

## Checked Mate

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### CardioCase Presentation

#### Mr. King's Hockey Check



Mr. King, 45, was seen because of a history of shortness of breath on exertion and central chest tightness and heaviness. He denied lightheadedness or pre-syncope. Four days before presenting to your office, he had been playing hockey and received a hard check to the chest. He had fallen to the ice and noted mild shortness of breath for the remainder of the game. In the days following the game, he developed flu-like symptoms, generalized muscle aches and pains, as well as a headache. Symptoms were relieved with intermittent acetylsalicylic acid.



Figure 1. Chest X-ray revealing cardiomegaly.

#### Examination

- Heart rate: Regular at 80 beats/minute
- Blood pressure: 120/70 mmHg
- Chest clear
- Jugular venous pressure (JVP) elevated at 5 cm above sternal angle, and rose with inspiration
- Normal  $S_1$  and  $S_2$ ; no murmurs
- Triphasic pericardial friction rub audible at the lower left sternal border
- No peripheral edema
- The initial electrocardiogram showed normal voltages and non-specific T-wave changes. There was no injury pattern.
- A chest X-ray was performed, which demonstrated cardiomegaly (Figure 1).

#### What's Your CardioCase Diagnosis?

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# CardioCase Discussion

## What happened with Mr. King?

A transthoracic echocardiogram (ECHO) was ordered. The ECHO revealed a significant pericardial effusion (PE) measuring 1.2 cm anteriorly, 2.3 cm posteriorly, and 2.8 cm lateral to the left ventricle in the four-chamber apical view (Figure 2). There were no signs of tamponade. The right and left ventricle were normal in size and systolic function.

Pericardial/myocardial injury should always be considered in patients with a history of chest trauma. The pericardium is vulnerable to traumatic injury. Traumatic injury to the pericardium may result in the following complications:

- acute cardiac tamponade,
- delayed tamponade, and
- constrictive pericarditis, which usually develops months to years after the initial inciting event.

Acute cardiac tamponade is more common with penetrating chest injuries and is

often quickly recognized; patients present with hemodynamic instability and require immediate intervention with pericardiocentesis and drainage.

Patients with delayed tamponade need to be followed closely for development of symptoms which may indicate hemodynamic compromise. In the absence of hemodynamic compromise, PEs may be treated successfully with non-steroidal anti-inflammatory drugs, as reported anecdotally, and followed echocardiographically for resolution.

Pericardiocentesis may not be required in these cases. Patients should be followed for the late development of constrictive pericarditis.

As Mr. King was not clinically hemodynamically compromised, and seemed to be gradually improving by history, he was treated symptomatically with ibuprofen (400 mg three times daily). He was advised to avoid

### About the authors

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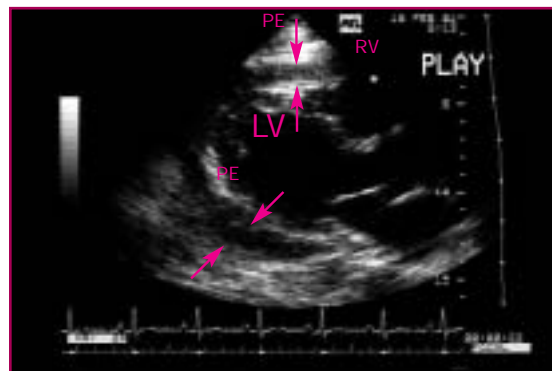


Figure 2. Initial ECHO: Parasternal long axis view—2 cm posterior and 1 cm anterior PE. (RV: Right ventricle; LV: Left ventricle.)

## CardioCase Discussion

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any heavy exertion and trauma, and to stop playing hockey.

One week following the initiation of treatment, Mr. King denied significant dyspnea or chest discomfort. On exam, his blood pressure was 120/80 mmHg with no paradox. The JVP was normal and did not change with respiration. There was no pericardial rub. A followup ECHO revealed almost complete resolution of the PE (Figure 3). Eighteen months after his initial presentation, Mr. King remained asymptomatic, with no signs of constrictive pericarditis, and had returned to playing hockey. ❤️👍

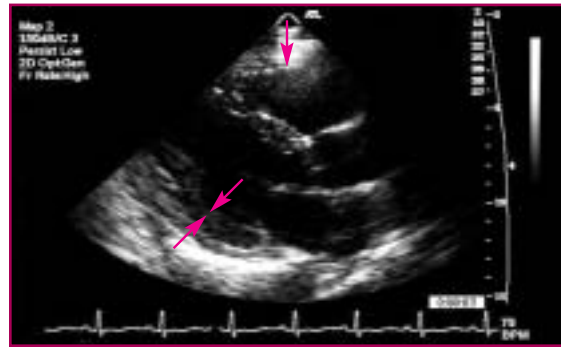


Figure 3. Followup ECHO: Resolution of PE.