Perforated Peptic Ulcer

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Major Case Study
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Objectives

- Case Report
  - General Information
  - Social History
  - Medical History
  - Nutritional History
  - Medical Course of the Patient
- Case Discussion
- References
- Questions

General Information

The Patient: JB

72 year old male admitted with a chief complaint of fatigue. H&P assessment:

- Warm Antibody Autoimmune Hemolytic Anemia
- Acute kidney injury
- Hypertension
- Type 2 diabetes
- Hyperlipidemia

Total hospital stay:
19 days

Medical History

JB's medical history includes:

- Warm Antibody Autoimmune Hemolytic Anemia
- Hypertension
- Type 2 Diabetes Mellitus
- Dyslipidemia
- Diabetic Amyotrophy

Surgical History

JB's surgical history includes:

Prior to this hospital admission, JB's surgical history included removal of his wisdom teeth.

At-Home Medications

JB was admitted with the following medications:

- Folic Acid 1 mg po
  Antianemic
- Prednisone 130 mg po
  Immunosuppressant, anti-inflammatory
- Metoprolol 50 mg po
  Antihypertensive, antiangina, CHF

At-Home Medications (continued)

- Lisinopril 10 mg po
  Antihypertensive
- Amlodipine 10 mg po
  Antihypertensive, antiangina, Ca channel blocker
- Novolog 3 x 10 units injection
  Antidiabetic, hypoglycemic
- Lipitor 40 mg po
  Antihyperlipidemic

Nutritional History

JB's nutritional history includes:

- Adequate intake prior to admission.
- Two meals daily + snacks.

- Denied following any particular diet.
- Denied checking blood glucose levels at home.

- UBW: 270 lbs.
- Intentional weight loss of 30 lbs over 12 months.

Physical Examination

JB's Physical Exam in the Emergency Department:

- Alert and oriented x3
- Abdomen: soft; bowel sounds present
- No visible edema

- Weight: 270 lbs (122.7 kg)
- Temperature: 35.8º C (96.4ºF)
- Blood Pressure: 128/73 mmHg
- Pulse: 77 bpm

Diagnostic Lab Values

Data obtained in the Emergency Department:

Hgb	6.2 (**L**)	*14-18 gm/dL*
Hct	17.4 (**L**)	*42-52%*
RBC	1.73 (**L**)	*4.7-6.10 m/uL*
WBC	14.3 (**H**)	*4.8-10.8 k/uL*
BUN	33 (**H**)	*8-20 mg/dL*
Cr	1.78 (**H**)	*0.9-1.3 mg/dL*
Glucose	245 (**H**)	*75-99 mg/dL*

Medical Treatment - Treatment Plans

H&P Assessment and Plan:

- Warm Antibody Autoimmune Hemolytic Anemia
  - Begin Rituxan
  - Begin IV Solu-Medrol
  - Consult with Dr. Markan (oncologist)
  - Transfuse 2 units packed red blood cells

Medical Treatment - Treatment Plans

H&P Assessment and Plan (continued):

- Acute kidney injury
  - Follow up on basic metabolic profile.
- Hypertension
  - Continue home doses of Metoprolol, Lisinopril, Amlodipine.
  - Hold Lisinopril if Cr lab values increase.

Medical Treatment - Treatment Plans

H&P Assessment and Plan (continued):

- Type 2 Diabetes
  - Begin SSI.
  - Continue home dose of NovoLog.
  - Noted: Solu-Medrol may increase blood glucose levels.
- Hyperlipidemia
  - Continue home dose of Lipitor.

Medical Treatment - Timeline

- **Day 1**: Blood transfusion. Rituxan initiated. Carb Controlled Diet
- **Day 2**: “Severely anemic again” despite taking Prednisone, suggesting refractory hemolytic anemia.
  - c/o weakness, reduced appetite. Received 2.4 L NS.
- **Day 3**: PICC inserted for IV access and blood draws.
  - c/o weakness, emesis. Received 2.4 L NS.
  - Improved labs d/t IV fluids.
- **Day 4**: c/o weakness, nausea. Zofran administered.

Medical Treatment - Timeline

- **Day 5**: c/o lower belly and abdominal pain.
  - Transfusion and Rituxan.
- **Day 6**: c/o abdominal discomfort, weakness. NS 3.6 L. NPO for tests
  - XR & US of abdomen, CT of chest, abdomen, pelvis: normal.
- **Day 7:** c/o nausea. NS 3.6 L. Carb Controlled Diet
  - Episodes of emesis overnight.
  - Cr WNL.

Medical Treatment - Timeline

- **Day 8**: c/o nausea, weakness. NS 3.6 L.
- **Day 9**: c/o nausea, abdominal pain. NS 3.6 L.
  - Transfusion and Rituxan.
  - Discharge if Hbg continues trending up.
- **Day 10**: c/o nausea, abdominal pain. NS 3.6 L.
  - Hbg improved- begin Azathioprine.
- **Day 11**: c/o fatigue. Anemia is stable, taper steroids.

Medical Treatment - Timeline

- **Day 12**: c/o abdominal pain, nausea, fever (38.2ºC), wheezing, shortness of breath. NPO for tests
  - XR of chest: suspected pneumothorax.
  - CT of abdomen, pelvis with contrast: intraperitoneal free air under diaphragm; etiology includes perforated gastric ulcer.
  - Oncology note: autoimmune hemolytic anemia responding to Rituxan. CT scan may represent pneumoperitoneum.

Medical Treatment - Timeline

- **Day 12 (continued)**
  - Surgery consult: Possible perforated ulcer given Prednisone use.
  - Exploratory laparotomy
    - Intubated. Repair of 5 mm perforated pyloric channel ulcer, via Graham patch. Extubated, reintubated to protect airway.
    - NG tube placed, no blood loss.
    - Post-op: elevated BUN (42), Cr (3.13), WBC (19.2)

Medical Treatment - Timeline

- **Day 13**: remains intubated. NS 1.8 L.
  Two units blood transfused overnight.
- **Day 14**: extubated. Stable.
  Initial nutrition assessment.
- **Day 15**: NG tube discontinued. Clear Liquids
  JB reports feeling well. Rituxan administered.
- **Day 16**: ambulating. NS 1.8 L.

Medical Treatment - Timeline

- **Day 17**: stable. NS 1.8 L. Full Liquid Diet
  Follow up assessment.
- **Day 18**: renal status improving. NS 1.8 L.
  Cardiac Diet
  Tapering Prednisone.
- **Day 19**: JB feeling well; consuming >50% of meals.
  Discharged home with PICC for continued Rituxan treatment.

Nutrition Therapy - Initial Assessment

Initial Nutrition Consult, 2/26/14 (Hospital Day 14)

Focus

Patient NPO x3 days.

Diet advancement supporting post-op nutrition needs.

Nutrition Diagnosis

Inadequate oral intake related to repair of pyloric ulcer as evidenced by NPO status x3 days with limited po pre-op for 10+ days .

Nutrition Prescription

Macronutrient Requirements

Based on the protocol followed by the dietitians of UM Baltimore Washington Medical Center.

- 2257 - 2667 kcal (Mifflin x 1.1 - 1.3)
- 96 - 121 gm protein (1.2 - 1.5 gm/kg, based on IBW)
- 2200 - 2600 mL fluid (1 mL/kcal)

Given JB's advanced age, protein intake of 1.0 - 1.2 gm/kg would be appropriate. Intake was further increased to promote healing surgical incision and peptic graft.

Nutrition Therapy - Initial Assessment

Initial Nutrition Assessment, 2/26/14 (Hospital Day 14)

Nutritional Goal

Diet is advanced from NPO to clear liquid within 24-48 hours (2/28).

Nutritional Interventions

Meals and Snacks: Clear liquid diet (by 2/28) advanced within 72 hours (3/3) to carbohydrate controlled/cardiac.

Nutrition Therapy - Follow Up

Follow Up Assessment, 3/1/14 (Hospital Day 17)

Current Diet Order: Full liquid diet

Initial assessment goal was met: pt advanced to clear liquid diet 2/27.

Follow Up Focus

Diet advancement supporting post-op nutrition needs. Pt's status was stable.

Nutrition Therapy - Follow Up

Follow Up Assessment, 3/1/14 (Hospital Day 17)

Nutrition Diagnosis

Inadequate oral intake related to current diet order (full liquid diet) as evidenced by insufficient caloric content to meet 75% of estimated energy needs for patient.

Nutritional Goals

Diet is advanced from full liquid diet to carbohydrate controlled high, cardiac within 48 hours (3/3).

Nutrition Therapy - Follow Up

Follow Up Assessment, 3/1/14 (Hospital Day 17)

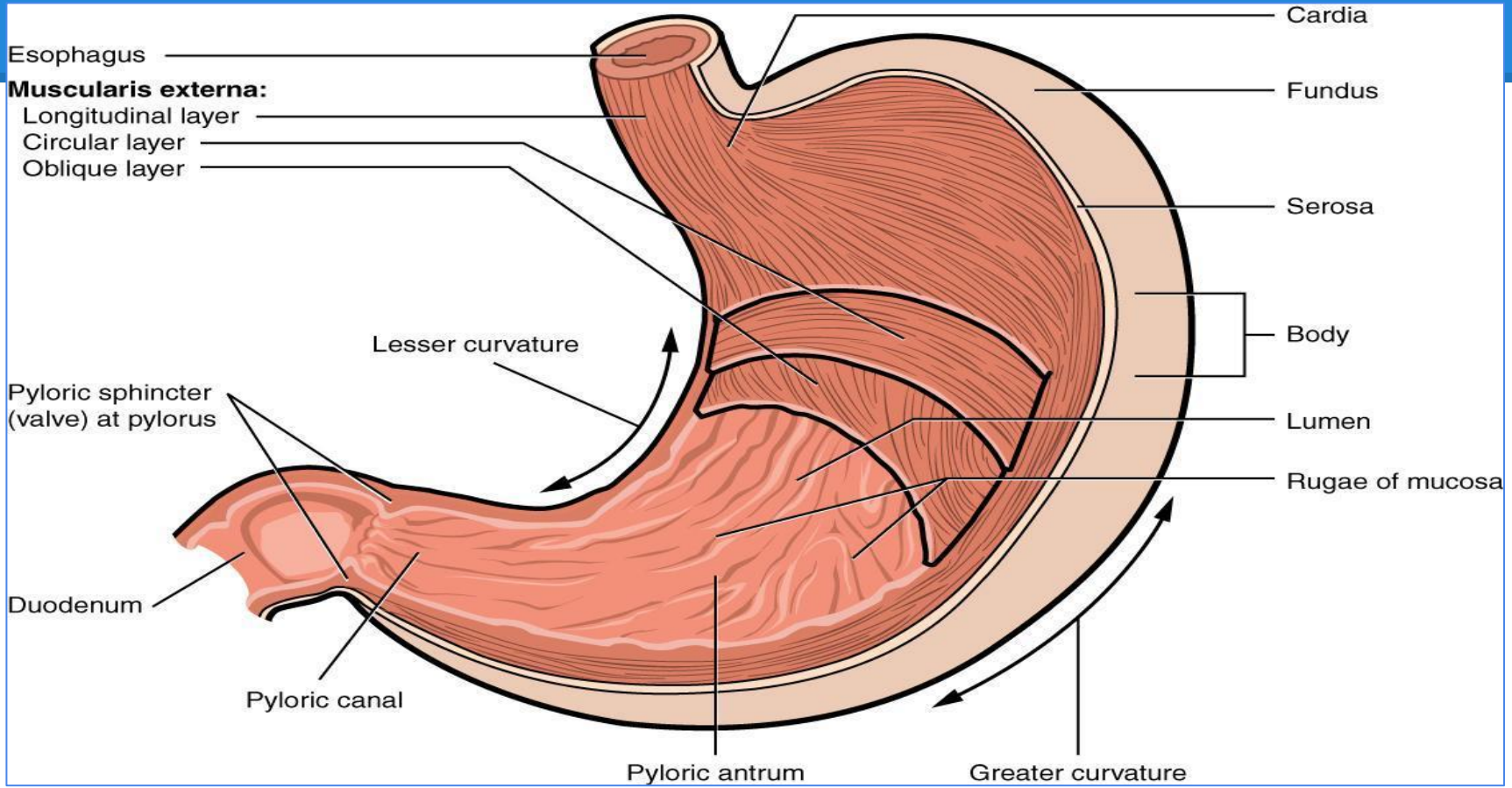
Nutritional Interventions

Meals and Snacks: Advance to carbohydrate controlled high/cardiac diet within 48 hours or as medically feasible.

Follow Up Assessment Goal

Goal not met: pt advanced to cardiac diet 3/2.

Case Discussion: Stomach Anatomy



Case Discussion: Peptic Ulcers

Causes of Peptic Ulcers and subsequent Perforation

- Heliobacter Pylori (*H. pylori*)
- Corticosteroids
- NSAIDs
- Alcohol
- Stress
- Impaired blood supply to area
- Obesity?

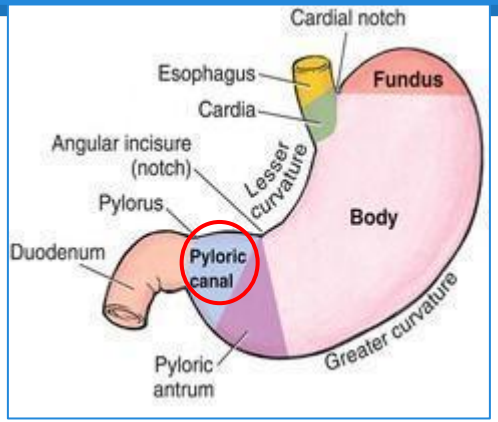
JB had received large doses of Corticosteroids

Case Discussion: CAM Approaches

- Cranberry capsule
- Mastic extract
- DGL-licorice
- Homeopathy
- Probiotic supplement
- ? Vitamin C (500-1000mg)

JB did not utilize CAM

Case Discussion: Perforated Ulcer



Perforated Peptic Ulcer

A hole that penetrates all layers of the lining of the pyloric canal.

- Origin: peptic ulcer.
- Perforations allow gastrointestinal contents to leak into peritoneal cavity and surrounding area.
- Result in medical emergencies.
- 30-day mortality risk: 23.5%

Image: http://quizlet.com/2882079/liver-celiac-trunk-stomach-spleen-flash-cards/

Case Discussion: Perforated Ulcer

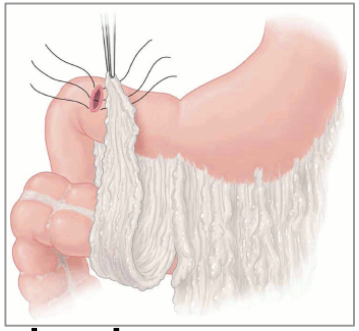
Perforated Peptic Ulcer

Symptoms suggesting perforated ulcer & need for surgery:

- Elevated WBC
- Abdominal pain
- Fluid in the upper abdomen
- Free air under diaphragm (chest x-ray)
- Free air or extravasation of contrast from the stomach (CT scan)

Case Discussion: Perforated Ulcer

Perforated Peptic Ulcer - Medical Interventions



Surgical

Graham Patch

No-Surgical

- IV fluid resuscitation, antibiotics, acid-reducing medications, and nasogastric suction.
- Candidates: pt's with <24 hours abdominal pain, <70 years of age, few comorbidities, and contrast extravasation indicating a closed perforation.

Photo: http://www.acssurgery.com/acssurgery/secured/figTabPopup.action?bookId=ACS&linkId=part05_ch08_fig1&type=fig

Case Discussion: Hemolytic Anemia

Autoimmune IgG Type Warm Antibody Hemolytic Anemia

When red blood cells are attacked by antibodies made by your own immune system. *Warm*: antibodies are active at warm temperatures (body temperature).

- Unknown cause.
- 50% of all cases of anemia are autoimmune hemolytic anemia.
- Treatment options: blood transfusions, medicines, plasmapheresis, surgery, blood and marrow stem cell transplants, and lifestyle changes.

Case Discussion: Hemolytic Anemia

Autoimmune Warm Antibody Hemolytic Anemia- JB's Medical Treatment

- Blood transfusions
- Medicines:
  - Prednisone
    - Corticosteroid
    - JB found to be refractory to Prednisone
  - Rituxan
    - Monoclonal antibodies (same as those used in cancer treatment)

Active Issues Upon Discharge

Upon discharge, JB's active issues included:

- Anemia
- Hypertension
- Diabetes Mellitus
- Hyperlipidemia
- Diabetic amyotrophy
- Dyspnea on exertion
- Atrial Fibrillation
- Syncope

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Questions?

Thank you for all of your support and for such a great clinical experience!!