Palpable Pulsus Paradoxicus in the Setting of Malignant Pericardial Effusion and Tamponade

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Conflicts of Interest

• None
Objectives

• Review the diagnostic approach to cardiac tamponade
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• Review the diagnostic approach to cardiac tamponade
  • History
  • Physical Exam
  • Imaging
Objectives

• Review the diagnostic approach to cardiac tamponade
  • History
  • Physical Exam
  • Imaging
• Review the relevant literature surrounding diagnosis of cardiac tamponade
Objectives

- Review the diagnostic approach to cardiac tamponade
  - History
  - Physical Exam
  - Imaging
- Review the relevant literature surrounding diagnosis of cardiac tamponade
- Review pathophysiology and treatment
Patient Profile

• 53 year-old Caucasian male
Patient Profile

- 53 year-old Caucasian male
- Recent diagnosis of stage IV NSCLC
Patient Profile

- 53 year-old Caucasian male
- Recent diagnosis of stage IV NSCLC
- Presents with acute onset SOB, cough, and “heart racing”
Patient Profile

- 53 year-old Caucasian male
- Recent diagnosis of stage IV NSCLC
- Presents with acute onset SOB, cough, and “heart racing”
- No chest pain, leg swelling, dizziness, or vision changes
Physical Exam

• Vital signs: blood pressure 104/64 mm Hg, heart rate 108 bpm, respiratory rate 27 bpm
Physical Exam

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• Gen: Cachectic-appearing Caucasian male in extremis
Physical Exam

- Vital signs: blood pressure 104/64 mm Hg, heart rate 108 bpm, respiratory rate 27 bpm
- Gen: Cachectic-appearing Caucasian male *in extremis*
- Neck: enlarged neck veins
Physical Exam

- Vital signs: blood pressure 104/64 mm Hg, heart rate 108 bpm, respiratory rate 27 bpm
- Gen: Cachectic-appearing Caucasian male in extremis
- Neck: enlarged neck veins
- Pulm: tachypnea, accessory muscle use
Physical Exam

- Vital signs: blood pressure 104/64 mm Hg, heart rate 108 bpm, respiratory rate 27 bpm
- Gen: Cachectic-appearing Caucasian male *in extremis*
- Neck: enlarged neck veins
- Pulm: tachypnea, accessory muscle use
- CV: tachycardia, distant heart sounds
Physical Exam

- Vital signs: blood pressure 104/64 mm Hg, heart rate 108 bpm, respiratory rate 27 bpm
- Gen: Cachectic-appearing Caucasian male *in extremis*
- Neck: enlarged neck veins
- Pulm: tachypnea, accessory muscle use
- CV: tachycardia, distant heart sounds
- Pulses: Bilateral radial pulses that vary noticeably in intensity; barely palpable with inspiration
Physical Exam

http://meded.ucsd.edu/clinicalmed/lung.htm
Imaging
Imaging
Imaging
Imaging
Imaging
Imaging
Hospital Course

- Emergent transport to cath lab
Hospital Course

- **Emergent transport to cath lab**
- **Subxiphoid pericardial drain placed under fluoro**
Hospital Course

- Emergent transport to cath lab
- Subxiphoid pericardial drain placed under fluoro
- Drain immediately yields 915 cc of hemorrhagic pericardial fluid
Hospital Course

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- Subxiphoid pericardial drain placed under fluoro
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- Fluid cytology demonstrates metastatic carcinoma
Hospital Course

- Emergent transport to cath lab
- Subxiphoid pericardial drain placed under fluoro
- Drain immediately yields 915 cc of hemorrhagic pericardial fluid
- Fluid cytology demonstrates metastatic carcinoma
- Following pericardiocentesis, HR 89, BP 114/62, and RR 17
Discussion
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- Cardiac tamponade is a *clinical* diagnosis
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- Subsequently *confirmed* by hemodynamic and clinical response to pericardial drainage
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Beck’s Triad
Discussion

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Discussion

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Beck's Triad

- Jugular venous distension
- Distant heart sounds
- Distant heart sounds
Cardiac tamponade is a *clinical* diagnosis. Subsequently confirmed by hemodynamic and clinical response to pericardial drainage. Beck's Triad consists of:

- Jugular venous distension
- Distant heart sounds
- Hypotension
Discussion

CLAUDE BECK: CARDIAC COMPRESSION TRIADS

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Does This Patient With a Pericardial Effusion Have Cardiac Tamponade?

Christopher L. Roy, MD
Melissa A. Minor, MD
M. Alan Brookhart, PhD
Niteesh K. Choudhry, MD, PhD

Context Cardiac tamponade is a state of hemodynamic compromise resulting from cardiac compression by fluid trapped in the pericardial space. The clinical examination may assist in the decision to perform pericardiocentesis in patients with cardiac tamponade diagnosed by echocardiography.

Objective To systematically review the accuracy of the history, physical examination, and basic diagnostic tests for the diagnosis of cardiac tamponade.
Discussion

Roy et al., JAMA, 2007
Discussion

Roy et al., *JAMA*, 2007
Conclusions

- In a patient with known metastatic carcinoma presenting with tachycardia and dyspnea, acute PE is often of principal concern.
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• Present case illustrates another dire—and oft-overlooked—cause of hemodynamic collapse.

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• Present case illustrates another dire—and oft-overlooked—cause of hemodynamic collapse.

• In a 2000 review of 322 patients with moderate/large effusions, malignancy was the cause in 13%.

Conclusions

• In a patient with known metastatic carcinoma presenting with tachycardia and dyspnea, acute PE is often of principal concern.

• Present case illustrates another dire—and oft-overlooked—cause of hemodynamic collapse.

• In a 2000 review of 322 patients with moderate/large effusions, malignancy was the cause in 13%.

• Another study of 1029 autopsy specimens demonstrated epicardial involvement in >75% of metastatic cases.

Sagrista-Sauleda et al., Am J Med, 2000; Klatt et al., Cancer, 1990
References


Thank you!