A 33-year-old male soccer player started to experience chest discomfort briefly after taking a blow from an opponent’s knee into his chest during a dribbling maneuver on the pitch. He completed the game but then consulted a referring hospital because of waxing and waning chest complaints irradiating to his left arm. The ECG demonstrated ST-T–segment changes compatible with inferoposterior ischemia (Figure 1). Cardiac enzyme markers were elevated. Echocardiography confirmed inferior wall hypokinesis. The patient was loaded with aspirin and clopidogrel. He

Figure 1. ECG at baseline.

Figure 2. Selective right coronary angiography in left anterior oblique (right) and anteroposterior superior projection (left). Arrow indicates suspect region for dissection and thrombus.
subsequently underwent transradial invasive coronary angiography, which demonstrated Thrombolysis In Myocardial Infarction (TIMI) 2 flow in the right coronary artery and a dissection-suspect lesion in its proximal segment (online-only Data Supplement Movie I and Figure 2). Invasive imaging of the right coronary artery by means of optical coherence tomography confirmed mild atherosclerotic disease and unequivocally pointed toward dissection in the proximal segment surrounded by significant thrombus burden (Figure 3 and online-only Data Supplement Movie II). It is noteworthy that the size of the right coronary artery exceeded 5 mm in diameter.

Figure 3. Optical coherence tomography. Top, Longitudinal reconstruction, labels a to d correspond with the cross-sectional panels A to D below. A shows the atrial side branch (sb) at 7 o’clock and illustrates predominantly lipid-rich plaque from 7 o’clock to 3 o’clock. B shows red and white thrombus compromising the lumen. C is 5 mm proximal from the thrombus and shows a plaque rupture (arrow). D, near the ostium of the right coronary artery, shows an intimal dissection (arrow).

The patient’s young age, his active lifestyle, the large vessel caliber precluding regular stent sizes, and the pathophysiology of trauma rather than atherosclerosis were considered to proceed with thrombectomy followed by implantation of a 3.5 to 4.5 self-expanding nitinol bare metal STENTYS stent (STENTYS SA, Paris, France), which is believed to accommodate up to 6-mm vessels (online-only Data Supplement Movie III). Figure 4 shows the extracted thrombus material. The final angiographic result was satisfactory (Figure 5 and online-only Data Supplement Movie IV). Intravascular ultrasound after stent deployment confirmed adequate stent expansion and perfect apposition resulting in a final diameter of 5.5 mm (Figure 6 and online-only Data Supplement Movie V). The patient was discharged from the hospital with a regimen of dual-antiplatelet therapy (aspirin and clopidogrel) for 1

Figure 4. Thrombotic debris (arrow) extracted from the right coronary artery with thrombectomy catheter.

Figure 5. Final right coronary angiogram after stenting.
month and low-dose aspirin indefinitely thereafter. In view of the documented coronary atherosclerosis by invasive coronary imaging, the patient was also instructed regarding appropriate lifestyle changes, and statin therapy was initiated.

Underlying structural or electric cardiovascular disease is the predominant substrate for sudden cardiac death in athletes. In a large registry on sudden death in US competitive athletes covering a 27-year period, preexisting cardiovascular disease was present in 56%, blunt trauma causing bodily injury of the head or neck was present in 22%, and precordial blows leading to commotio cordis was present in 3%. High-impact chest trauma during contact sports can cause traumatic proximal right coronary artery dissection, which can provoke coronary ischemia, myocardial infarction, malignant ventricular arrhythmias, and even sudden cardiac death. Traumatic coronary artery injury has been reported occasionally, but arguably is underreported. A high index of suspicion should trigger prompt cardiovascular workup including electrocardiography, echocardiography, evaluation of serial cardiac enzymes, and, when deemed appropriate, invasive coronary angiography.

Disclosures

None.

References

Traumatic Coronary Artery Dissection: Potential Cause of Sudden Death in Soccer
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