

## Post-Operative Intra-Abdominal Abscess

A 59-year-old male with history of liver cirrhosis presents to the Emergency Department following a ventral hernia repair three weeks ago with worsening severe abdominal pain and swelling around the incision site with associated erythema and cloudy output from the JP drain for the last 4 days. He also complains of nausea, vomiting and diarrhea for the past 3 days.

Initial vital signs are as follows:

Temp: 99.2F  
HR: 68 bpm  
BP: 138/85 mmHg  
RR: 18 breaths/min  
SpO<sub>2</sub>: 97%

On physical examination patient is A&O x 4. His abdomen is exquisitely tender to palpation at the incision site with surrounding erythema. The site is also warm to touch. The JP drain has 8 cc of purulent fluid. Initial laboratory results are shown to the right. What is the next best step in management?

- A. CT abdomen/pelvis with IV contrast**
- B. Lipase level**
- C. X-Ray abdomen/pelvis**
- D. Immediate I&D**



Figure 1. Photo of patient's abdomen with surrounding erythema (taken with permission from patient).

### Initial labs:

WBC-  $7.16 \times 10^3$   
RBC-  $3.47 \times 10^6$   
Hemoglobin- 11.7 g/dL  
Hematocrit- 34.4%  
Platelet-  $118 \times 10^3$   
Sodium- 135 mmol/L  
Potassium- 3.3 mmol/L  
Glucose- 97 mg/dL  
AST- 48 units/L  
ALT -12 units/L  
Bili total- 2.2 mg/dL

Correct Answer:

**A. CT abdomen/pelvis with IV contrast**  
**Imaging of the recent surgical site is helpful in evaluation of post operative abscess as in this case.**

B. Lipase level is not indicated in cases of suspected surgical site infections associated with ventral hernia repairs

C. X-ray of the abdomen is not helpful in establishing a diagnosis of an intraabdominal abscess.

D. I&D will be deferred until the CT results confirm abscess and consultation with the surgeon who did the hernia repair.



Figure 2. Patient's CT report with the following findings:  
POST-OPERATIVE CHANGES COMPATIBLE WITH VENTRAL ABDOMINAL HERNIA REPAIR. THERE IS A FLUID COLLECTION ALONG THE SURGICAL SITE WITHIN THE SOFT TISSUES OF THE ANTERIOR ABDOMEN SUSPICIOUS FOR ABSCESS. THERE IS A PERCUTANEOUS DRAINAGE CATHETER ALONG THE SURGICAL SITE. 2. CIRRHOTIC LIVER WITH SEQUELA PORTAL HYPERTENSION INCLUDING SPLENOMEGALY AND MULTI-STATION VARICES. 3. COLONIC DIVERTICULOSIS WITHOUT DIVERTICULITIS.

## Discussion

Intra-abdominal abscesses can arise for a variety of reasons, most commonly due to inflammation or disruption of the gastrointestinal tract (either organic or iatrogenic). Urinary and gynecologic sources are less common.

Abscesses within the abdominal region are usually polymicrobial and anaerobic. Thus, antibiotic coverage is critical in these patients. Generally, surgical drainage is required (either using an open approach or percutaneously).

Surgical site infections are highest with abdominal procedures and procedures that involve implanted devices. As many as 50% of procedures that use an implant are associated with a surgical site infection.[1]

Patients with impaired wound healing, recent hospitalization, remote infections, or immunodeficiency are at an increased risk for a surgical site infections.

Common measures to reduce the risk or surgical site infections include prophylactic antibiotics, adequate skin preparation and overall sterility during the procedure. During the procedure, achieving homeostasis, removing dead tissue irrigating with saline and closing the wound without tension are all techniques that lessen the chance of surgical site infections.

Ultrasound is useful in identifying pathogenesis in subcutaneous tissue. CT is recommended for evaluation of deeper surgical site infections.

## Treatment

Management of these patients are divided into deep versus superficial surgical site infections. Superficial surgical site infections can be explored in the Emergency Department by opening the wound and irrigating the wound with saline with bedside debridement if needed.

Deeper surgical site infections are those extending beyond the subcutaneous fat and require intervention in the operating room due to the increased risk of evisceration.[2]

Antimicrobial therapy is determined by the location, presence or absence of systemic infection, and comorbidities. If there is surrounding erythema concerning for cellulitis, or systemic symptoms, antibiotics are required.[3]

Various wound closure techniques are used after wound exploration procedures ranging from open wound care to wound packing based on location and severity of the patient's symptoms.[4]

## Take Home Points

- **An infection near the surgical site within 30 days is deemed a surgical site infection (SSI).**
- **Impaired wound healing, poor surgical preparation and poor surgical technique are risk factors for SSI.**
- **Superficial surgical site infections are treated via superficial wound exploration in addition to antibiotics if cellulitis is present.**
- **Deeper surgical site infections require further imaging and operative wound debridement and antibiotics for proper treatment.**

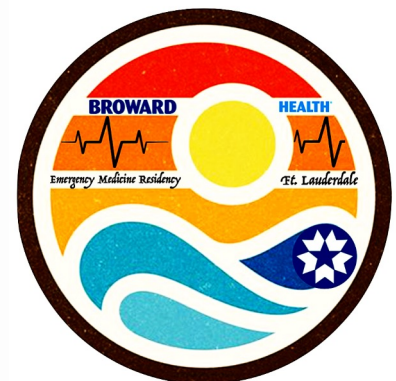


### About the Author

Marissa Martin is fourth year medical student and attends the American University of the Caribbean School of Medicine. Marissa plans to apply to Emergency Medicine.

### References

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