"What's causing this pain?"

David Yue, MD

Laura, 74, presents to the office with a two-week history of increasing sharp pain from mid-back radiating to both sides of the abdomen. The pain has shifted to the right upper abdomen in the last 24 hours.

She takes propoxyphene, but pain is not relieved. She denies any nausea or vomiting. She does mention she is constipated and that her last bowel movement was three days ago.

The patient denies any cough, fever or dyspnea. There is no urinary frequency or dysuria.

On exam, Laura is sitting up and in distress.

Laura's vitals and exam results

Vitals

- Temperature: 36.4 C
- Pulse: 68 beats per minute
- Respiratory rate: 22 breaths per minute
- Blood pressure: 136/72 mmHg

Exam

- No jaundice
- Head and neck exam: Unremarkable
- Cardiothoracic exam: Normal breath and heart sounds
- Abdominal palpation: Does not show any organomegaly or tenderness
- Bowel sounds: Normal
- Tenderness on palpation of the right, mid-lateral back and right flank

Laura's past medical history

- No history of peptic ulcer or gallstones
- Left breast carcinoma resection 10 years ago
- There is documentation of a left pleural effusion 10 years ago and pulmonary metastases eight years ago
- Pathologic fracture of the right femur, which required open reduction and internal fixation
- Post-operative deep vein thrombosis
- Cancer is largely contained to the bones
- Has had radiation therapy to the right femur, T8-L1, L4-L5, both SI joints and right iliac crest in the last few years
- Hypertension
- Type 2 diabetes and hypothyroidism
- An abdominal ultrasound performed five months ago showed an abdominal aortic aneurysm of 2.7 cm in maximum transverse diameter

Laura's medication profile

- Anastrozole
- Oral clodronate
- Warfarin
- Acarbose
- Metformin
- Glyburide
- Rosiglitazone
- Metoprolol
- Enalapril
- Hydrochlorothiazide
- Levothyroxine sodium
- Propoxyphene

What's your diagnosis?

a) Pulmonary embolism
b) Pyelonephritis
c) Vertebral compression fracture
d) Kidney stone

Answer:
Vertebral compression fracture

Laura's abdominal X-rays show a very large volume of feces throughout the colon and rectum, but no other intra-abdominal or retroperitoneal abnormality.

Chest X-ray (CXR) shows diffuse osseous demineralization consistent with osteoporosis with two sclerotic vertebrae (likely T9 and T10) with associated wedge compression fracture. There is loss of clarity of the lateral margin towards the inferior aspect of the body of the right scapula, suggesting a further lytic osseous destructive lesion.

There is no parenchymal mass or pleural effusion.

Laura's symptoms are caused by neuropathic pain from the vertebral metastases and the adjacent nerve root compression.

She is started on oxycodone, one tablet every four hours for pain control, and ciprofloxacin hydrochloride, 250 mg twice daily for five days, for possible urinary tract infection.

Laura is reassessed five days later, with great improvement of her pain. However, she is having memory loss from the oxycodone. As a result, she is switched to hydromorphone, 1 mg orally every four hours and 1 mg orally every hour, for breakthrough pain.

In addition, she is prescribed gabapentin, 300 mg twice daily, for the neuropathic component of her pain.

Laura's lab results

- Urine microscopy
  - White blood cells: BC > 50[occ]/HPF
  - Epithelial cells: 1 to 5 [occ]/HPF
  - Renal epithelial cells: 6 to10[0]/HPF
  - Red blood cells: 1 to 5 [occ]/HPF
  - Bacteria levels: Moderate
- Complete blood count/Differential: Normal
- Electrolytes: Normal
- Lipase: Normal
- Alanine aminotransferase: Normal
- Creatinine: Normal
- Blood glucose: 13.0 [3.3-11.0] mmol/L

Her clodronate is switched from oral to parenteral formulation, 1,500 mg subcutaneously every two weeks, for better bioavailability.

She is followed up again in one week's time and her pain is well controlled. A repeat CXR shows an acute compression of T7, in addition to the T9 and T10 compressions noted a few weeks prior. Dx

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Share your cases with us!

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