Flank Pain and Fever in a 30 Year Old Female

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CHIEF COMPLAINT

Fever, bilateral flank pain

HISTORY OF PRESENT ILLNESS

- **30 year old female nurse with no past medical history presents with fever (Tmax 100.5 degrees F) and mild bilateral flank pain without dysuria or hematuria.**
- **The patient has no history of nephrolithiasis.**
- **She also notes a pruritic erythematous rash starting in her chest and moving peripherally over 3 days.**
- **Two days ago she underwent an incision and drainage of a Bartholin cyst abscess and finished a course of levofloxacin and trimethoprim-sulfamethazole prior to the procedure.**
- **Patient also complains of progressively worsening dyspnea for 1 day. No cough, chest pain, or pleurisy.**
- **No history of DVT, PE, major surgery, immobilization, smoking, hemoptysis, or malignancy.**

IMAGES

Na	129
K	3.7
Cl	97
CO2	10
Anion Gap	26
Glucose	538
BUN	8.3
Creatinine	1
WBC	8.8
RBC	6
Hgb	15
Hct	48
Platelet	134
Lactate	2

FIGURE 1

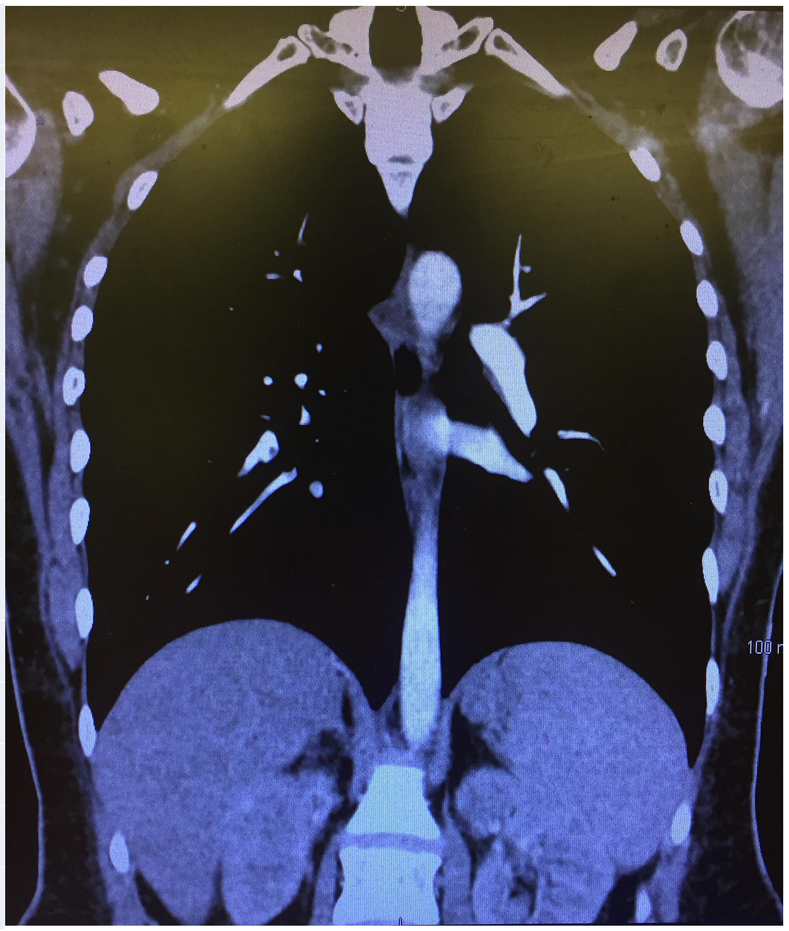

FIGURE 2

REVIEW OF SYSTEMS

- **Positive for fever, chills, rash, shortness of breath**
- **Negative for sore throat, chest pain, abdominal pain, nausea, vomiting, diarrhea, dysuria, hematuria, headache, substance abuse, vaginal drainage**

PHYSICAL EXAM

- **VITALS: Pulse 119, RR 20, 109/66, 100% on room air. BMI 24.3**
- **GENERAL: Mild distress, well-groomed**
- **CV: Tachycardic, regular rhythm, no m/r/g. No edema. 2+ radial b/l.**
- **RESP: CTA bilaterally, BS equal**
- **NECK: No JVD, trachea midline**
- **BACK: No CVAT b/l**
- **GU: 2 cm incision to lower left labia, no erythema, fluctuance, or drainage**
- **NEURO: Moving all four extremities, A&Ox4, normal speech**
- **SKIN: Erythematous maculopapular rash on arms and chest, slightly blanchable**

ED COURSE

- **Given the patient's fever, tachycardia, and recent infection, a septic workup was initiated.**
- **Diphenhydramine, methylprednisolone, and famotidine were given for the rash, which was thought to be drug-induced. This provided some relief.**
- **The first studies to result were the urinalysis and BMP, which revealed a glucose of 538 mg/dl and urine glucose of 500 mg/dl.**
- **As such, a DKA workup revealed serum ketones, pH of 7.1, and anion gap of 26. Urinalysis, chest x-ray, and CBC revealed no signs of infection**
- **After correcting the anion gap and initiating an insulin infusion, the patient's symptoms did not abate. Given her persistent tachypnea, which were initially thought to be Kussmaul respirations, a D-Dimer was ordered.**
- **After resulting at 550 ng/mL, a CTA of the chest revealed multiple bilateral pulmonary emboli with signs of mild right heart strain.**
- **Patient was placed on heparin and admitted to the ICU.**

CASE DISCUSSION

- **This patient with no past medical history or risk factors for pulmonary embolus presented with a constellation of symptoms commonly associated with sepsis.**
- **In this case, the likely source of infection was initially thought to be the urinary tract. However, flank pain can be an uncommon presentation of pulmonary embolus.**
- **Case reports reveal PE discovered in patients receiving CT stone series, which uncovered pulmonary abnormalities.**
- **Additionally, Mature Onset Diabetes of the Young (MODY) can manifest in adult patients and possibly result in DKA.**
- **Infection is a leading trigger of DKA, and given this patient's recent abscess, may have been the precipitating event for this cascade of pathology.**
- **Additionally, diabetes results in decreased protein C and protein S, in addition to increased von Willebrand Factor. The end result is a hypercoagulable state in these patients.**
- **Hypertonicity and volume depletion completes Virchow's Triad, setting the stage for PE/DVT.**

CLINICAL PEARLS

- **Consider pulmonary embolism as a cause for flank pain in a patient with dyspnea, tachypnea, or hypoxia.**
- **DKA can occur in adult patients with undiagnosed MODY and no previous diabetic history.**
- **Infection is a common trigger of DKA.**
- **Be wary of PE/DVT in patients with DKA.**
- **Confounders, such as the rash and recent infection in this patient, can complicate the diagnostic picture in an undifferentiated patient. Maintain a broad differential diagnosis in these cases**