Acute myocardial infarction after football chest trauma: management guided by intravascular ultrasound

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A 34-year-old male, smoker, presented to the emergency room with severe chest pain after straight anterior wall chest trauma during a football game, dyspnea and diaphoresis. On physical examination, no signs of wall chest injury were noted. Cardiac auscultation showed an apical S4 gallop. Electrocardiogram revealed persistent inferior ST-segment elevation. Echocardiogram showed inferior akinesis with global left ventricular ejection fraction preserved. He was referred for urgent coronary angiography, which revealed total occlusion in the medium segment of a dominant right coronary artery (RCA, Panel A). No other significant stenoses were noted. Percutaneous intervention was performed using a thrombectomy device. Red thrombus was obtained and control angiography showed a residual mild stenosis with TIMI 3 distal flow (Panel B). Then, intracoronary ultrasound revealed mild to moderate plaque circumferential fibrous-like, without evidence of thrombus, ulceration, or dissection (Panel C). Therefore, neither balloon nor stent were placed, and patient was transferred to the coronary care unit, where he was managed with triple antiaggregation (AAS, clopidogrel and epifibatide). Creatinine kinase and troponin-I peaked 2473 and 60 IU/L, respectively. Three days later, a control angiography showed no angiographic stenosis in RCA. Patient had no post-procedural complications and was discharged in stable condition.

Non-penetrating chest trauma is a rare cause of myocardial infarction, usually consequence of plaque rupture, thrombus formation, and/or coronary dissection, and is normally managed by emergency coronary stenting. However, cardiac contusion may produce thrombus formation and/or focal spasm in a non-severe plaque. Intravascular ultrasound could be useful to characterize such findings and to guide the best management, which may not be necessary stent implantation.

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