Clinical Pathologic Correlations – Case One

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Case One – History
- 50 year old female
  - Longstanding alcohol abuse
  - Cirrhosis and end-stage liver disease
  - Presents to emergency department
    - CC: Abdominal pain
    - Mental status changes noted by family

Case One – Road Map

Additional History
- Social History
  - Smoker: 1ppd x 30+ years
  - EtOH: still drinks up to five drinks a day

Medications
- Vicodin for "severe pain"
- Levoquin, Prilosec, Buspar, Neurontin, Wellbutrin

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Additional History (continued)

- PMH
  - G1 P0 M0
  - Morbid obesity
  - Longstanding alcoholism
    - Progressive liver failure
  - Chronic lower back pain
  - Disability for bipolar disorder

Additional History (continued)

- PS
  - TAH-BSO & appendectomy, remote
  - Two years pta: admitted for abdominal pain
    - Percutaneous drainage of LLQ
    - "Diverticular abscess"

Characterizing Symptoms

- Unable to communicate or characterize her symptoms

- Patient alert, but confused
  - Oriented to person
  - Knows she's in the hospital, not which one
  - Uncertain of date or year

Characterizing Symptoms (cont'd)

- History per daughter

- Well until 1 day pta
  - Confusion, abdominal pain, and chills
  - Diffuse lower abdominal pain
  - Worsening confusion - 911 called
Review of Systems

Negative
- Chest pain, shortness of breath, wheezing, palpitations
- Dysuria, melena, hematochezia

Positive
- Worsening jaundice, easy bruising

Physical Examination

Afebrile, jaundiced, lying quietly
64”, 305 pounds
Pulse 96, regular
Respirations 30
Blood pressure: 100/54

HEENT
- Scleral icterus
- PERRL

Respiratory
- No wheezes, rales or ronchi

Cardiovascular
- No murmurs

Abdomen
- Distended & obese
- Ascites
  - Fluid wave (?) - obese
  - Abdominal varicies present

Diffuse mild abdominal tenderness
- Greatest in bilateral lower quadrants
- No rebound or guarding
Physical Examination

- Rectal Exam
  - Heme: Negative stool
- Extremities
  - Palmar erythema
  - Bilateral calf swelling with 1+ pitting edema
  - Equal strong pulses bilaterally

Neurological

- As noted
- Features of encephalopathy
  - Depressed consciousness
  - Intellectual impairment

Laboratory Evaluation

<table>
<thead>
<tr>
<th>Test</th>
<th>Result</th>
<th>Normal Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>White Blood Cell Count (WBC)</td>
<td>6.4</td>
<td>4.0-10.0</td>
</tr>
<tr>
<td>Red Blood Cell Count (RBC)</td>
<td>2.35</td>
<td>3.90-5.30</td>
</tr>
<tr>
<td>Hemoglobin (HGB)</td>
<td>8.4</td>
<td>12.0-16.0</td>
</tr>
<tr>
<td>Hematocrit (HCT)</td>
<td>24.0</td>
<td>35.0-48.0</td>
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<tr>
<td>Mean Corpuscular Volume (MCV)</td>
<td>102.0</td>
<td>80.0-100.0</td>
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<tr>
<td>Mean Corpuscular Hgb (MCH)</td>
<td>35.6</td>
<td>25.0-35.0</td>
</tr>
<tr>
<td>Mean Corpuscular Hgb Conc (MCHC)</td>
<td>34.9</td>
<td>30.0-37.0</td>
</tr>
<tr>
<td>Red Cell Distribution Width (RDW)</td>
<td>15.7</td>
<td>11.5-15.5</td>
</tr>
<tr>
<td>Platelet Count (PLT)</td>
<td>16</td>
<td>150-450</td>
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<tr>
<td>Mean Platelet Volume (MPV)</td>
<td>6.9</td>
<td></td>
</tr>
<tr>
<td>Albumin (ALB)</td>
<td>1.5</td>
<td>3.5-4.9</td>
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<tr>
<td>Alkaline Phosphatase (ALK)</td>
<td>200</td>
<td>30-130</td>
</tr>
<tr>
<td>ALT (ALT)</td>
<td>164</td>
<td>0-45</td>
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<tr>
<td>AST (AST)</td>
<td>428</td>
<td>2-35</td>
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<tr>
<td>Calcium (CAL)</td>
<td>7.6</td>
<td>8.6-10.2</td>
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<tr>
<td>Chloride (CHLOR)</td>
<td>98</td>
<td>99-111</td>
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<tr>
<td>CO2 (CO2)</td>
<td>35</td>
<td>24-34</td>
</tr>
<tr>
<td>Creatinine (CREAT)</td>
<td>1.5</td>
<td>0.6-1.0</td>
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<tr>
<td>Glucose (GLUC)</td>
<td>293</td>
<td>73-110</td>
</tr>
<tr>
<td>Potassium (POT)</td>
<td>4.2</td>
<td>3.5-5.0</td>
</tr>
<tr>
<td>Sodium (SOD)</td>
<td>143</td>
<td>136-146</td>
</tr>
<tr>
<td>Bilirubin Total (TBIL)</td>
<td>10.4</td>
<td>0.1-1.1</td>
</tr>
</tbody>
</table>
Addition Tests Obtained

- **INR** - 2.5
  - INR (International Normalized Ratio):
    - ~1 normal
    - 2.3 anticoag therapy
    - 2.5-3.5 anticoag for heart valve patients

- **O₂ Saturation** - 96% on room air

Abdominal Ultrasound

- **Findings:**
  - Markedly suboptimal due to diffusely echogenic liver and patient body habitus. Margins of the liver are not clearly discerned. No evidence for ascites. In the mid-lower abdomen, there is a 9 x 11 x 7 cm heterogeneous mass with indistinct margins and small internal echogenic foci, likely representing air.
  - **Impression**
    - Markedly suboptimal exam of the abdomen due to patient body habitus and bowel gas artifact.
    - Mid-lower abdomen heterogeneous mass likely containing air. The finding is nonspecific, though an abscess is favored.
    - Echogenic liver consistent with hepatocellular disease.

Hospital Course

- **Patient admitted to GI-Liver Service**
  - **Plan:**
    - CT guided aspiration of mass
    - Address coagulopathy issues first

- **While performing intake H&P...**
  - Sudden onset of agonal breathing...
  - PEA arrest... unsuccessful resuscitation
Differential Diagnosis

What do you think happened?

Autopsy Findings

- Generalized icterus
- Hepatomegaly
  - 3990 grams, yellow and firm
  - Micronodular cirrhosis
- Anterior pelvic abscess (5x5cm)
  - Para-colonic, probably diverticular
  - Associated "dusky" small bowel

Autopsy findings (cont'd)

- Heart weight = 560g
- Right ventricular thrombo-embolus
- Numerous pulmonary thrombo-emboli in small and medium vessels

From Robbins Textbook of Pathology, 6th Edition
Additional Autopsy “Discovery”

- Wedge shaped infarction of right lower lobe of lung
- Bilateral deep venous thromboses
  - Organizing thrombi of both popliteal veins

Saddle Embolus - Example

From Robbins Textbook of Pathology, 6th Edition
Cause of Death

- IA
  - Multiple pulmonary emboli
  - Right ventricular thrombus
- IB
  - Bilateral deep venous thromboses
- II
  - Alcoholic liver disease
  - Abdominal abscess

Points to consider

- Significance of coagulopathy in liver disease
- The role of medical autopsy