Cricket, collision and coronary clot
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Acute chest pain, even in the context of an evident cause such as musculoskeletal trauma, can disguise other significant underlying pathology. This case highlights how an index of clinical suspicion for an additional evolving condition can avert misdiagnosis.

Case report
A 30-year-old man encountered an elbow-to-chest collision with a co-player during a cricket match in an attempt to catch a ball, resulting in a fall and right wrist trauma. He returned home only to present to the emergency department (ED) two hours later with worsening right wrist swelling and mild chest pain. His right wrist was swollen and likely fractured. The chest pain was presumed related to the sports injury.

While waiting for his wrist trauma management in ED, his chest pain got worse; an electrocardiogram (ECG) taken at that point showed anterior ST-segment elevation with reciprocal ST-depression in the inferior leads (Figure 1). Initial troponin-I was normal (<15 ng/L).

An acute invasive coronary angiography was performed, which demonstrated thrombotic occlusion of proximal left anterior descending (LAD) artery (Figure 2). Percutaneous intervention with thrombus aspiration and deployment of a drug eluting stent was performed (Figure 3). ECG post-procedure showed resolution of ST segments. A trans-thoracic echocardiogram revealed severe hypokinesis of the LAD territory myocardium with mild LV systolic dysfunction (ejection fraction 40–45%). Subsequent assay showed a peak troponin-I level >40,000ng/L.
He was discharged on medical therapy after conservative management of his wrist fracture.

Discussion

Cardiac complications from blunt chest trauma include myocardial contusion, wall or pericardial rupture, arrhythmias, valvular injury or haemopericardium with or without tamponade. Acute myocardial infarction following blunt chest trauma is rare and coronary artery dissection is the most commonly reported cause. Other possible mechanisms include intimal tear or rupture of an existing plaque with thrombus formation or spasm.

In acute myocardial infarction following blunt chest wall injury, the LAD is the most common vessel affected—likely due to its anatomic predisposition to direct trauma and deceleration injury. Intravascular imaging, particularly optical coherence tomography (OCT) in this context would be valuable to evaluate the mechanism leading to the coronary event. A potential cause in this case could be coronary artery dissection or less likely a traumatic plaque rupture, in absence of traditional cardiovascular risk factors and absence of coronary disease elsewhere. Traumatic intra or extramural coronary haematoma could have been contributory.

Conclusion

Chest pain in the context of trauma, although most likely musculoskeletal, can potentially mask an evolving concomitant cardiac event. Exercising a sensible clinical suspicion for any progression or variation of the character of pain can sometimes alter direction of management from simple analgesia to life-saving cardiac interventions.