How should I treat an ectatic, totally occluded right coronary artery containing huge thrombus?

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Conflict of Interest Statement

We do not have any conflict of interest with this presentation
A 51 years-old gentleman with a background history of hypertension and hyperlipaedia presented to our hospital with a history of typical chest pain lasting for 24 hour and was diagnosed as a case of STEMI.

Due to late presentation he was not thrombolysed or Primary PCI and was treated with low molecular weight heparin (LMWH), aspirin, clopidogrel, beta-blocker, ACE-inhibitor, nitrates and statin.

Even after the extensive medical treatment the patient complain of recurrent chest pain and underwent coronary angiogram.
Relevant test results prior to catheterization:

- ECG revealed Q wave in LII, LIII and aVF with ST elevation with positive biochemical markers (Troponin I and CK-MB)
- Echocardiography- inferior wall hypokinesia é global EF 50%
Relevant catheterization findings

1) Normal left main coronary artery (Figure 1)

2) Normal LAD (Figure 1)

3) Normal LCX (Figure 1)

4) Total occlusion of ecstatic proximal RCA with prominent filling defect (Figure 2)
The patient was received 10,000 IU heparin bolus prior to procedure. A 0.014"All Star guidewire (Guidant) was introduced into the distal RCA across the lesion using a 7 Fr 3.5 JR guiding catheter.

ACT was 250 sec. IV IIb/IIIa inhibitors Inj Eptifibatide was infused in a bolus (180 mg/kg) followed by another bolus (180 mg/kg) after 10 min and then IV infusion at the rate of 2 mg/min.

Intracoronary adenosine was administered prior to aspiration to avoid slow flow.
A 6Fr Export aspiration catheter (Medtronic Corporation, Santa Rosa, CA) was inserted into RCA to aspirate the thrombosis. Repeated aspiration by a 6Fr lastly by 7Fr Export was performed along with intracoronary adenosine injection.

But there was no definite improvement in flow even after repeated aspiration. (Figure 3,4)
And then predilatation was performed followed by repeated aspiration by 7Fr Export aspiration catheter.

A huge amount of thrombus was aspirated through the catheter.

But still prominent defect remaining in the proximal, mid, distal RCA and PDA and PLV even after repeated aspiration in addition to series of lesion in the proximal, mid and distal vessel noted with proximal ectasia. (Figure 5)
Finally the lesion was stented with a 3.5 x 38mm DES (Endeavor Resolute) at 14 atm in mid and distal RCA followed by 4 x 18 mm DES (Endeavor Resulate) with overlapping of the first across the proximal lesion from the distal neck of the aneurysmal dilated segment and finally TIMI III flow was established with remaining filling defect in the proximal and PDA and PLC without any residual narrowing. (Figure 6, 7)
Eptifibatide IV infusion was continued at the rate of 2 mg/min for 18 hr

Followed by LMWH for 72 hours post procedure

And was discharged with aspirin, clopidogrel, warfarin sodium, ACE inhibitor, lipid lowering agent and beta-blocker
Evaluation and follow up:

At 7 months follow up the patient remained asymptomatic and NYHA–I.
Conclusion and comment:

In our case despite the extensive medical treatment for 48 hours with aspirin, clopidogrel, LMWH, lipid lowering agent, beta-blocker and nitrate the patient complain of recurrent chest pain and underwent coronary angiogram which revealed; completely occluded ecstatic coronary artery with full of thrombus.

In case of a large thrombus and a small/midsize vessel manual aspiration thrombectomy with direct stenting is preferable.

Few literature review revealed that in the case of large thrombus burden and a very large vessel distal protection device with aspiration or mechanical thrombectomy with thrombus fragmentation or Excimer laser catheter may be considered.

Unfortunately there is no definite standard recommendation for the management strategies of the lesion of very large vessel containing huge thrombus.
We think such kind of very large ecstatic coronary lesion containing huge thrombus and an unstable patient, PCI could be managed by combining different strategies:

- Repeated aspiration and predilatation
- Intracoronary adenosine
- Glycoprotein IIb/IIIa inhibitors
- Stent Implantation
- Followed by LMWH for 72 hrs and after then oral anticoagulant therapy.

Our case illustrate that we need new dedicated device for managing such kind of patient.