

32. Hindorf LA, Rice KM, Lange LA, Diehr P, Halder I, Walston J, Kwok P, Ziv E, Nievergelt C, Cummings SR, Newman AB, Tracy RP, Psaty BM, Reiner AP. Common variants in the CRP gene in relation to longevity and cause-specific mortality in older adults: the Cardiovascular Health Study. *Atherosclerosis* 2008;**197**:922–930.
33. Hazzard WR. Depressed albumin and high-density lipoprotein cholesterol: signposts along the final common pathway of frailty. *J Am Geriatr Soc* 2001;**49**:1253–1254.
34. Ridker PM, Danielson E, Fonseca FA, Genest J, Gotto AM Jr, Kastelein JJ, Koenig W, Libby P, Lorenzatti AJ, MacFadyen JG, Nordestgaard BG, Shepherd J, Willerson JT, Glynn RJ. Reduction in C-reactive protein and LDL cholesterol and cardiovascular event rates after initiation of rosuvastatin: a prospective study of the JUPITER trial. *Lancet* 2009;**373**:1175–1182.
35. Smith GD, Ebrahim S. 'Mendelian randomization': can genetic epidemiology contribute to understanding environmental determinants of disease? *Int J Epidemiol* 2003;**32**:1–22.
36. Nitsch D, Molokhia M, Smeeth L, DeStavola BL, Whittaker JC, Leon DA. Limits to causal inference based on Mendelian randomization: a comparison with randomized controlled trials. *Am J Epidemiol* 2006;**163**:397–403.

CARDIOVASCULAR FLASHLIGHT

doi:10.1093/eurheartj/ehq048

Online publish-ahead-of-print 19 February 2010

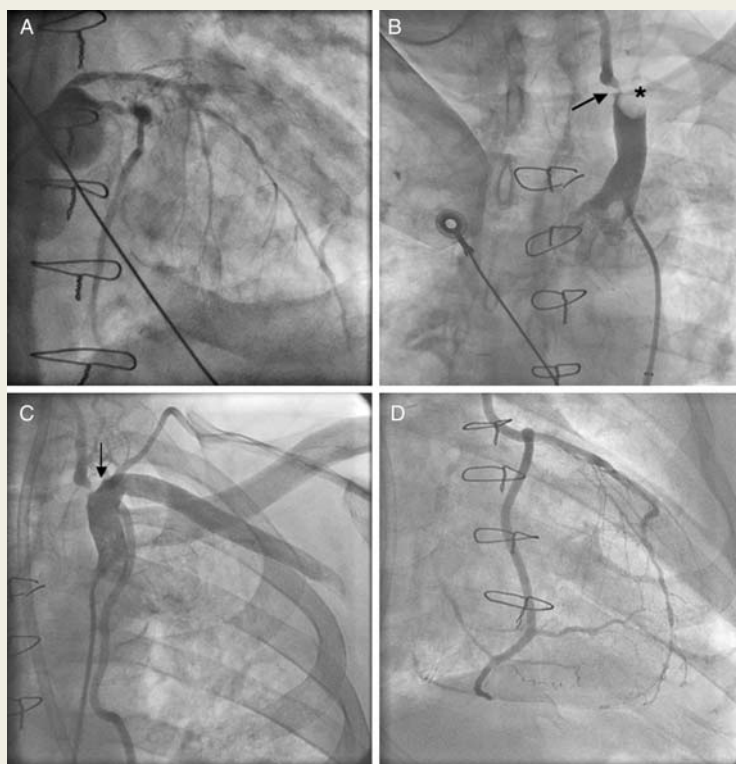
An unusual cause of cardiogenic shock

David R. Altmann, Peter Buser, and Christian Sticherling*

Division of Cardiology, University Hospital of Basel, Petersgraben 4, 4031 Basel, Switzerland

* Corresponding author. Tel: +41 61 265214, Fax: +41 61 2654598, Email: csticherling@uhbs.ch

A 76-year-old man with a history of coronary artery bypass grafting presented with acute onset of chest pain and cardiogenic shock. The ECG showed atrial fibrillation (AF) and severe ST-segment depression in the anterolateral leads. Cardiac angiography revealed an occluded native right coronary artery (RCA) and left anterior descending artery (LAD) and stenosis of the proximal circumflex artery (Panel A). The left subclavian artery was occluded by a large thrombus (Panel B, asterisk; note the stenosis of the vertebral artery, arrow). Thrombus aspiration failed and balloon dilatation was not performed in order to avoid dislocation of thrombotic material into the left internal mammary artery (LIMA) graft. We therefore started local intra-arterial thrombolysis (alteplase 10 mg bolus) followed by systemic thrombolysis (alteplase 90 mg over 60 min) resulting in rapid improvement of clinical symptoms and normalization of the ECG. A control angiography showed a patent subclavian and LIMA (Panel C), which supplied the LAD. The right internal mammary artery was used as a free graft from the LIMA to the marginal branches and the RCA (Panel D).



Mechanistically, the thrombus may have formed locally over a ruptured subclavian atherosclerotic plaque (Panel C, arrow) or may have originated from the left atrium since the patient was in AF and off anticoagulant therapy.

In summary, this case demonstrates the successful treatment of cardiogenic shock secondary to thrombotic occlusion of the subclavian artery proximal to a single LIMA bypass supplying six coronary branches by local and systemic thrombolysis.