Management of (Inflammatory) Pericardial Effusion

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Case

- CC: chest pain
- HPI: 43 yr old female presented with chest pain and shortness of breath. She had an upper respiratory tract infection one week prior.
- PMH: obesity, asthma
- PSH: none
- Inpatient meds: Aspirin, Ibuprofen, Morphine
Case

- Physical Exam
- 97.8, 130/86, 93
- Gen: mild distress, obese BMI 41
- CV: normal heart sounds, no murmurs
- Resp: clear bilaterally
- Abd: soft, non tender, non distended
- Ext: no peripheral edema
Case

- Labs: WBC 14.1
- Anti-Nuclear Antibody: negative
- Rheumatoid Factor: negative
- ANA Titer: negative
- Double Strand DNA Ab: negative
Case

- ECHO showed large pericardial effusion
- EKG no ST changes
- Nuclear stress test negative for ischemia
- CT chest showed a moderate complex pericardial effusion
- Repeat ECHO done on hospital day 3 showed a large pericardial effusion with signs of early right ventricular collapse and collapse of the right atrium
Case

- Hospital day 3, the patient became increasingly more short of breath

- She was taken to the OR for subxiphoid pericardiectomy with drain placement

- 800ml of hemorrhagic fluid was evacuated and sent for pathology and bacteriology
Pathology

- Pericardial fluid: acute inflammatory cells and scattered mesothelial cells

- Pericardium: inflammatory cell infiltration and few clusters of reactive atypical mesothelial cells
# Causes of Pericardial Effusion

<table>
<thead>
<tr>
<th>Secondary to underlying known disease</th>
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<tr>
<td>Acute myocardial infarction</td>
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<td>Cardiac surgery</td>
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<td>Trauma</td>
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<td>Widespread known neoplasia</td>
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<td>Chest radiation</td>
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<td>End-stage renal failure</td>
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<td>Invasive cardiac procedures</td>
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<td>Hypothyroidism</td>
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<td>Autoimmune diseases</td>
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<th>Without underlying known disease</th>
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<tbody>
<tr>
<td>Acute inflammatory pericarditis (infectious, autoimmune)</td>
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<td>Previously unknown neoplasia</td>
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<td>Idiopathic</td>
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Diagnosis

- History and physical
- EKG
- ECHO
- CT
- Cardiac catheterization
Spectrum of Symptoms

- Pericardial effusion
- Hemod. tamponade
- Echo. tamponade
- Clinical tamponade

Severity of tamponade
Echocardiography

- Early diastolic collapse of the right ventricle
- Late diastolic collapse of the right atrium or left atrium
- Increases in tricuspid E flow during inspiration
- Decreases in mitral E flow during inspiration
Management

- Non steroidal anti-inflammatory drugs
- Aspirin
- Colcichine
- Steroids
- Drainage procedures
Sagrístà-Sauleda J et al. Diagnosis and management of pericardial effusion

Acute pericarditis

Medical treatment + echocardiogram

Moderate PE

No tamponade
- Self-limited: Medical treatment
- Suspicion PP: P-centesis
- Unremitting > 3 wk: Pericardial biopsy

Tamponade
- P-centesis
- Pericardial biopsy

No tamponade
- Suspicion PP: P-centesis
- Suspicion AIP: Medical treatment

Large PE > 20 mm

Tamponade
- Medical treatment
- P-centesis
Comparison of Open Subxiphoid Pericardial Drainage With Percutaneous Catheter Drainage for Symptomatic Pericardial Effusion

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**Background.** The optimal therapy for symptomatic pericardial effusions remains controversial. This paper compares outcomes after the two most commonly used techniques, percutaneous catheter drainage and operative subxiphoid pericardial drainage.

**Methods.** We performed a 5-year retrospective, single-institution study to analyze outcomes after either percutaneous catheter drainage or subxiphoid open pericardial drainage for symptomatic pericardial effusions.

**Results.** Symptomatic pericardial effusions in 246 patients were treated by open pericardiectomy and tube drainage (n = 150) or percutaneous catheter drainage (n = 96). Drainage duration, total drainage volume, and duration of follow-up (2.6 years) were similar in both groups. Effusions were classified malignant in 79 (32%) patients and benign in 167 (68%) patients. No direct procedural mortality occurred, but the hospital mortality was 16 patients (10.7%) in the open group and 22 (22.9%) in the percutaneous group (p = 0.01). The 5-year survival rate was 51% in the open group versus 45% in the percutaneous group, despite a greater percentage of the open group having a preoperative malignant diagnosis (35% versus 28%). Symptomatic effusions recurred in 16.5% of the percutaneous group compared with 4.6% in the open group (p = 0.002), and sclerosis did not appear to reduce recurrence rates (10.7% with sclerosis versus 15.6% without; p > 0.05). The diagnosis of malignancy was confirmed in 16 of 27 (59%) percutaneous procedures performed on patients with known malignancy. In the open group, cytologic and pathologic evaluation of the pericardial specimen revealed malignancy in 32 of 52 (62%) patients with known malignancy.

**Conclusions.** Subxiphoid and percutaneous pericardial drainage of symptomatic pericardial effusions can be performed safely; however, death occurs from underlying disease. Open subxiphoid pericardial drainage with pericardial biopsy appears to decrease recurrence but does not improve diagnostic accuracy of malignancy over cytology alone.

References

Question

Which of the following is NOT part of Beck’s Triad?

A. Hypotension
B. Quiet Heart Sounds
C. Rising venous pressure
D. Pulsus paradoxus
Questions?