

# General Surgery

What you don't want to miss, and  
what to do if you do!

# Objectives

1. Gain an approach to rounding on surgical patients, with emphasis on general observation, bedside physical exam, recognition of peripheral lines and drains, and changes in vital signs
2. Develop a dynamic differential for common abnormal labs and vital signs
3. Recognize and have an approach to the initial management of septic shock
4. Understand the concept and risk factors of anastomotic leaks with main focus on the bowel

# Our patient

- 65 y.o. male diagnosed recto sigmoid tumor, scheduled for an open low anterior resection
- **PMHx:** Emphysema, HTN, MI, DM2
- **Home meds:** combivent, Ramipril, ASA, metoprolol, Metformin
- **BMI:** 35
- **Allergies:** NKDA
- **Social Hx:** smoker, 25 pack years
- **Relevant Pre-op bloodwork:** Hb=130, Cr =55, Hbg A1C= 8
- **Pre-op Vitals:** BP 130/80, HR 75, RR 18, temp 37C, O2 sat 95% on RA

# POD # 1 – Open Anterior Resection

- Patient
  - no complaints, pain controlled, no flatus, abdomen soft, no BS, midline incision and dressing not saturated
- Blood work pending
- Vitals
  - BP=100/70, HR=75, RR=15, O2 sat = 95% on 2L O2, U/O = 300 in the last 8 hrs
- Lines
  - Epidural for pain
  - Foley Catheter while epidural is in
  - IV
  - Central Venous Line (CVL) - Right IJ
  - JP drain in pelvis

- Later that afternoon you receive a page, “patient temp 38.5 C”
- What do you want to know?
- What are our potential sources of infection?
- Likely cause?
- What would you like to do?

# Sepsis Factoids

- In the U.S., sepsis accounts for ~ 5.2% of hospital expenditures (>20 billion \$/year)
- Between 1999 and 2014 >2,470,666 with sepsis on the death certificate
- Sepsis/severe sepsis account for 25-50% of in-hospital mortality
- Surviving patients have increase in chronic complications, high cost of care, morbidity, and decreased quality of life

# Systemic Inflammatory Response

- Explain the systemic inflammatory response, and add visual aid/video

# What is Sepsis

- “A systemic, deleterious, host response to infection leading to severe sepsis(acute organ dysfunction secondary to documented or suspected infection) and septic shock (severe sepsis + hypotension not reversed by fluid resuscitation
- Severe sepsis – sepsis + sepsis induced organ dysfunction or tissue hypoperfusion



Sepsis vs SIRS ... whats the difference?

# Diagnostic Criteria for sepsis

- Add table... pg 585

# Severe Sepsis

- Add table... page 586

# POD # 2-7

- Fairly unremarkable, epidural and foley have been d/c'd
- Vitals are stable, O2 sats 94% now on RA, temps 37-37.5, restarted home meds
- Urine output is adequate for his weight
- Patient has no acute complaints, but has developed a prolonged Ileus and has been started on TPN for nutrition via CVL with TFR of 125 cc/hr
- NPO except PO meds.
- O/E – abdomen is distended but still soft, faint BS, no guarding/rebound, JP serosang
- WBC trending down, minimally elevated at 12 on POD #4

# Management of sepsis – Initial Resuscitation

## Goals

- 1. Urine output > 0.5ml/kg/hr**
- 2. MAP >65mmHG**

$$\text{MAP} = (2 \times \text{DBP} + \text{SBP}) / 3$$

\*Target resuscitation to normalize lactate levels as a marker of tissue reperfusion

# What do we do

IV access (where, bore size)

IVF (rate)

Bolus

Foley (in situ, need to measure for goal)

ABG (lactate)

Diagnosis (Blood cultures, U/A, CXR, CT abdo)

If CVL is suspected as source, get peripheral access first then remove, send tip for culture as well

Antibiotics (discuss choice, give after blood cultures drawn)

- After 2 1L bolus' and increased IVF rate, the patient hasn't responded, BP is still in his boots, and U/O remains low
- What else can we use? (albumin)

# To be completed within 3 hours....

- Add table page 591
- Add results/tables from paper (delay within 3-hour surviving sepsis campaign guideline on mortality for patients with severe sepsis and septic shock)



# Back to our patient ... POD # 8

- It's late in the morning, you haven't been up to do rounds yet as you're scrubbed in for a long case, and you receive a page "patient WBC 16, please call"
- What do you want to know?
- What has changed?
- What do you want to do?
- DDx?
- Antibiotics not initiated at this time, you order a U/A and CXR

# Later in the afternoon...

- As you onto the ward, a concerned nurse reports that his temp is now 39.2, he doesn't look well and very diaphoretic

# You go to see the patient... On examination

- What are you looking for?
- What do you want to do?

# Anastomotic leaks

- Epidemiology
  - 2-7%
  - Lowest leak rate in ileocolic anastomoses (1-3%)
  - Highest in coloanal anastomoses (10-20%)
  - Most become apparent 5-7 days post-op

# Risk Factors

Distance from anal verge – highest incidence within 5 cm of anal verge

Anastomotic ischemia – blood flow, mobilization, microvascular disease (DM2)

Male gender – narrow pelvis

Obesity

## **Controversial evidence**

Neoadjuvant radiation

Drains

Nutritional status

NSAIDS

Steroids

# How to clinical suspected an anastamotic leak

- Pain
- Fever
- Tachy
- \*\*\* peritonitis
  - What are peritoneal signs?
- Feculent drainage
- Purulent drainage

# Imaging

- CT scan
- Gastorgraffin enema (if available at your facility) aka water soluble contrast enema