest and upper abdomen in erect position showing subphrenic air (air under diaphragm/ pneumoperitonium)
Perforated viscus**



Approximately 30% of acute perforations are not evident on an erect chest radiograph.

DDX for Pneumoperitoneum

Perforated ulcer

- gastric, duodenal*

Iatrogenic

- peritoneal dialysis
- abdominal tap

Perforation of bowel**

Vaginal insufflation

Pneumatosis cystoides
intestinalis

Hystero-graphy

Subphrenic abscess

Residual postop air***

* commonest cause

** causes massive pneumoperitoneum

*** may last up to three weeks

Question

How is free air ruled out if the patient cannot stand?

ANSWER

- Left lateral decubitus—free air collects over the liver and does not get confused with the gastric bubble

QUESTION

***Q) What else
you look for
in Plain
Abdominal X-
Ray (Erect &
Supine) in
acute
abdomen?***



ANSWER

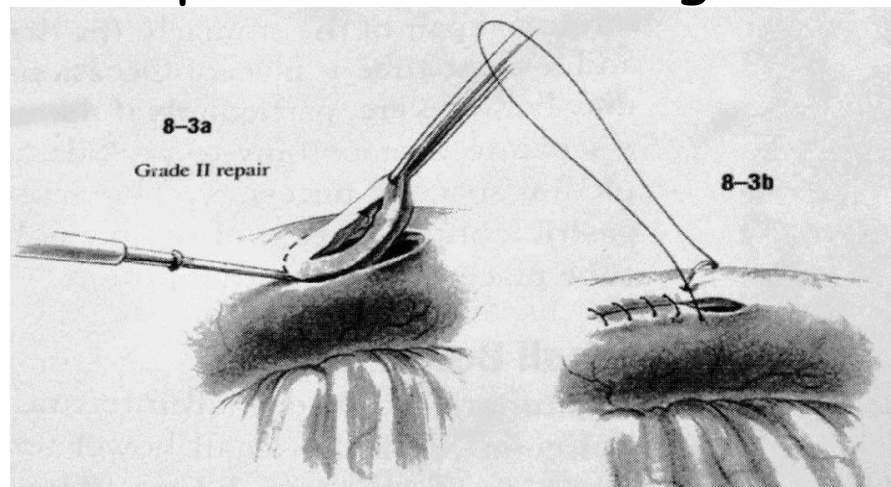
- abnormal distribution of gas
- distended loops of bowel
- soft tissue densities
- enlargement of solid organs
- abnormal calcification
- blurring of the psoas outlines
- gas in the biliary tree

QUESTION

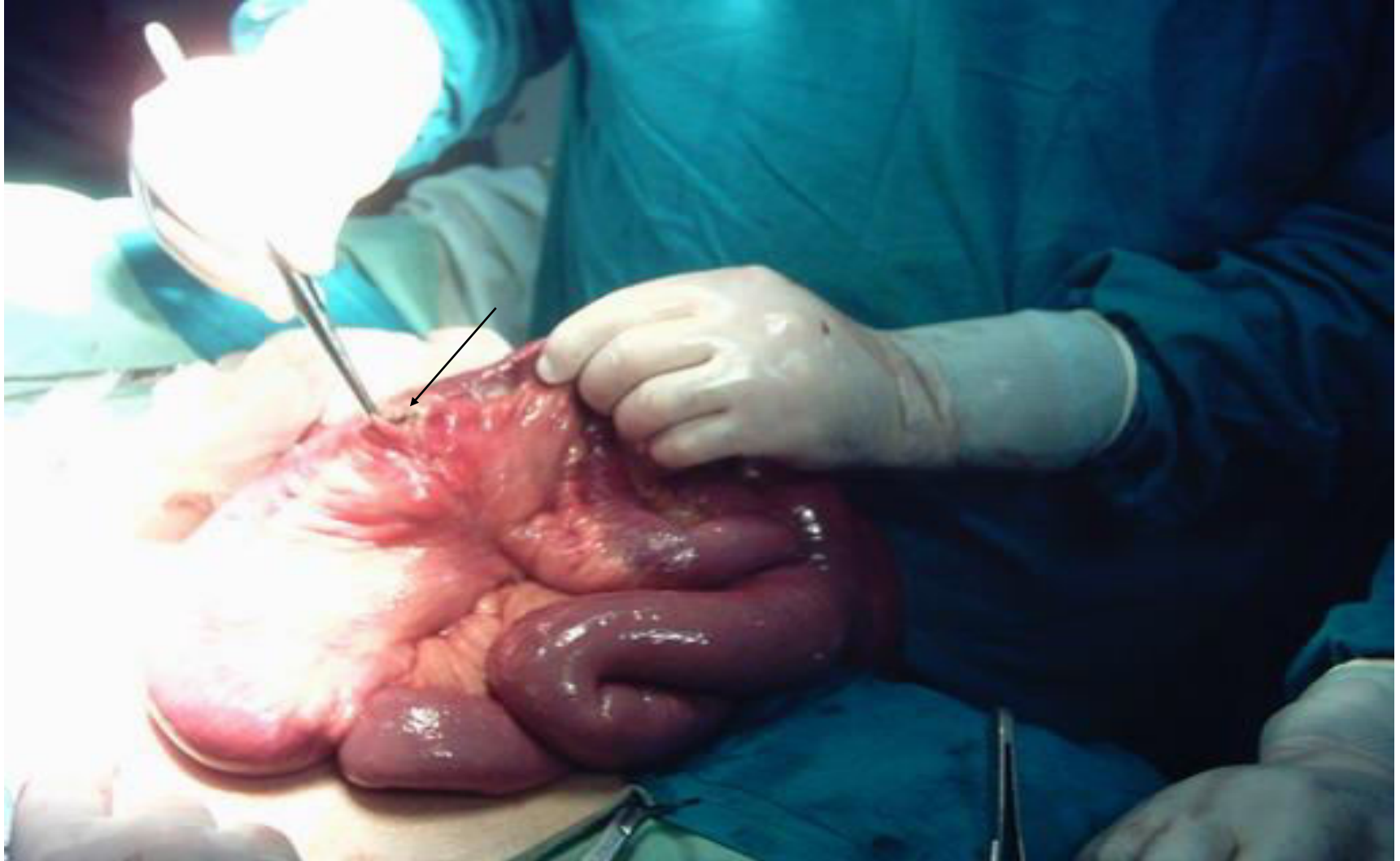
Abdominal x-ray returns and shows presence of free air under the diaphragm.

What is the next step in management?

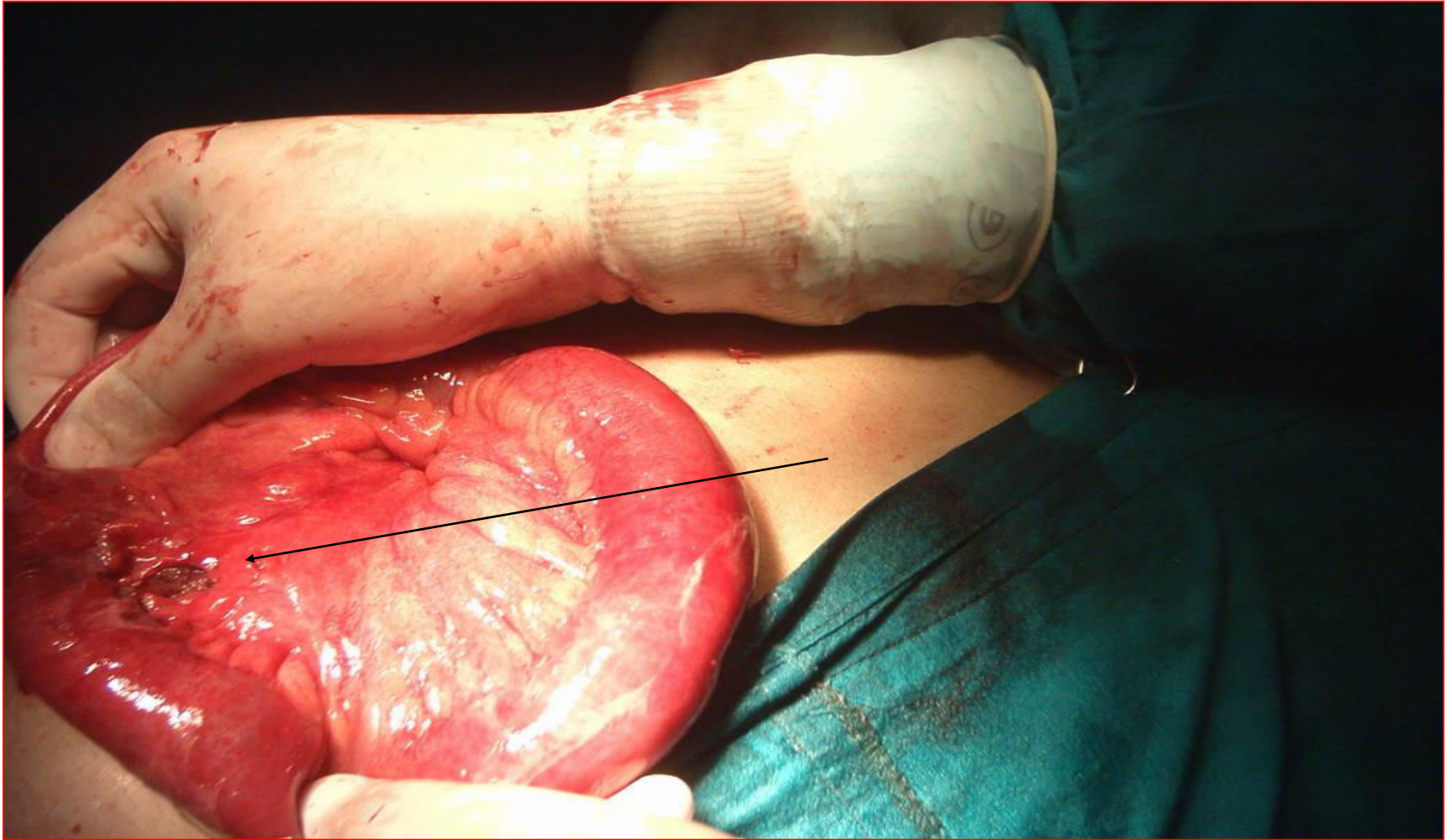
- After rehydration by IVF, AB shot (cefotaxime 1 gm + metronidazole 500 mg) & NGT
 - Expl. Laparotomy ↓ GA
 - Peritonitis + bile stained intestinal contents
- Fibrinous exudate on serosal surfaces of bowel.
- Two perforations in the in the mesenteric side distal ileum, oversewn by 4-0 vicryl after refreshment of edges + biopsy from perf. margins with mesenteric LN biopsy
- Copious irrigation. & peritoneal drainage

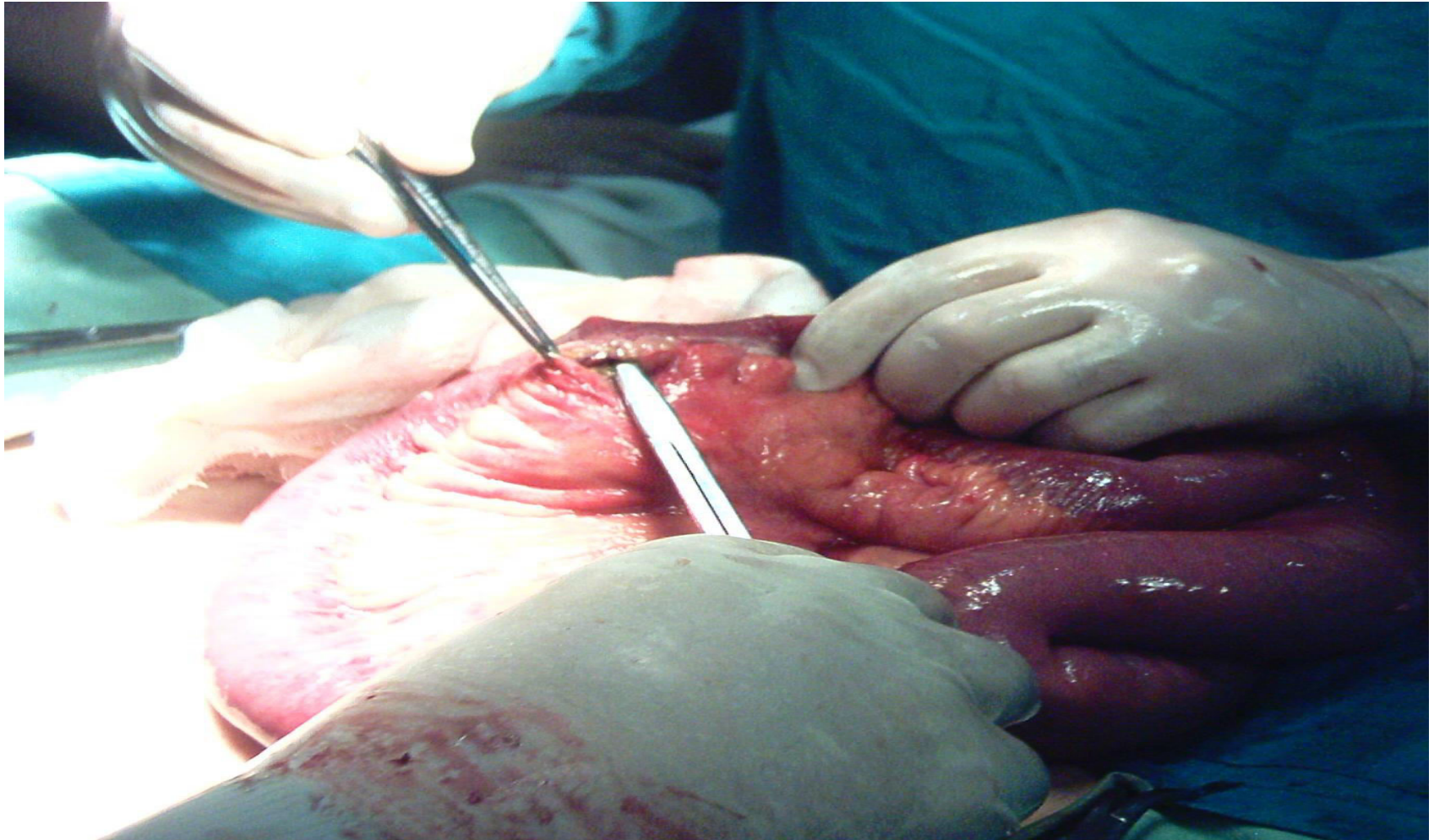


Perforation in the mesenteric side of terminal ileum & reactive mesenteric LNs

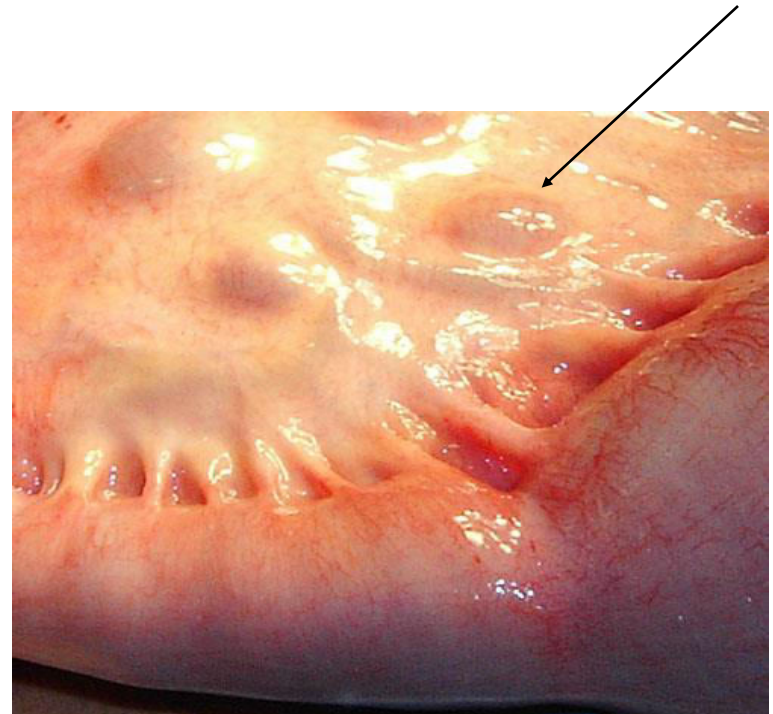
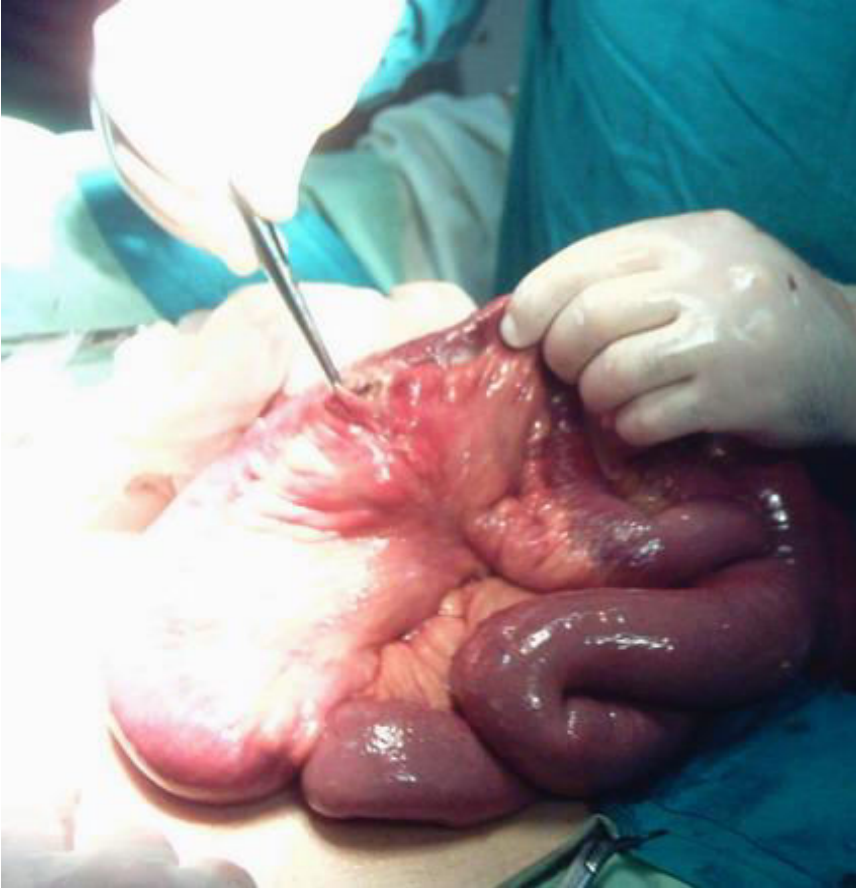


The perforation from other side





Mesenteric LNs



Good .he has been ambulating, passed motion on day 3 vitals are normal,wound is clean & Foley is removed.

- Then developed fever of 38.5 C on POD#4
- Profoundly lethargic. with myalgia and headache.
- Occasional bilious vomiting.
- The peritoneal drain was only draining few cc of serous fluid & later removed on day 4.
- Broad spectrum abx.
- Bowel rest / NGT

QUESTIONS

Q) What are the causes of post operative fever in relation to time?

Q) What will be your examination checklist?

Post op fever

The **FIVE "W"** & timing of fever relative to the postoperative day (POD) will indicate the most likely cause

- **Wind** (POD#1) atelectasis, pneumonia (first 48 hours)
- **Water** (POD#3) UTI if urinary catheterization, anastomotic leak
- **Wound** (POD#5) wound infection, abscess IV phlebitis
- **Walking** (POD#7) DVT / PE
- **Wonder-drug** Many drugs cause fever, blood transfusions, central lines we put in (line sepsis)

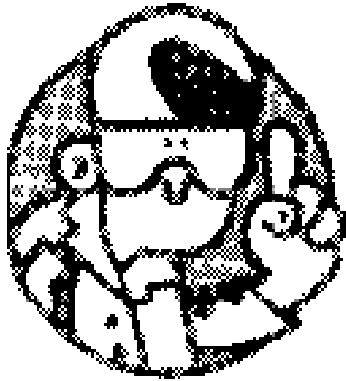
Examination checklist

- Examine the wound and abdomen for an abscess
- Consider a pelvic abscess and perform a rectal examination
- Examine the lungs - pneumonitis or collapse
- Examine the legs - for venous thrombosis
- Examine the conjunctivae for an icteric tinge and the liver for enlargement, and enquire whether the patient has had rigors (pylephlebitis)
- Examine the urine for organisms (pyelonephritis)
- Suspect subphrenic abscess

- Investigations CXR, US, Virology, urinalysis, CBC, CRP all were normal apart from *widal test* that showed *increasingly high titer 1/320 then 1/640* together with histopathological specimen from perforation margin confirmed *typhoid ileal perforation* & reactive mesenteric LN hyperplasia.
- Dramatic response with subsidence of fever after treatment with ciprofloxacin 500mg b.d IV then oral when tolerating diet.
- Discharged home POD #8.

A .M .G a 73 year old man referred from medical dept . with history of sudden acute painful progressive abdominal distension , repeated bilious vomiting & obstipation for 1 week. The patient used to take laxatives & enema frequently during this time with no benefit . He denied any previous similar attacks . There were neither fever nor bleeding or hyperacidity

What conditions can mask abdominal pain?



**Beware of a silent
perforation in the elderly
and patients on
corticosteroids.**

- Steroids, diabetes, paraplegia

The patient was asthmatic, hypertensive on captopril with IHD on SL GTN on need.

He had history of old pulmonary T.B 30 yrs ago where he was treated for 2 years at that time.

No history of previous surgery or trauma

He is chronic heavy smoker 2 packets a day

EXAMINATION: GENERAL:

Elderly man emaciated , drowsy ,dehydrated ,loathes in respirations. pale JAc+c+ol

PR=130B/M weak regular BP=80/60 UOP=10cc/hr

Chest exam emphysematous with scattered rhonchi all over

EXAMINATION: ABDOMINAL:

The abdomen was symmetrically distended not moves with respiration & generalized rigidity with central tympany & -ve BS no mass

PR exam. showed empty rectum

What is the provisional diagnosis?

Acute abdomen

Diagnostic Workup

A) Blood Tests:

Haemoglobin, Haematocrit, White Cell Counts/differential
CRP

Serum Electrolytes, Urea, Creatinine

Arterial Blood Gas Determinations

Serum Amylase

Liver Function Test/TSB

Clotting Studies

(B) Urine Tests:

(C) Stool Tests:

For Occult Faecal Blood

(D) AXR

QUESTION

- What is this investigation?
- What are the findings?
- Are there any further special studies for acute abdomen?



- **Contrast X-Ray Studies**
 - Barium Enema
 - Barium Follow Through
 - Intravenous Urogram
- **Ultrasonography**
 - Gallstones, dilated common bile duct, abnormal gall bladder.
 - Inflamed pancreas or pseudocyst
 - Liver metastases or cysts.
 - Aortic aneurysm
 - Large bladder.
 - Dilated pelvicalyceal system in ureteric obstruction
 - Ovarian cysts.
 - Hydro- or pyosalpinx.
 - Abdominal or pelvic collections.
 - Masses.
- **CT scan(retroperiton)**
- **Angiography**
- **Endoscopy**
- **Laparoscopy**
Lower abd. Pain in women
- **Paracentesis**

QUESTION

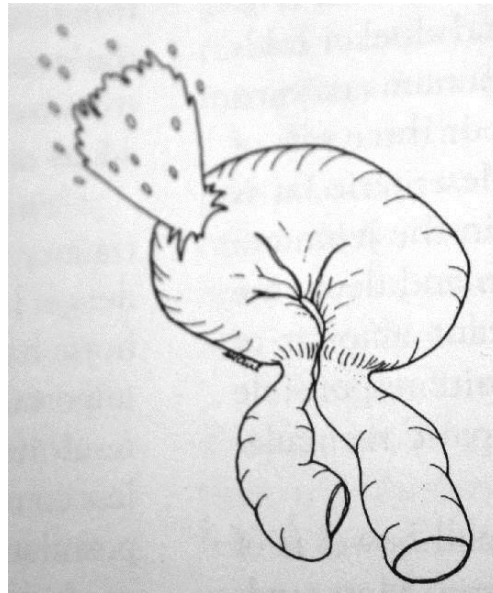
Classically, what endocrine problems can cause acute abdominal pain?

1. Addisonian crisis

2. DKA (Diabetic KetoAcidosis)

Acute abdomen

Indications for Laparotomy



Physical Findings

- Involuntary guarding or rigidity, esp. if spreading
- Increasing / severe localized tenderness
- Tense or progressive distension
- Tender abd. / rectal mass w/ high fever or hypotension
- Rectal bleeding w/ shock or acidosis
- Equivocal abd. findings along w/:
 - Septicemia
 - Bleeding (unexplained shock or acidosis, falling HCT)
 - Suspected ischemia
 - Deterioration on conservative treatment

Radiologic Findings

- Pneumoperitoneum
- Gross or progressive bowel distention
- Free extravasation of contrast material
- SOL on scan, with fever
- Mesenteric occlusion on angiography

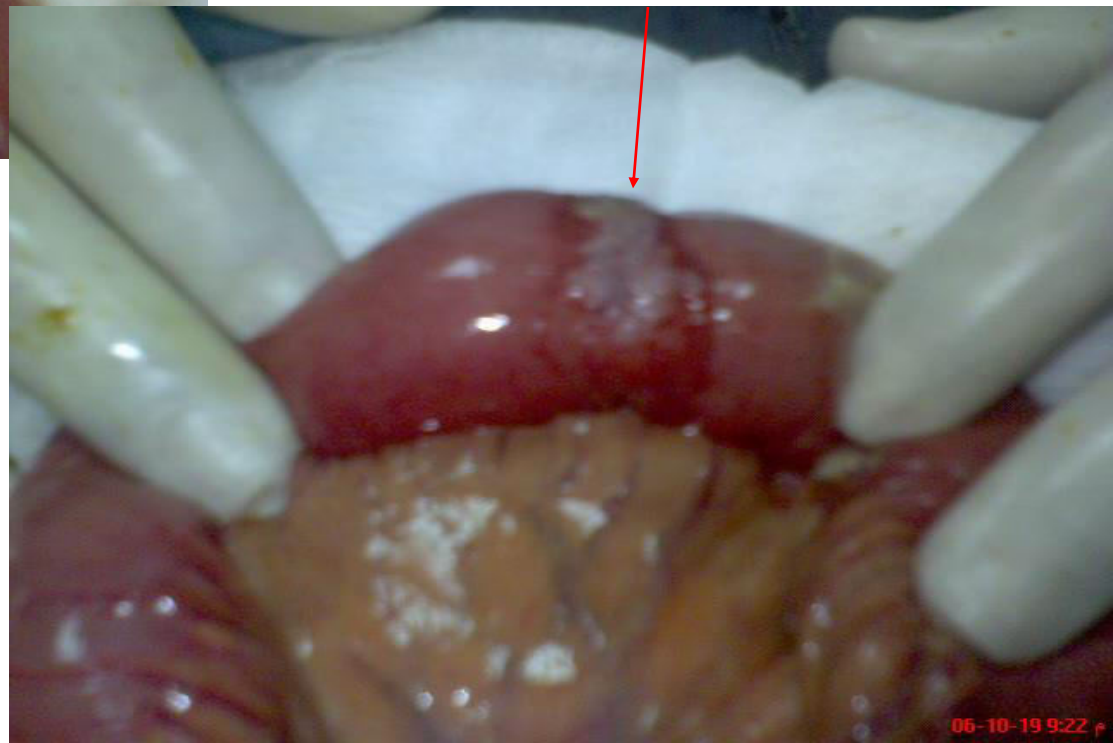
Endoscopic Findings Perforated or uncontrollable bleeding lesion

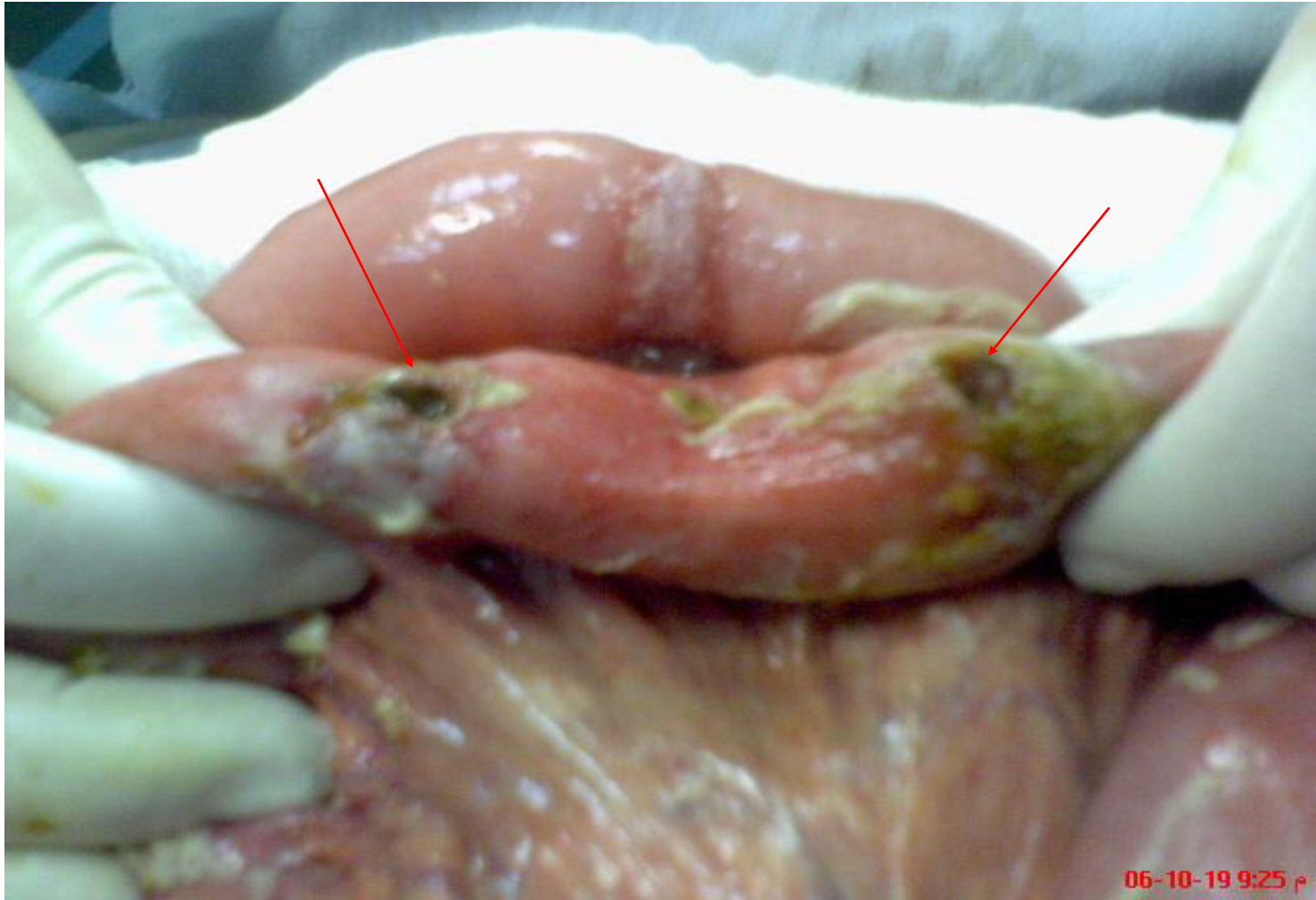
Paracentesis / FAST-Findings Blood, bile, pus, bowel contents or urine

Management:

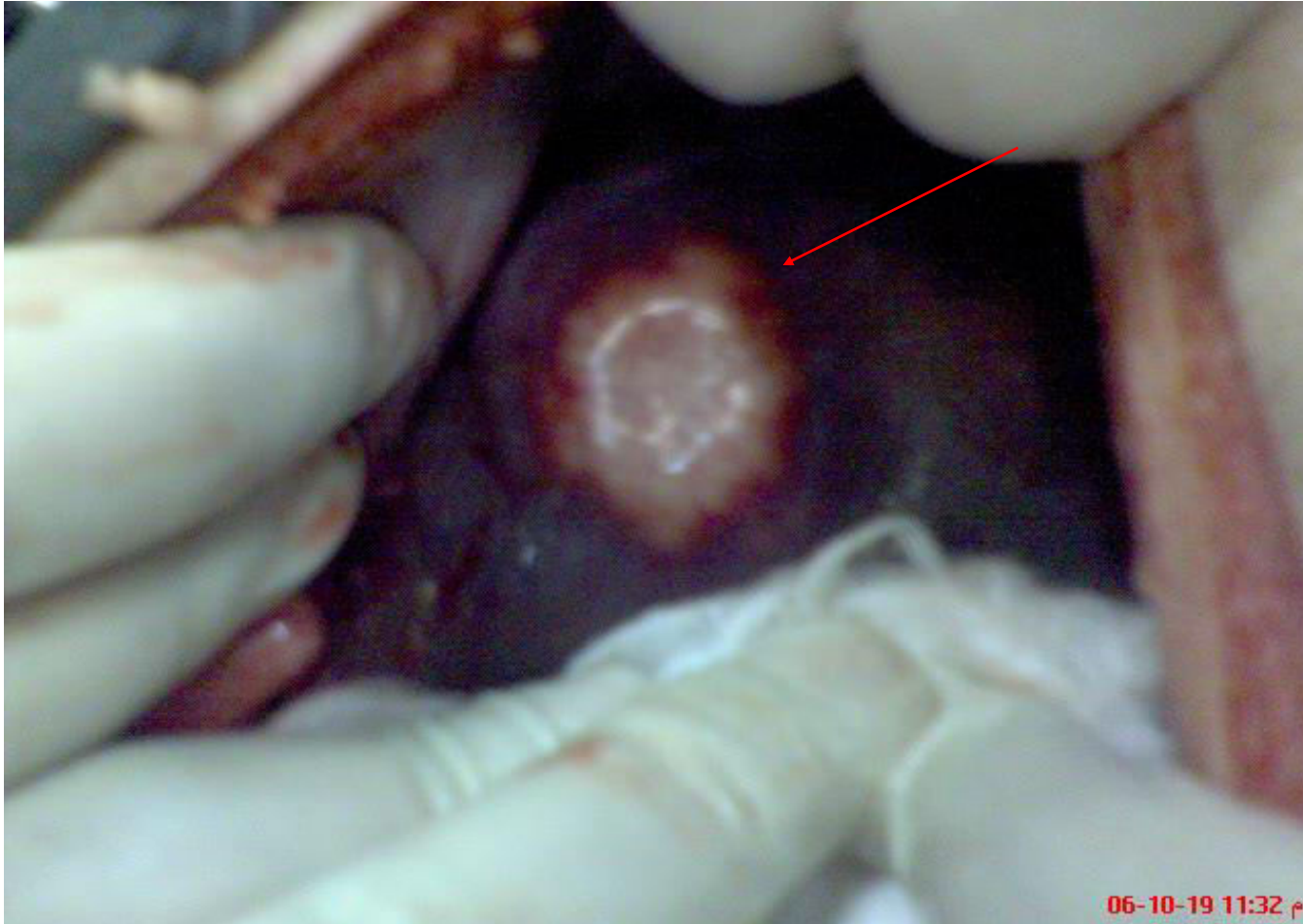
Emergency expl. laparotomy after resuscitation

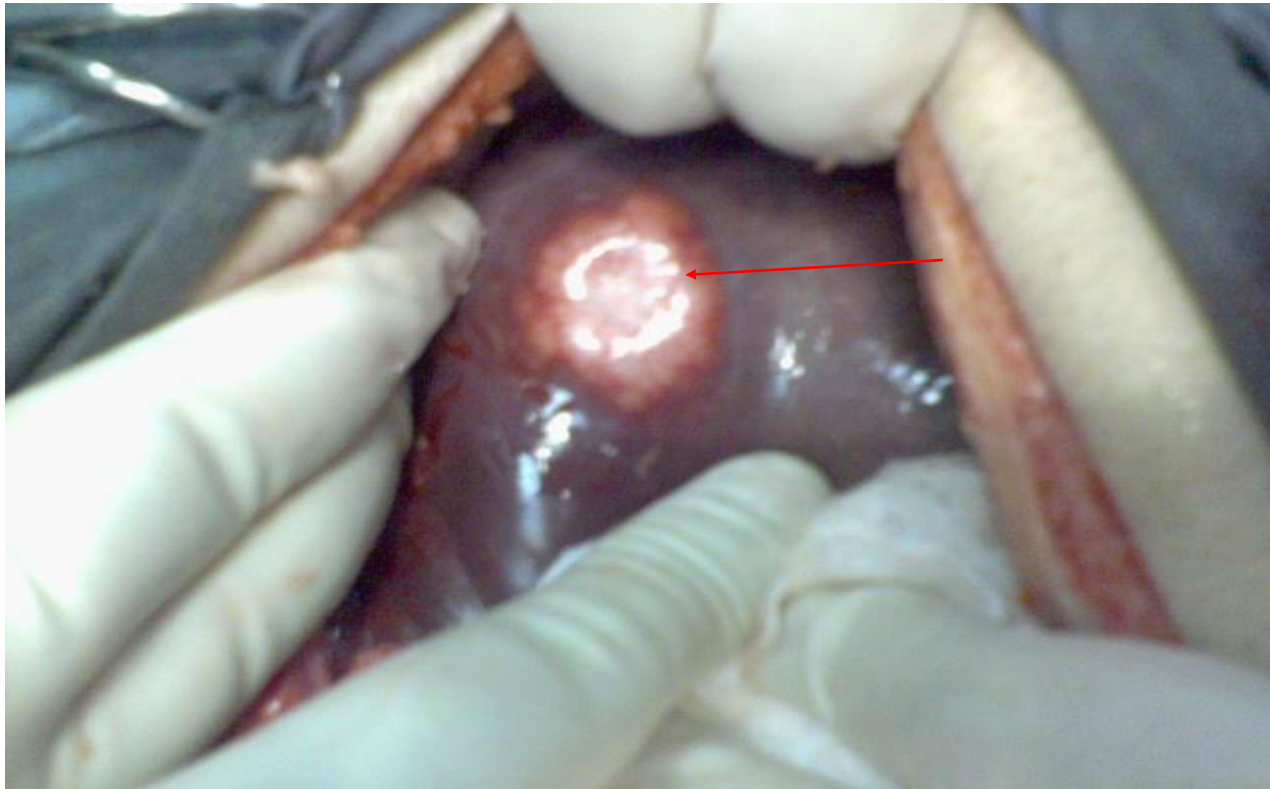
- *Multiple perforations in the jejunum & ileum with a solitary liver nodule.*
- *Bowel resection & 1 ry anastomosis with biopsy of liver nodule*
- *Histopathologically **metastatic carcinoid syndrome.***
- *Unfortunately over the coming 48 hours the patient developed increasing resp. failure in ITU & died on 3rd postop. day*



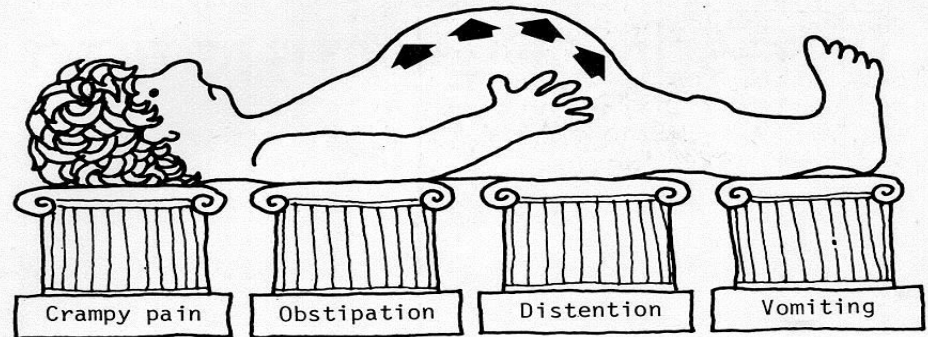


Liver nodule





- A 28 year pregnant woman gravida 5 para 4 in her week 24 of uneventful pregnancy referred to the surgical emergency department from Al Batool obstetric and gynecology hospital
- after 1 day history of sudden severe generalized cramping abdominal pain, obstipation, progressive abdominal distension & frequent bile stained vomiting.
- history of trivial blunt abdominal trauma 4 days earlier
- no history of nausea, fever, chills, vaginal bleeding or prior abd. surgery.
- Her previous pregnancies all were normal vaginal deliveries for
- normal full term neonate.



EXAMINATION: GENERAL:

A dehydrated, pale patient who couldn't lie flat because of pain.

Her PR 130 B/M weak, BP 80/40mmHg RR 26/M and she was a febrile

EXAMINATION: ABDOMINAL:

- centrally distended abdomen, generalized guarding and tenderness with bowel sounds minimally audible. Per rectal examination was normal.



- Hb 7 g%, WBC ($14 \times 10^3/\text{ml}$) .oxygen saturation of 90.
- Due to concern about possible hazards of an x ray in pregnancy and unavailability of US at night, neither an abdominal X ray nor an ultrasound were done
- After admission, aggressive IVF & BT to correct hypotension.
- NGT was draining bile stained fluid & normal urine output/color.
- Parenteral cefotaxime 1 gm
- Close observation. no change of abdominal pain.
- An hour later, deteriorated with worsening abdominal distension and pain.
- Exploratory laparotomy was decided

QUESTION

Q)What are four DDX of acute abdomen in pregnancy?

Answer

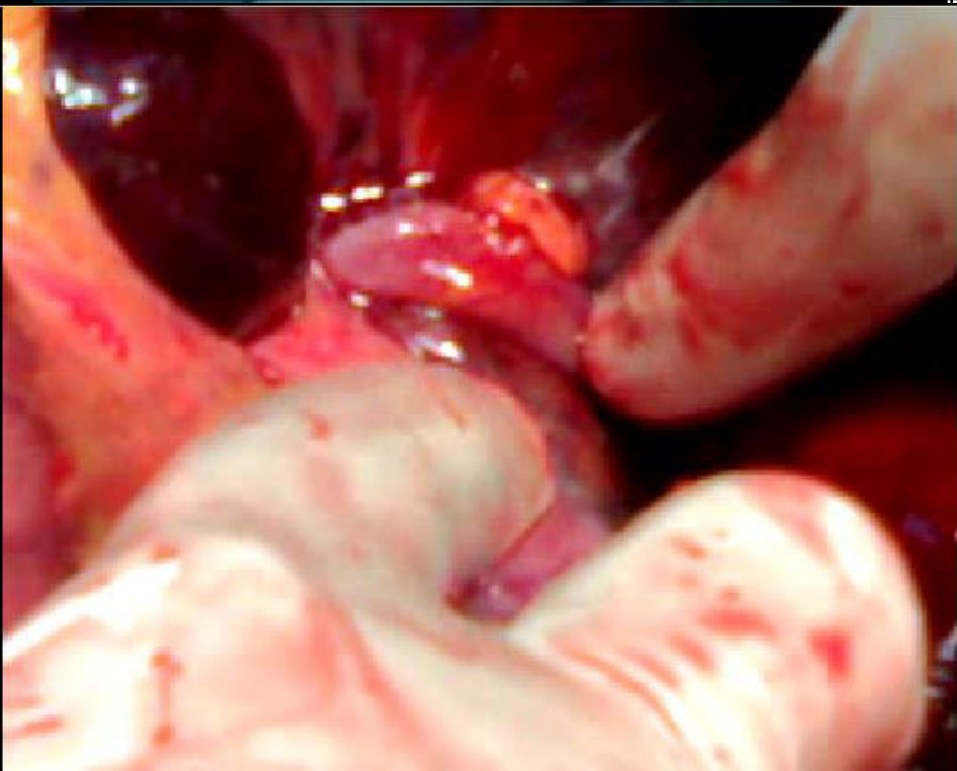
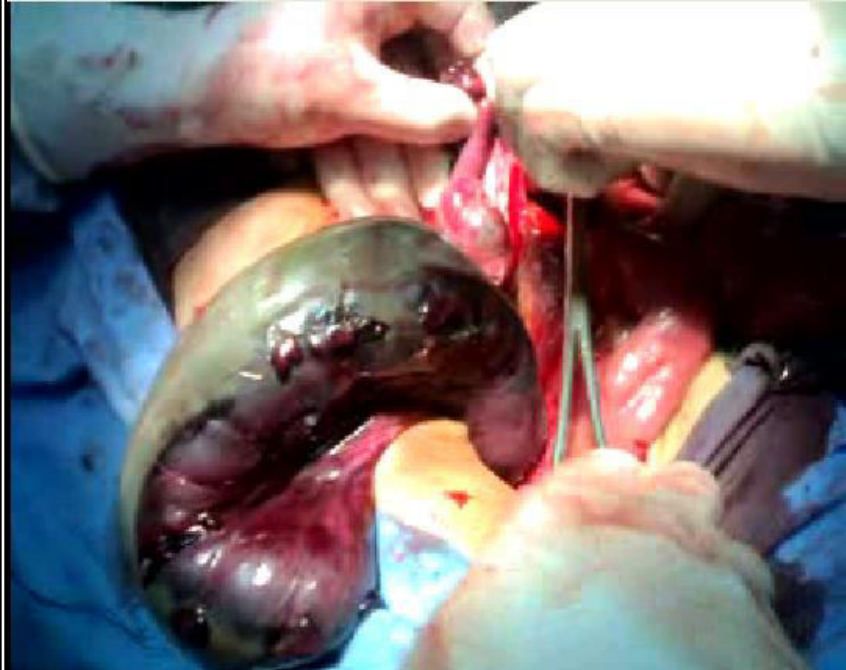
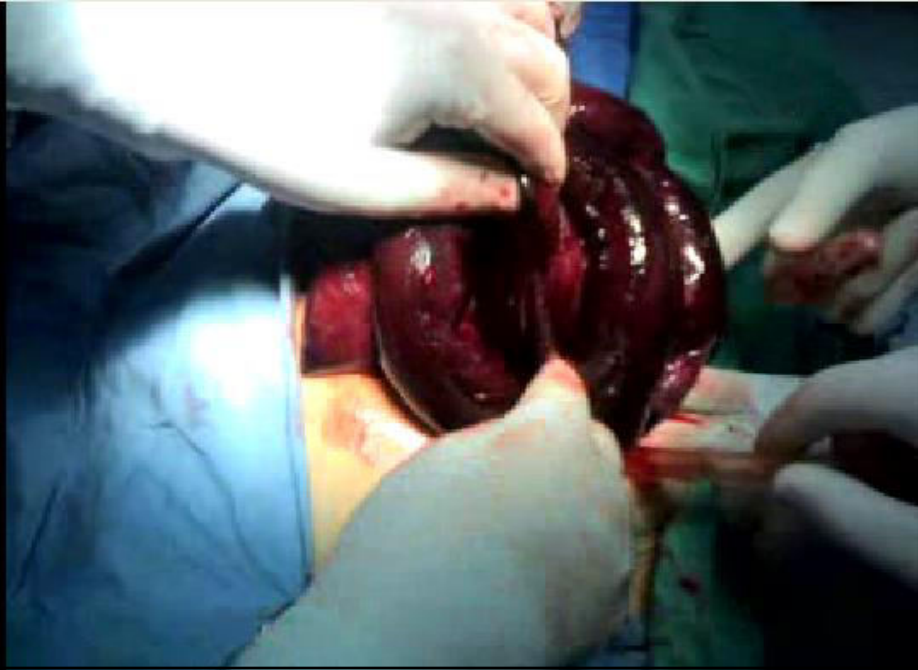
1. Ovarian torsion
2. Ectopic pregnancy
3. Salpingitis
4. Abruptio placentae
5. Surgical

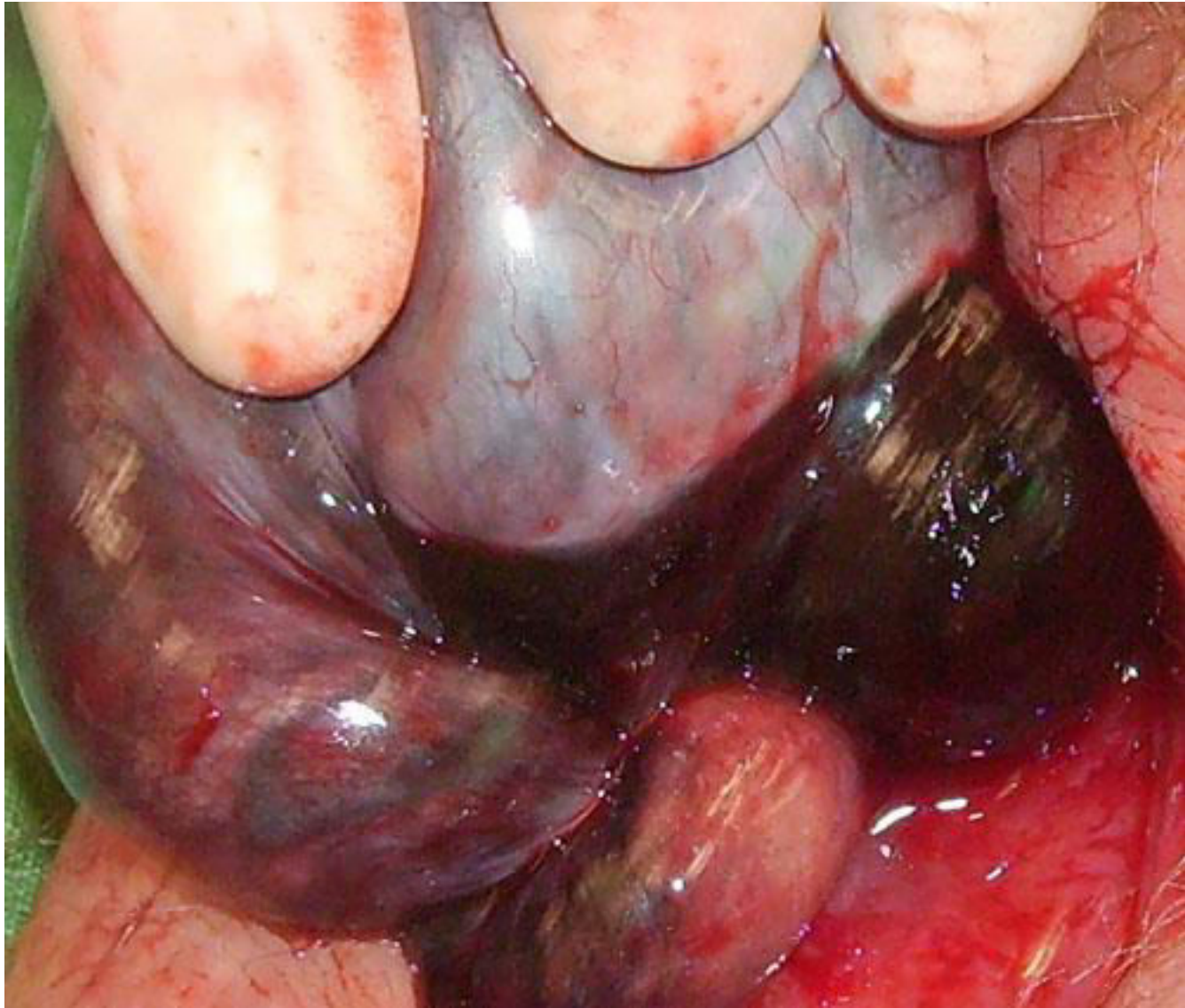
Operative findings

- serosanguinous intraperitoneal fluid & a long gangrenous jejunoileal segment with its base firmly knotted around the mesentery of massively distended gangrenous sigmoid colon
- Resection of gangrenous small bowel and primary anastomosis with resection of gangrenous sigmoid and Hartmann's colostomy.

The patient did well post operatively with no impact on her current pregnancy. The patient was started on liquids on the 4th postoperative day.

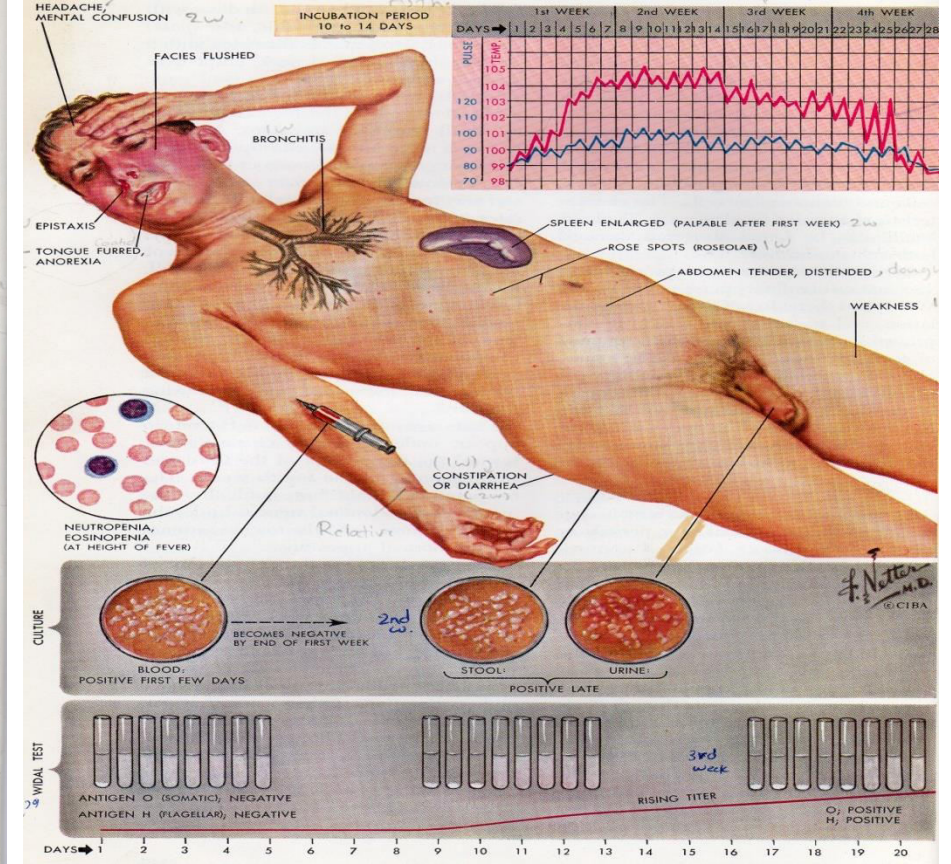
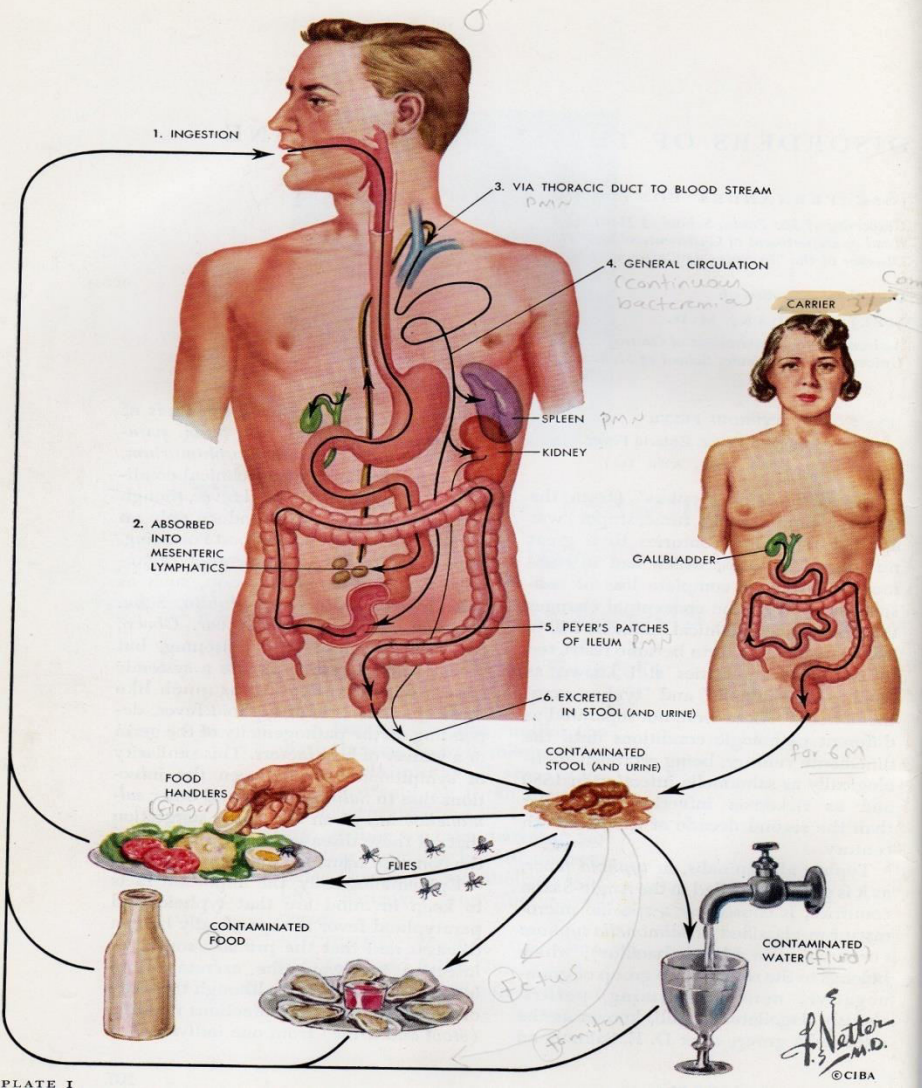




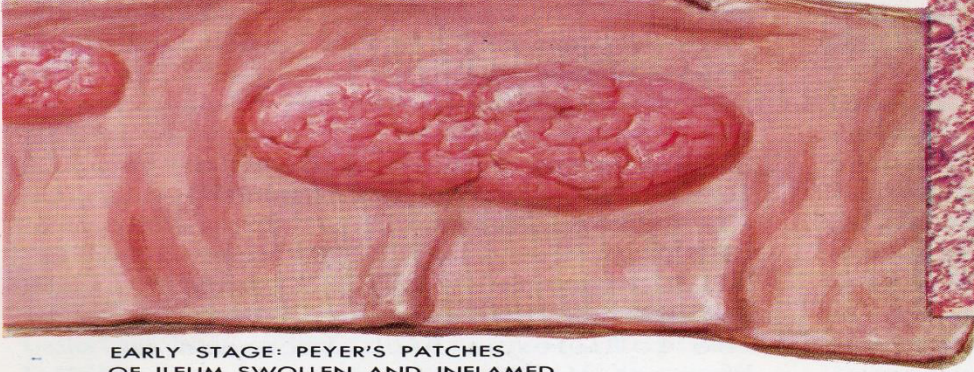


Literature

SUPERVISOR COMMENTS

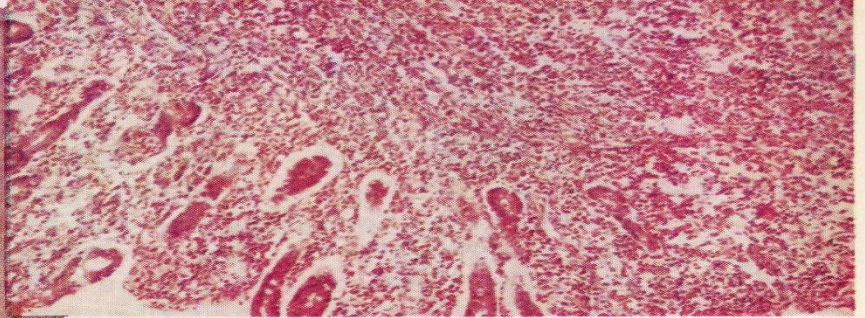


1st case:

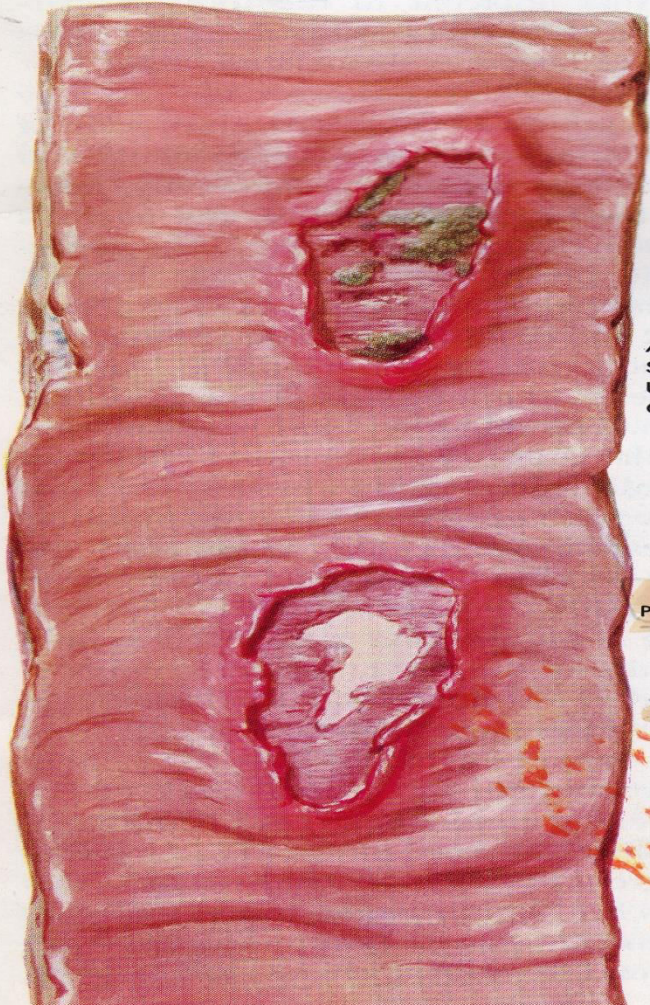


EARLY STAGE: PEYER'S PATCHES OF ILEUM SWOLLEN AND INFLAMED

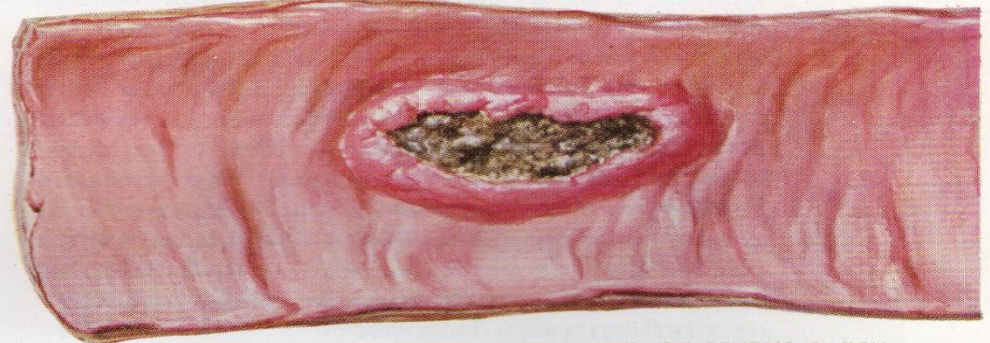
(last 24 inches)



MASSIVE INFILTRATION OF SUBMUCOSA BY MONONUCLEAR CELLS; DISSOCIATION OF MUSCULARIS MUCOSAE



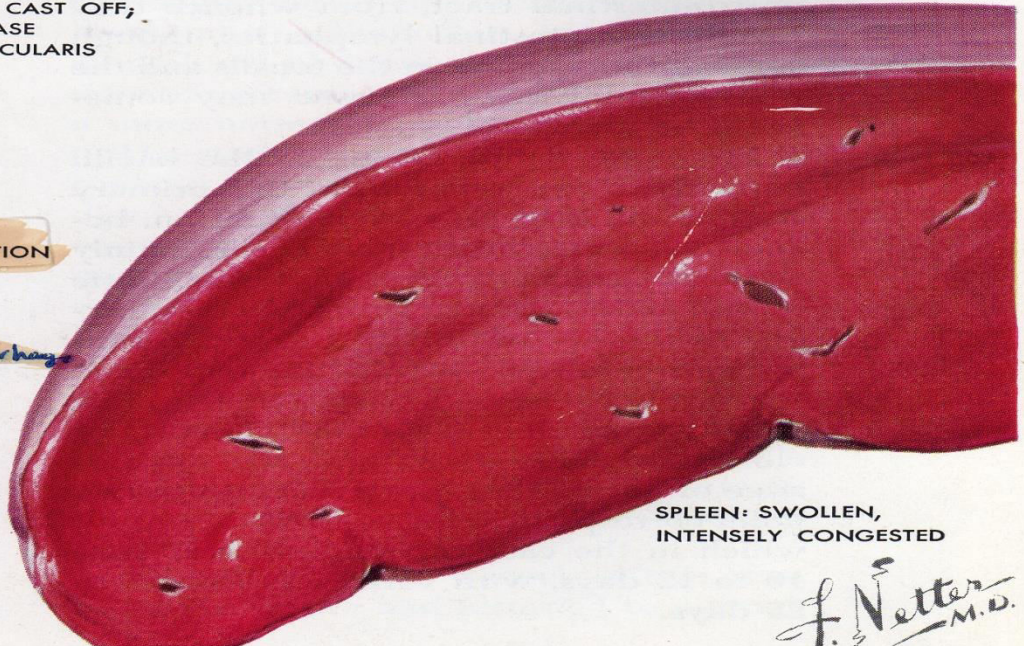
ADVANCED: SLOUGH CAST OFF; ULCER BASE ON MUSCULARIS



MODERATELY ADVANCED: SLOUGHING OF PEYER'S PATCH

PERFORATION

Hemorrhage



SPLEEN: SWOLLEN, INTENSELY CONGESTED

F. Netter M.D.

History *Carcinoid Tumors*

1888 - First described by Labarsch

1907 - Oberndorfer term "Karzinoide" (carcinoma-like, lack of malignant potential or benign features)

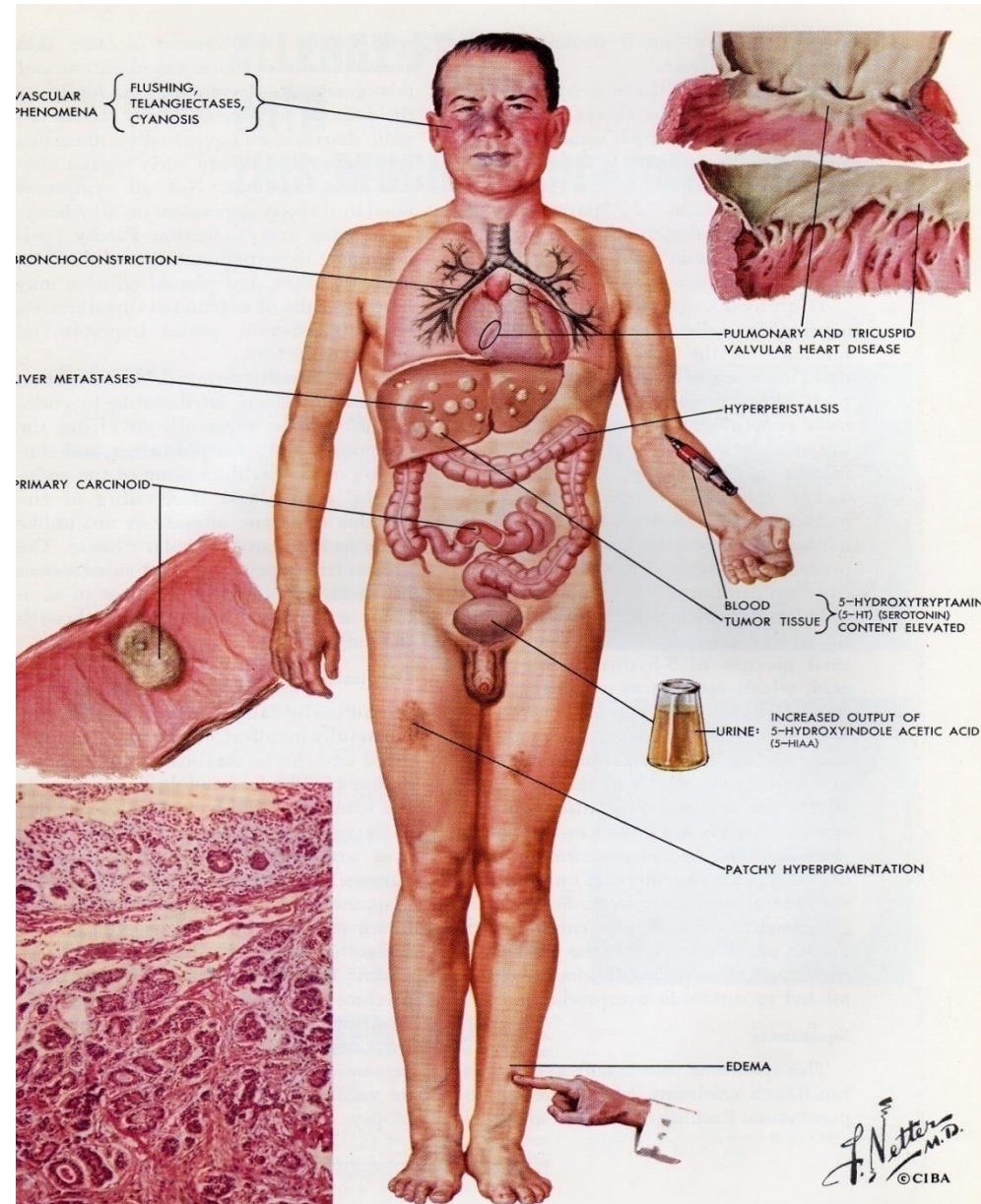
- Arises from **enterochromaffin cells** (Kulchitsky cells) enteroendocrine cell distributed throughout GIT.
 - Ability to stain with potassium chromate (**chromaffin**), a feature of cells that contain serotonin
- Found in crypts of Lieberkuhn (intestinal glands)
- Secretes serotonin among other peptides

Metastatic Carcinoid Tumors: Brief Review

- **Classified** by embryologic origin
 - Foregut (resp tract, thymus, stomach)
 - Midgut (small intestine 28%, appendix 40%, prox colon)
 - Hindgut (distal colon 11%, rectum 16%, GU)
- Small bowel - multicentric
- 10-20% 2nd primary neoplasm

Grossly small, firm submucosal nodules, yellow-tan cut surface

Micro: Well-differentiated, containing small regular cells with rounded nuclei arranged in sheets or alveolar. contain argyrophil granules



Malignant Carcinoid Syndrome

- >90% with carcinoid syndrome have metastatic disease, exceptions are bronchial and ovarian tumors
- Patients with syndrome almost invariably have metastases
- venous drainage from a metastatic tumor in the liver goes directly into the systemic circulation and bypasses hepatic inactivation
- **CLASSIC SYMPTOMS:** 6th and 7th decade,
 - Vasomotor
 - Cardiac
 - Gastrointestinal/ abdominal pain or SBO
- Initial diagnostic test 24-hr urinary 5-HIAA
- Treatment and prognosis dependent on size and location of primary require a multidisciplinary approach in specialized centers,
- Resection increased overall survival 5-yr survival 36%
- Metastases correlate with location and size of tumor

3rd case

- *Compound volvulus in pregnancy* is an uncommon and potentially serious condition .
- Only 73 cases have been reported worldwide.
- The closed loops of bowel become gangrenous in few hours → generalized peritonitis, sepsis and dehydration
- In this case the delay in presentation, occurrence in pregnancy complicate the diagnosis.

Summary

Diagnosis of *ACUTE ABDOMEN* is difficult, challenges even modern diagnostic modalities, and requires a high degree of suspicion

Outcomes improve if the "evil that lurks within the abdomen" is diagnosed and treated early