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(Citation)

Circulation Journal, 85(4):397-397

(Issue Date)

2021-03-25

(Resource Type)

journal article

(Version)

Version of Record

(Rights)

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(URL)

<https://hdl.handle.net/20.500.14094/90008295>



Coronary Computed Tomography Angiography-Guided Fibrinolytic Therapy for Extensive Thrombus in Reperfused ST-Elevation Myocardial Infarction

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A 56-year-old male smoker with persistent chest pain was diagnosed with acute anterior ST-segment elevation myocardial infarction (STEMI). Coronary angiography revealed an extensive thrombus without impairment of coronary flow in the proximal left anterior descending artery (**Figure A,B**). Primary percutaneous coronary intervention (PCI) was withheld because in such setting it could lead to thrombus-related complications, such as distal embolization and acute stent occlusion, resulting in further deterioration of coronary flow. Subsequent coronary computed tomography angiography (CCTA) confirmed an atherosclerotic plaque with an extensive thrombus (**Figure C–E**). Fibrinolysis using alteplase (27,500 IU/kg), aimed at reducing the volume of the thrombus, and subsequent dual antiplatelet therapy were administered. Repeat CCTA 7 days later showed an obvious increase in luminal diameter and reduction in total thrombus volume at the culprit lesion (**Figure F–I**). Neither fusion thallium-201 stress cardiac scintigraphy nor CCTA showed any ischemia (**Figure J**).

PCI for extensive residual thrombosis in spontaneous reperfed STEMI could lead to deterioration in coronary flow and remains controversial. Fibrinolytic therapy significantly reduces the thrombus burden and reportedly has the potential to reduce PCI-related complications or defer-

ment of PCI.¹ This is the first report of serial CCTA precisely evaluating residual thrombus after fibrinolysis, resulting in avoidance of PCI. Fibrinolytic therapy assisted by CCTA could provide a viable pharmacoinvasive strategy in reperfed STEMI patients with extensive thrombus.

Acknowledgments

None.

Informed Consent

The patient provided informed consent to publish the case and any accompanying images.

IRB Information

Approved by the institutional review board. Reference no: 1-33.

Conflicts of Interest

The authors declare no conflicts of interest.

Reference

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Received December 18, 2020; revised manuscript received December 21, 2020; accepted December 23, 2020; J-STAGE Advance Publication released online February 11, 2021 Time for primary review: 2 days

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ISSN-1346-9843

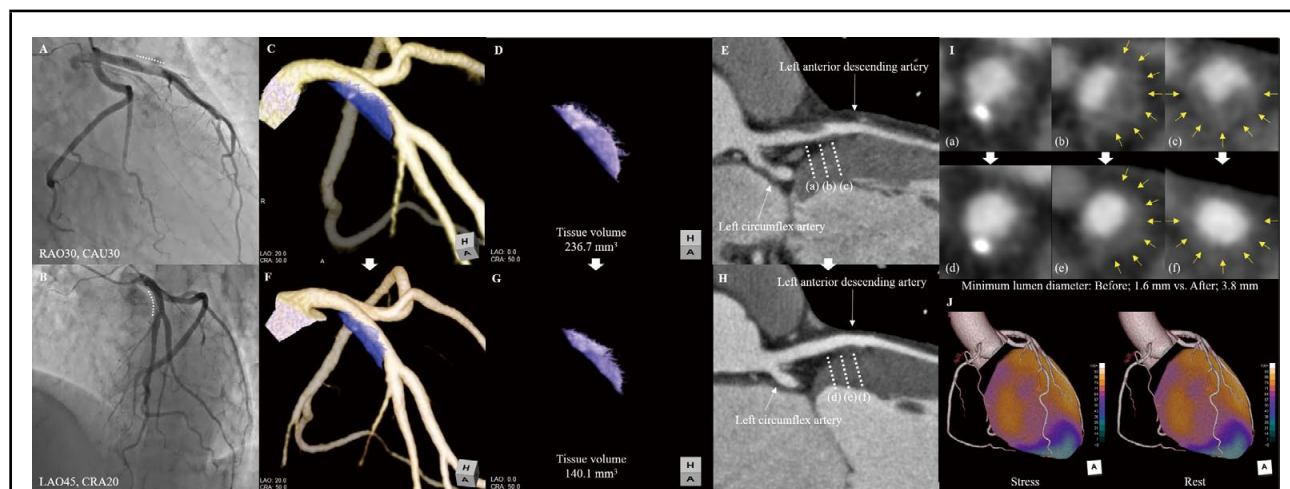


Figure. (A,B) Coronary angiograms show haziness suggestive of a large thrombus. Comparison of coronary computed tomography angiography (CCTA) before (C–E) and after (F–H) fibrinolysis, and a cross-sectional image of the culprit lesion (I). (J) Fusion images of stress myocardial scintigraphy and CCTA visualize apex myocardial damage.