The Acute Abdomen

The Clinical Situation in which a Pathophysiologic Process of Sudden Onset demands Immediate and Accurate Diagnosis.

Abdominal Pain and Age

- Non-Specific
- Appendicitis
- Biliary
- Obstruction

Components of Diagnosis

- Imaging
- Laboratory
- Physical Exam
- History
ANALGESIA & ANTIBIOTICS

- **ANALGESIA**
  - Generally - Yes
  - Small Doses
  - Aid to Diagnosis

- **ANTIBIOTICS**
  - Generally - No!
  - Never before Diagnosis
  - Confound Diagnosis

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Patient R.L.Q.

- An 18 year old woman reports RLQ pain for 6 hours. No nausea or vomiting. She is in midcycle. Temp = 37°. On exam you note mild RLQ tenderness only.
- WBC = 7,800. No Shift.

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Patient R.L.Q.

- The most appropriate action would be:
  a) Abdominal CT Scan
  b) Appendectomy
  c) Diagnostic Laparoscopy
  d) Observation

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Patient R.U.Q.

- A 42 year old woman comes to the ER with severe RUQ pain for 6 hours accompanied by nausea and one episode of vomiting. No history of similar symptoms.
- BP = 90/70, HR = 138, T = 37.6°.
- WBC = 11,500. HCT = 28%.
**Patient R.U.Q.**

The most appropriate action would be:

a) Admit, IV antibiotics, Lap Chole in AM  
b) Observation, serial exams & labs  
c) Exploratory Laparotomy  
d) 2 large bore IV’s, Type and Cross, Urgent Abdominal Ultrasound

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**Patient M.A.E.**

- A 65 year old man with a 2 hour history of severe abdominal pain of sudden onset and intractable nausea & vomiting. MI 2 months ago. BP = 170/100, HR = 136 and irregularly irregular, T = 37.9°. Exam: abdominal distention, minimal tenderness, no guarding or rebound. WBC = 16,000, HCT = 44%, Amy = 23.

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**Patient M.A.E.**

The most appropriate action would be:

a) Immediate Operation  
b) Abdominal CT Scan  
c) NG Tube, Observation  
d) Arteriogram (CT Angiogram)

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**Laparoscopic Cholecystectomy:**

Which Statement is FALSE:

a) Return to work is much quicker compared to open ‘mini-laparotomy’ cholecystectomy  
b) There is much less postoperative pain compared to open cholecystectomy  
c) It can often be performed as an outpatient procedure  
d) The incidence of injury to the common bile duct is greatly reduced compared to open cholecystectomy
Laparoscopic Cholecystectomy:

Operate on Asymptomatic Patients?
No! Only 11% of patients with gallstones are symptomatic after 15 years
? Galbladder Calcification
Yes! For focal mucosal calcification

Use Dissolution Agents Instead?
No! High recurrence rate. Significant side-effects. High Cost - $1600-2000./yr.

Diagnosis of Acute Cholecystitis - Ultrasound, HIDA Scan, CT Scan, Murphy’s Sign

An 8-year-old boy - 24-hour history of abdominal pain and vomiting. No stool or gas per rectum. Severe, cramping pain, while initially constant, now comes every 15-20 minutes. Diffuse and poorly localized in the lower abdomen and perineum. The most likely location for a positive physical finding in this child would be at:

a) The epigastrium
b) The left abdominal flank
c) McBurney’s point
d) The testes
e) An inguinal ring

True statements about inguinal hernias include which of the following?

a) In premature infants, they are uncommon
b) The risk of incarceration is greatest in older children
c) Pain is a common symptom
d) Following surgical repair, recurrences are frequent
e) In infant girls, the ovary is the organ most likely to herniate

Acute Cholangitis:

Charcot’s Triad:
1. Fever and Chills
2. RUQ Abdominal Pain
3. Jaundice

Treatment
1. Support patient
2. Treat infection
3. Find cause of obstruction
4. Emergency biliary decompression
A 70-year-old man with hematochezia & stable vital signs. Lower endoscopy was unsuccessful due to active, heavy bleeding. Which investigation next?

- a) Small bowel roentgenography
- b) A barium enema
- c) Exploratory laparotomy
- d) Arteriography
- e) A 99mTc blood pool scan

Lower GI Hemorrhage

- Site of Bleeding must be identified
- Role of NG Tube!
- Occult, Slow or Rapid
- Bleeding + Hemodynamic Compromise
  1. Diverticulosis
  2. Angiodysplasia
- Angiography - requires 1-2 ml/min to detect bleeding

An anal fissure in the 2 o’clock position is likely to be a manifestation of:

- a) Local trauma
- b) Carcinoma of the anus
- c) Anal syphilis
- d) Herpes simplex type II
- e) Crohn’s disease

Anal Fissure
**Diverticulosis**
- A disease of the 20th Century
- Strong relationship to low fiber diet
- Most patients are asymptomatic
- 50% of population over 65 years of age
- 2-5% of cases admitted < 40 Yrs.
- Men ~ Women

**Diverticulosis by Age**

**Location of Diverticula**

**Acute Diverticulitis**
- Occurs in 25% of patients with diverticulosis
- 20% of cases will require surgical resection
- Fulminant course in the young and elderly
True statements about diverticulosis of the colon include which of the following?

a) It is generally an acquired rather than a congenital process
b) Lesions occur at the sites where blood vessels perforate the colon wall
c) It occurs most commonly at the hepatic flexure
d) The outpouchings are pseudodiverticula containing only mucosa and serosa

Acute Diverticulitis - Diagnosis

- history of previous episode
- left lower quadrant pain
- low-grade fever
- Leukocytosis
- nausea, abdominal distention
- left lower quadrant mass

60-year-old man with sudden onset of LLQ pain, guarding, fever, and leukocytosis. He appears ill and moderately toxic. Which one of the following would be best to confirm acute diverticulitis?

a) Barium enema
b) Colonoscopy
c) Flexible sigmoidoscopy
d) CT scan

Medical Management

- Bowel rest
- Parenteral antibiotics (2nd Generation Cephalosporin)
- Analgesia
- Close observation
Acute Diverticulitis - Medical

- the majority of patients will respond to conservative management
- complications occur in 20% of patients following the first attack
- if a patient does not improve in 48 hours, consider surgical intervention

Acute Diverticulitis - Surgical Indications

- Perforation
- Fistula formation
- Obstruction
- Recurrent diverticulitis

In a male patient with a polymicrobial UTI, consider the possibility of a colovesical fistula

Accurate statements about diverticular disease of the colon include which of the following?

a) Bleeding is commonly caused by inflammation of the diverticula
b) Anticholinergic medications are of proven efficacy
b) A low-fiber diet is effective in relieving pain
d) The prevalence of the disease is higher in the United States than in developing countries

The treatment of choice for Necrotizing Fasciitis:

a) immediate hyperbaric oxygen therapy
b) high-dose, broad-spectrum antibiotics including anaerobic coverage
c) tetanus antitoxin
d) wide surgical excision and débridement
Necrotizing Fasciitis:

- Predisposing Factors:
  - Impaired Immune System
  - Diabetes mellitus
  - Malignant tumor
  - Alcoholism
- Usually Polymicrobial
- Skin Discoloration
- Thin, watery, grayish fluid - “Dirty Dishwater”
- Crepitus in tissues

Which one of the following is NOT true concerning hand injuries?

- a) A laceration over a knuckle as a result of a fight is the same as a human bite
- b) Arterial bleeding from a lacerated finger means that the digital nerve is cut
- c) A swollen tender finger that hurts when extended is affected by acute suppurative tenosynovitis
- d) Clamping blood vessels whenever possible is an important aspect of treating hand injuries

Which one of the following clinical findings is a diagnostic feature of thoracic outlet syndrome?

- a) A bruit in the supraclavicular fossa with the arm in the neutral position
- b) Digital pallor on exposure to cold
- c) The presence of a cervical rib on x-ray
- d) Obliteration of the radial pulse with the arm abducted to 90°
- e) The prompt appearance of paresthesias and numbness with the arm abducted to 90° and externally rotated

Which one of these patients would meet the criteria for surgical treatment of obesity?

- A) A 44 year old with a BMI of 34 and degenerative joint disease of the knees that significantly limits his ability to walk
- B) A 45 year old with a BMI of 36 and controlled diabetes mellitus
- C) A 55 year old with a BMI of 29 and uncontrolled diabetes mellitus
- D) A 52 year old with a BMI of 29 and sleep apnea
- E) A 48 year old with a BMI of 42 and no other health problems

So what is the MOST DANGEROUS type of bite wound?
69-year-old with severe abdominal pain. No other significant health problems. BP = 110/50; HR = 130. Ultrasonography reveals a 7-cm abdominal aortic aneurysm:

a) When a CT scan shows leakage, but the patient is stable, continuing medical therapy is preferred over surgery
b) If the abdominal CT scan shows no leakage, it may be assumed that aneurysm is not responsible for the pain
c) An abdominal aortic aneurysm is not at risk for rupture until its size exceeds 9 cm
d) He should be taken to the operating room promptly and prepared for immediate surgery while initial fluid resuscitation is started

Abdominal Aortic Aneurysm

- < 5 cm - observe
- 5-7 cm - Elective repair if no symptoms
- > 7 cm - urgent repair
- Mortality for ruptured aneurysm = 50%
- Option: endovascular repair

Most typical of the presentation of an acute dissecting aortic aneurysm?

a) Gradual onset, increasing intensity, vise-like quality, and waxing and waning
b) Abrupt onset, variable intensity, burning quality, relieved by rest
c) Gradual onset, mild intensity, band-like quality, relieved by activity
d) Abrupt onset, rapidly diminishing intensity, stabbing quality, worsened by nitroglycerin
e) Abrupt onset, severe from the start, may radiate to the back
Which one of the following is true regarding arterial insufficiency of the lower extremities:

- a) Ischemic pain at rest typically involves the calf or thigh
- b) Ischemic pain of the lower extremity at rest is usually improved with elevation of the leg
- c) Severe claudication must be managed surgically
- d) Arteriography is necessary before a diagnosis of arterial insufficiency can be established
- e) If the walking distance required to produce pain varies considerably from day to day, causes other than arterial insufficiency should be considered.

A 13-year-old boy with a slightly tender 1.5-cm firm lump in the subareolar space. You also note some sexual development of the genitalia including the appearance of pubic hair. You decide to do which of the following?

- a) Order FSH, LH, and testosterone levels
- b) Order a mammogram
- c) Advise surgical removal of the lump
- d) Advise needle biopsy of the lump
- e) Reassure the patient and his mother

Which of the following is the greatest risk factor for developing breast cancer?

- a) Fewer than 3 pregnancies
- b) Hyperplastic lesions present on breast biopsy (i.e., atypical lobular hyperplasia)
- c) Bilateral postmenopausal breast cancer in the first-degree maternal relative
- d) Bilateral premenopausal breast cancer in the first-degree maternal relative

Breast Cancer – Risk Factors

- Large Increase in Risk (> 4 fold)
  - Increasing Age
  - Family history: 1° relatives; multiple affected relatives; early onset; bilaterality
  - Previous breast cancer
  - Living in North America or Northern Europe
Breast Cancer Presentation

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lump</td>
<td>76%</td>
</tr>
<tr>
<td>Swelling</td>
<td>8%</td>
</tr>
<tr>
<td>Pain</td>
<td>5%</td>
</tr>
<tr>
<td>Nipple Retraction</td>
<td>4%</td>
</tr>
<tr>
<td>Nipple Bleeding</td>
<td>2%</td>
</tr>
</tbody>
</table>

Negative Mammogram

As many as 20% of clinically detected breast cancers will not be detected on mammography!

Fine Needle Aspiration Cytology

- Differentiate cyst vs. solid
- Definitive Rx of cyst
- Obtain tissue for examination
- Rapid diagnosis
- Avoid 2nd surgical procedure

When is FNA Not Adequate?

- Benign cells, but mass & mammogram are suspicious
- Inadequate sample
- Cells stand apart
- Always need to consider sampling error
Fine Needle Aspiration Cytology
- False Positive Rate - 0 - 0.3%
- False Negative Rate - 3 - 15%
- A negative FNA of a suspicious mass does not rule out cancer!

Stereotaxic Core Biopsy
- No anesthetic required
- No surgical scar
- Reliable when adequate tissue sample obtained
- Pt. may still require open biopsy
- Many lesions not amenable to the technique

A 46-year-old white female is found to have a 2-cm breast nodule on physical examination. Which one of the following is the next appropriate course of action?

a) Observation  
b) Sonography  
c) Intraoperative biopsy  
d) Outpatient biopsy  
e) Fine-needle aspiration
A 50-year-old with a firm, fixed, nontender 2-cm breast mass. No axillary nodes are palpable. The mammogram is read as “suspicious” and the stereo-taxic biopsy report reads, “a few benign ductal epithelioid cell and adipose tissue.” Which one of the following would be the most appropriate next step?

a) A repeat mammogram in 3 months
b) Repeat a fine-needle aspiration in 3 months
c) Referral for breast irradiation
d) Referral to a surgeon for simple mastectomy
e) An excisional biopsy of the mass

In patients with breast cancer, the most reliable predictor of survival is:

a) Estrogen receptor status
b) Tumor grade
c) Histologic type
d) Lymphatic or blood vessel involvement
e) Cancer stage at time of diagnosis

Sentinel Lymph Node

The “sentinel” node is the very first lymph node(s) to receive drainage from a cancer-containing area of the breast. If the sentinel node(s) do not contain tumor cells, this may eliminate the need to remove additional lymph nodes in the axillary area. If the pathology report indicates positive sentinel node(s), then additional surgery may be necessary to remove more nodes for examination. Advantage: The potential for side effects such as lymphedema is much lower.

Intramural hematoma of the duodenum. The most appropriate treatment includes which of the following?

a) Exploratory laparotomy with evacuation of the hematoma
b) Gastroenterostomy
c) Duodenal resection
d) Nonsurgical conservative treatment with bowel rest
True statements regarding gastric cancer include which of the following?

a) There is an increasing incidence in the United States
b) It is an extremely rare cancer in Japan
c) The disease is usually well-localized at the time of diagnosis
d) The prognosis for patients with stomach cancer is excellent
e) It is associated with pernicious anemia and achlorhydria

A 39-year-old female has a 6- to 8-month history of fatigue, myalgias, arthralgias, nausea, and constipation. She has been increasingly forgetful. Takes antacids regularly for dyspepsia. Her menstrual pattern is normal. Physical examination is unremarkable.

Laboratory Findings
- Calcium: 12.7 mg/dL (N 8.4 - 11.0)
- Phosphorus: 2.0 mg/dL (N 3.0 - 4.5)
- Albumin: 4.4 g/dL (N 3.5 - 5.5)
- Chloride: 110 mEq/L (N 95 - 105)
- Serum uric acid: 5.3 mg/dL (N 3.0 - 8.2)
- Serum creatinine: 0.9 mg/dL (N 0.6 - 1.2)
- BUN: 10 mg/dL (N 7 - 18)

After obtaining repeatedly elevated levels of parathyroid hormone (PTH), you make the appropriate diagnosis.

Optimal treatment for this patient is:

a) Intravenous plicamycin
b) Psychotherapy
c) Oral phosphate therapy
d) Radiation therapy
e) Surgery

Which one of the following statements is true regarding suture material?

a) Nylon provokes a greater inflammatory response than silk
b) Nylon has better handling characteristics than silk
c) Chromatization of catgut renders it nonabsorbable
d) Polyglycolic acid (Dexon) and polyglactin 90 (Vicryl) are nonabsorbable
e) Monofilament sutures are less likely to harbor bacteria
Questions?