A Rare Presentation of Metastatic Bladder Cancer

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Case
- A 66-year-old male was brought to the emergency department by family due to extreme lethargy
- His medical history was notable for recently diagnosed locally-invasive transitional cell carcinoma
- The family found him in the morning unarousable, even though the night prior he was feeling well and acting normally

Examination
- Vitals: Tachycardic, Hypotensive
- Jugular Venous Distension
- Muffled Heart Sounds

Abnormal Laboratory Studies
- Sodium: 128 mmol/L
- Potassium: 6.6 mmol/L
- Creatinine: 3.0 mg/dL
- Aspartate Aminotransferase: >3,000 U/L
- Alanine Aminotransferase: >3,000 U/L
- International Normalized Ratio: 2.6
- Lactic Acid: 6.5 mmol/L
- Arterial pH: 7.1

Imaging
- Bedside echocardiogram showed large pericardial effusion with right ventricular collapse

Hospital Course
- Emergent pericardiocentesis was performed on admission
- 1,400 cc bloody fluid drained
- Patient had immediate improvement in hemodynamics and mental status
- All of his abnormal labs listed above improved and eventually returned to normal values
- Analysis of the pericardial fluid was consistent with an exudative effusion
- Cytology on the fluid showed carcinomatous cells with immuno-staining consistent with transitional cell bladder cancer
- Diagnosis: cardiac tamponade from malignant pericardial effusion secondary to metastatic spread of his transitional cell carcinoma

Discussion
- Tamponade Findings
  - Beck’s Triad
    - Hypotension
    - Muffled Heart Sounds
    - Jugular Venous Distension
  - Pulsus Paradoxus
  - ECG
    - Low Voltage
    - Electrical Alternans
  - Echocardiogram
    - Pericardial Effusion
    - Right Atrial Systolic Collapse
    - Right Ventricular Diastolic Collapse
    - Inferior Vena Cava Distension
- Bladder Cancer
  - Most common malignancy of the urinary system (renal pelvis, ureter, bladder, urethra)
  - Transitional cell carcinoma accounts for 90% of all bladder cancers
  - Classically presents with painless hematuria
  - Common sites for metastatic spread:
    - Bone
    - Lung
    - Liver
    - Peritoneum
  - Rarely causes malignant effusions
    - Pleural >>> Pericardial

Learning Objectives
- Importance of a thorough physical exam
- Tamponade is a clinical diagnosis
- Requires prompt recognition, as timely intervention is critical
- Malignant effusion should always be on the differential for a new/unexplained effusion
- Fluid needs to be sent for cytology

References
- Harrison’s Principles of Internal Medicine, 18th ed., Ch. 239: Pericardial Disease, Longo et al.
- Harrison’s Principles of Internal Medicine, 18th ed., Ch. 94: Bladder Cancer, Longo et al.
- www.studyblue.com
- www.cytologystuff.com

Fig. 1: Electrical Alternans
Fig. 2: Echocardiogram with cardiac tamponade
Fig. 3: Cytology showing normal urothelial cells (A) and high-grade urothelial carcinoma (B)