

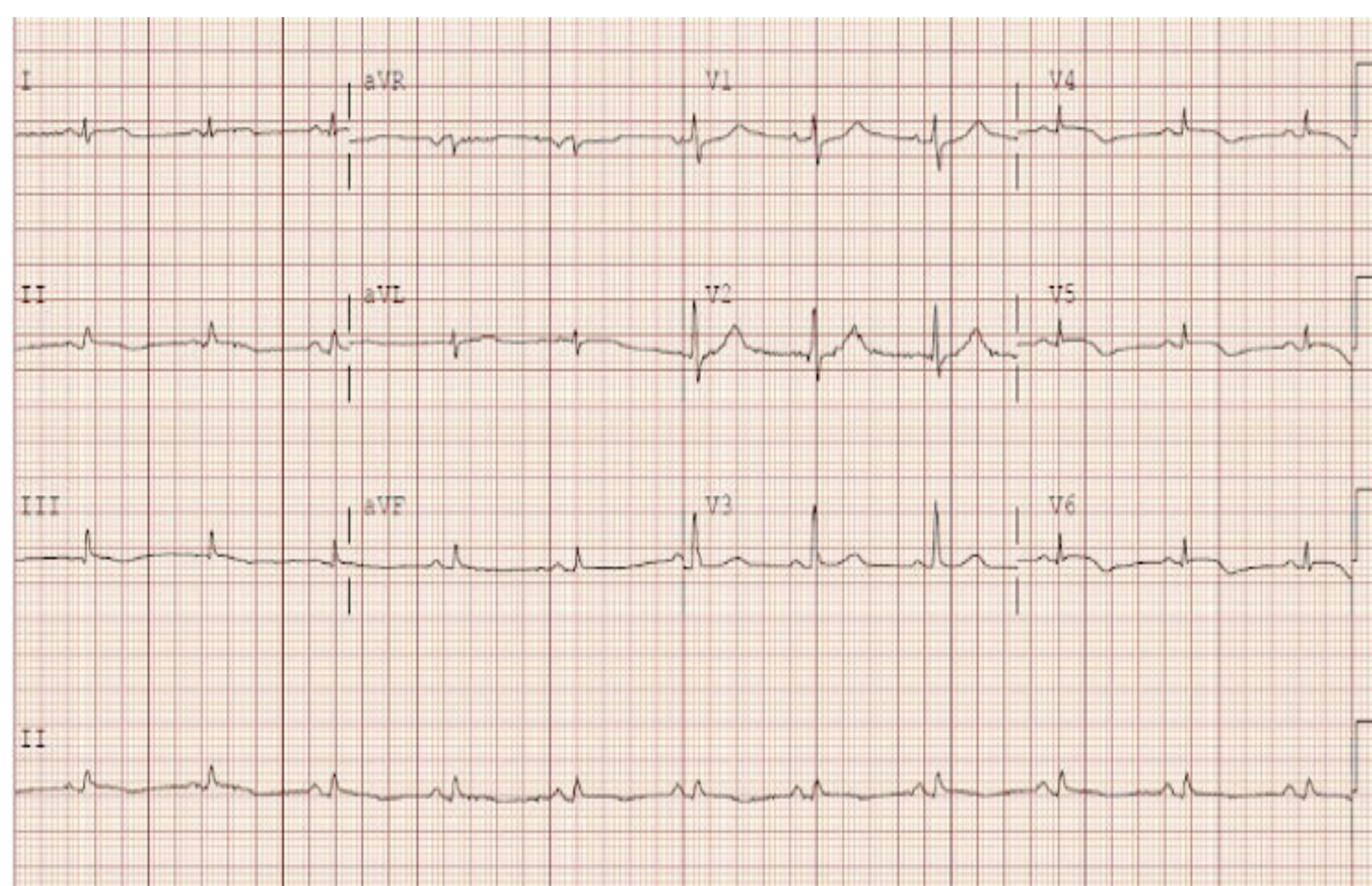
Seeing Is Believing: Optical Computed Tomography (OCT) and Histologic Analysis To Define Pathophysiology Of “Very”, Very Late Stent Thrombosis Occurring More Than 7 Years After Drug Eluting Stent Implantation

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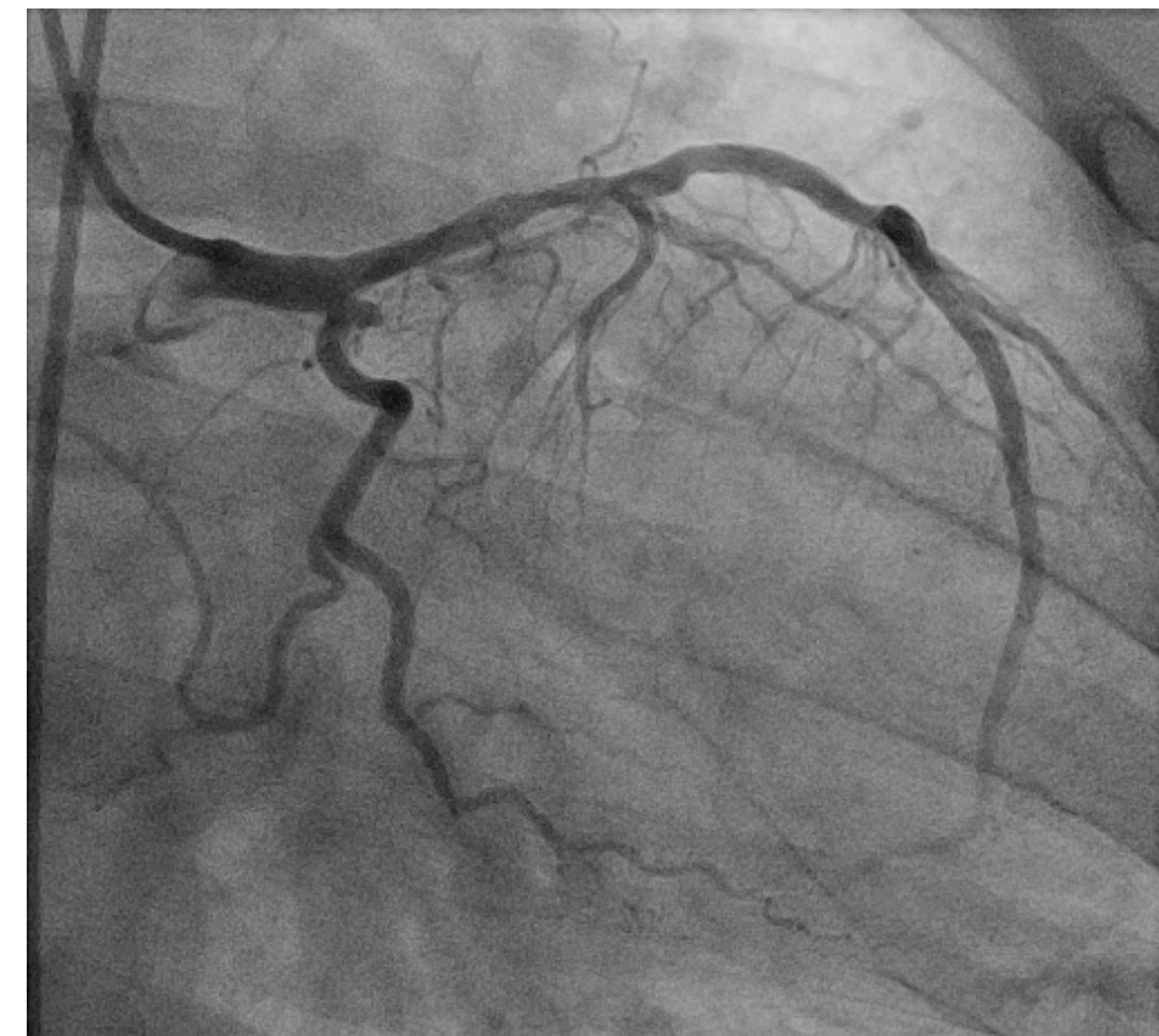
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Case Presentation

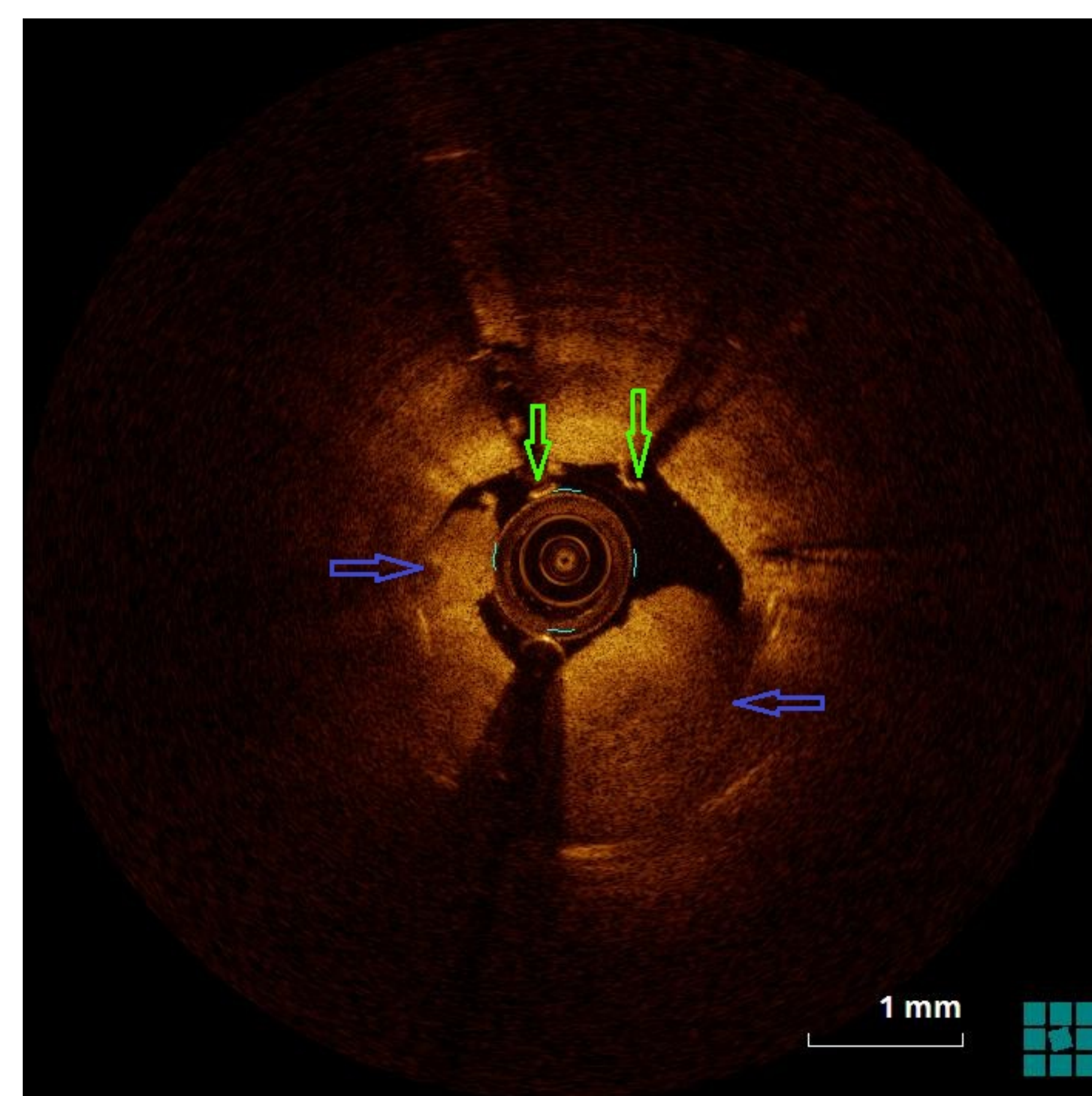
- 58-year-old male with prior non-ST elevation MI with PCI performed using a sirolimus eluting stent placed in a large OM1 branch 86 months prior presented with five hours chest pain similar to prior MI >7 years earlier.
- Additional history of hypertension, hyperlipidemia, non-compliance with antiplatelet therapy and active tobacco abuse at time of presentation.
- Patient reported self-discontinuation of medications (aspirin (time unknown), statin, beta blocker) and resumed smoking.
- Clopidogrel was discontinued by his primary physician 97 days prior to presentation
- Initial electrocardiogram revealed a lateral ST elevation MI and the patient was taken to the cardiac catheterization lab for urgent coronary angiography.



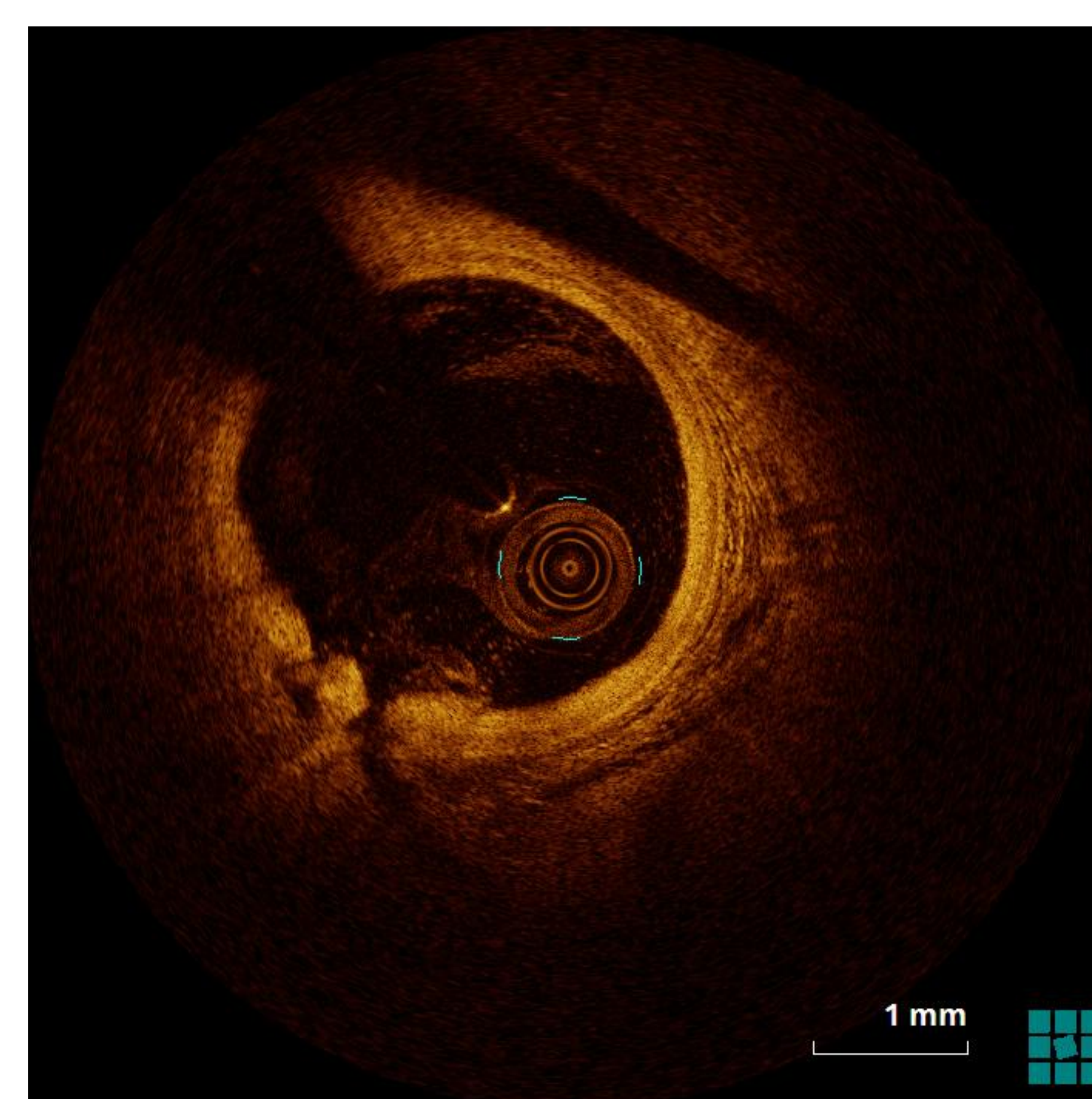
Electrocardiogram demonstrating an acute lateral ST elevation MI.



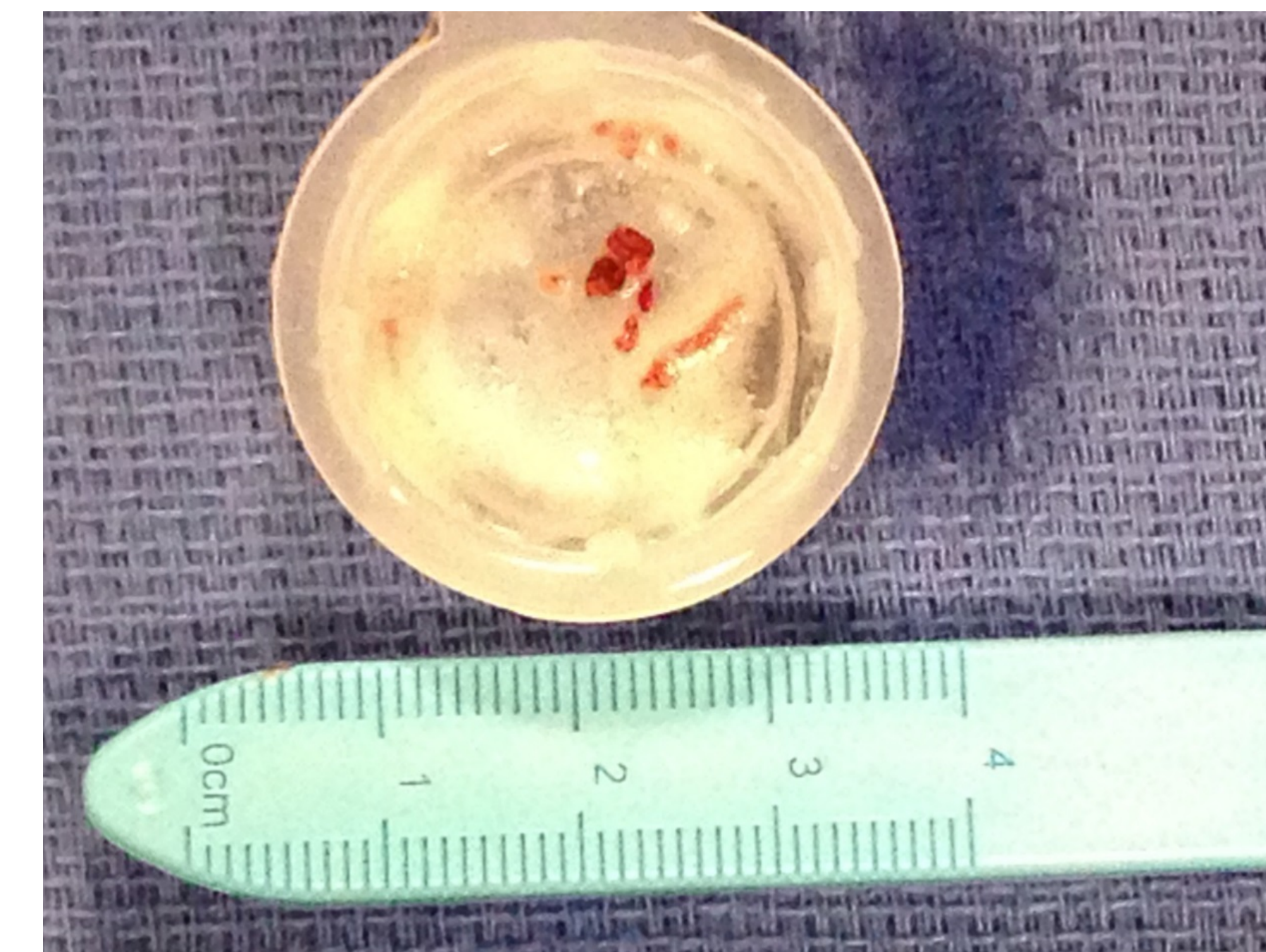
RAO caudal view with definite stent thrombosis of the 1st obtuse marginal branch involving a sirolimus eluting stent placed 86 months prior to event.



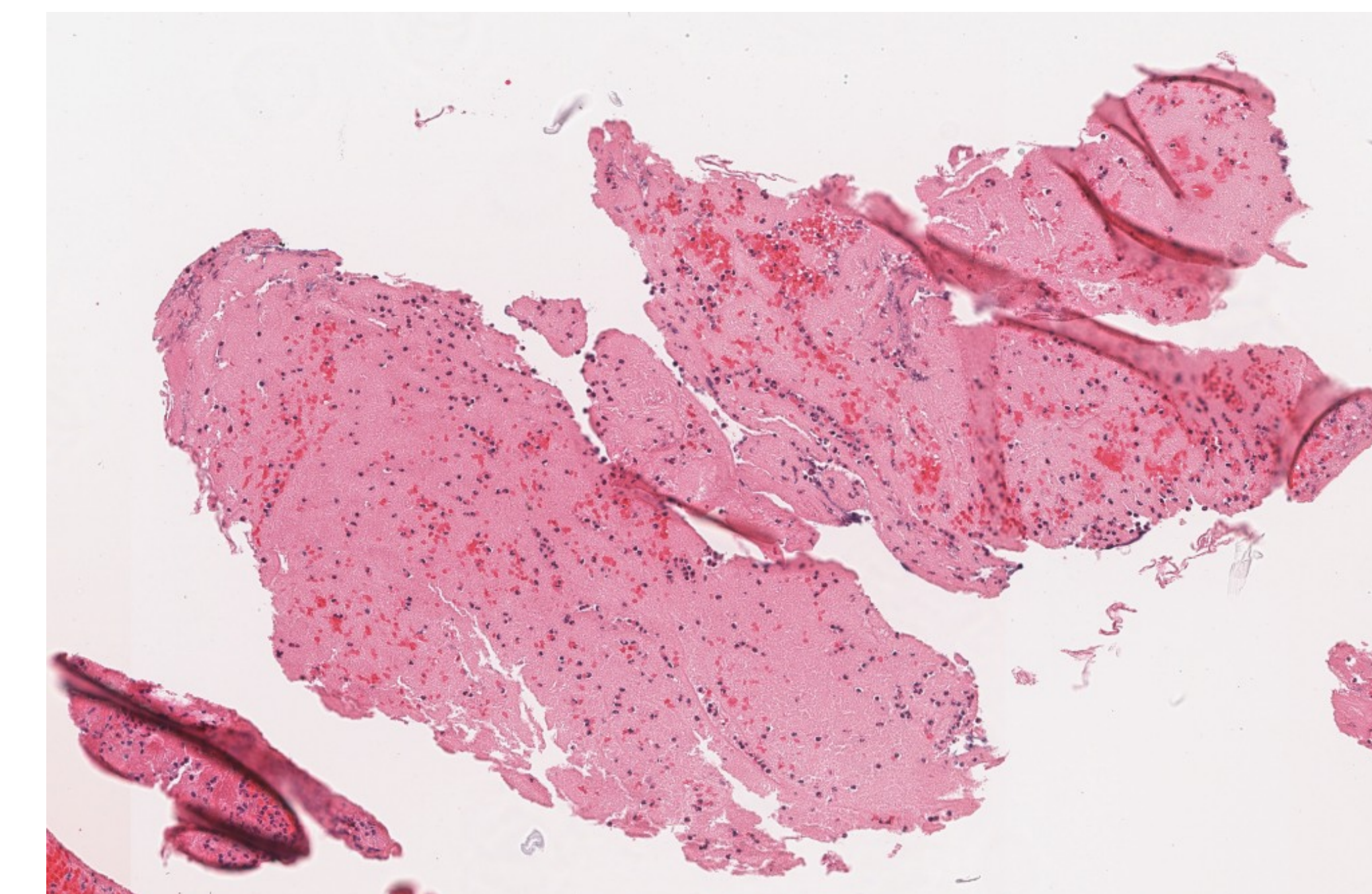
OCT w/ massive thrombus (blue arrows) despite initial thrombectomy and excellent angiographic result with focal regions of stent malapposition (green arrows) of the original DES.



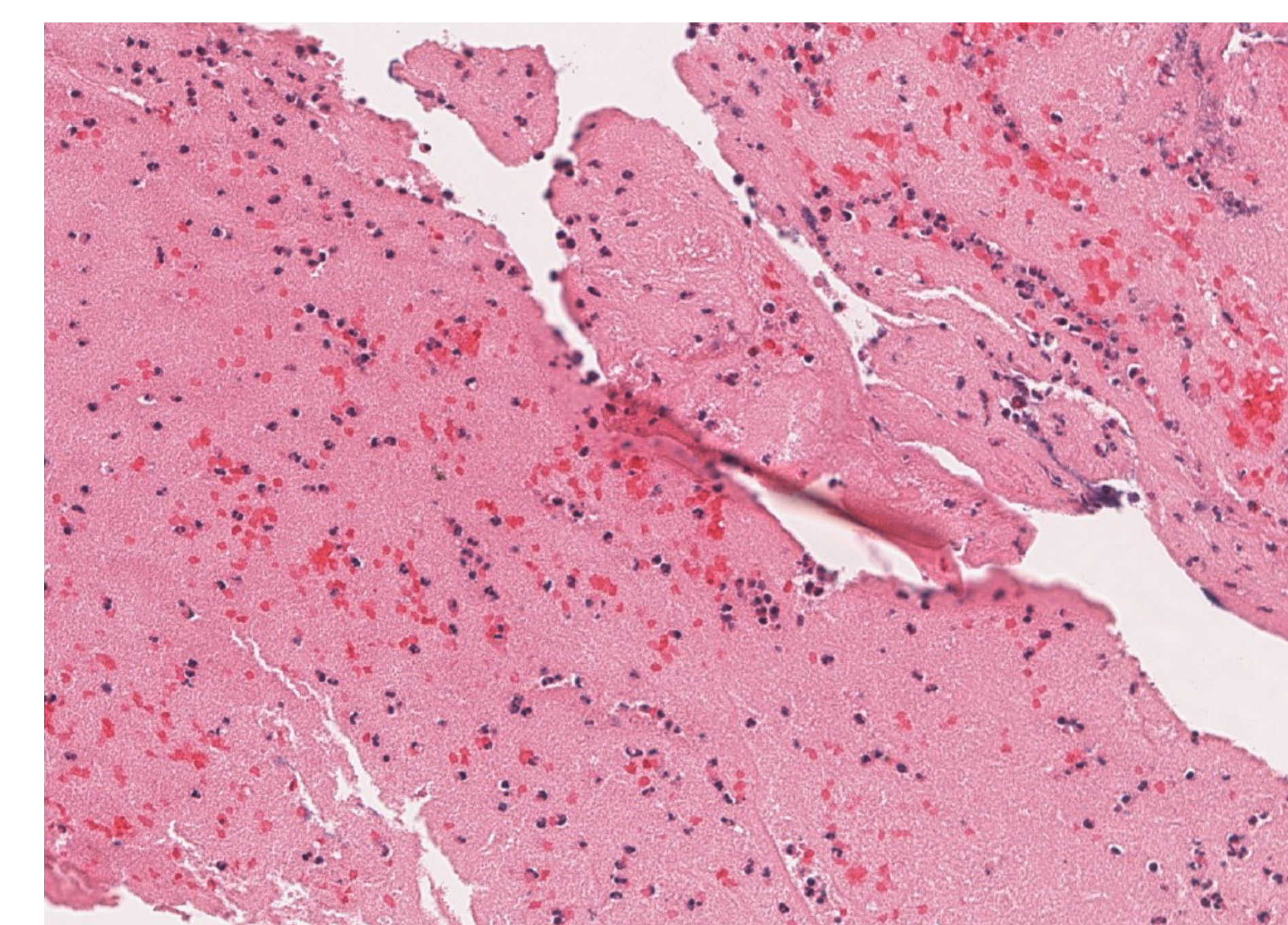
Final OCT result following additional thrombectomy and balloon angioplasty



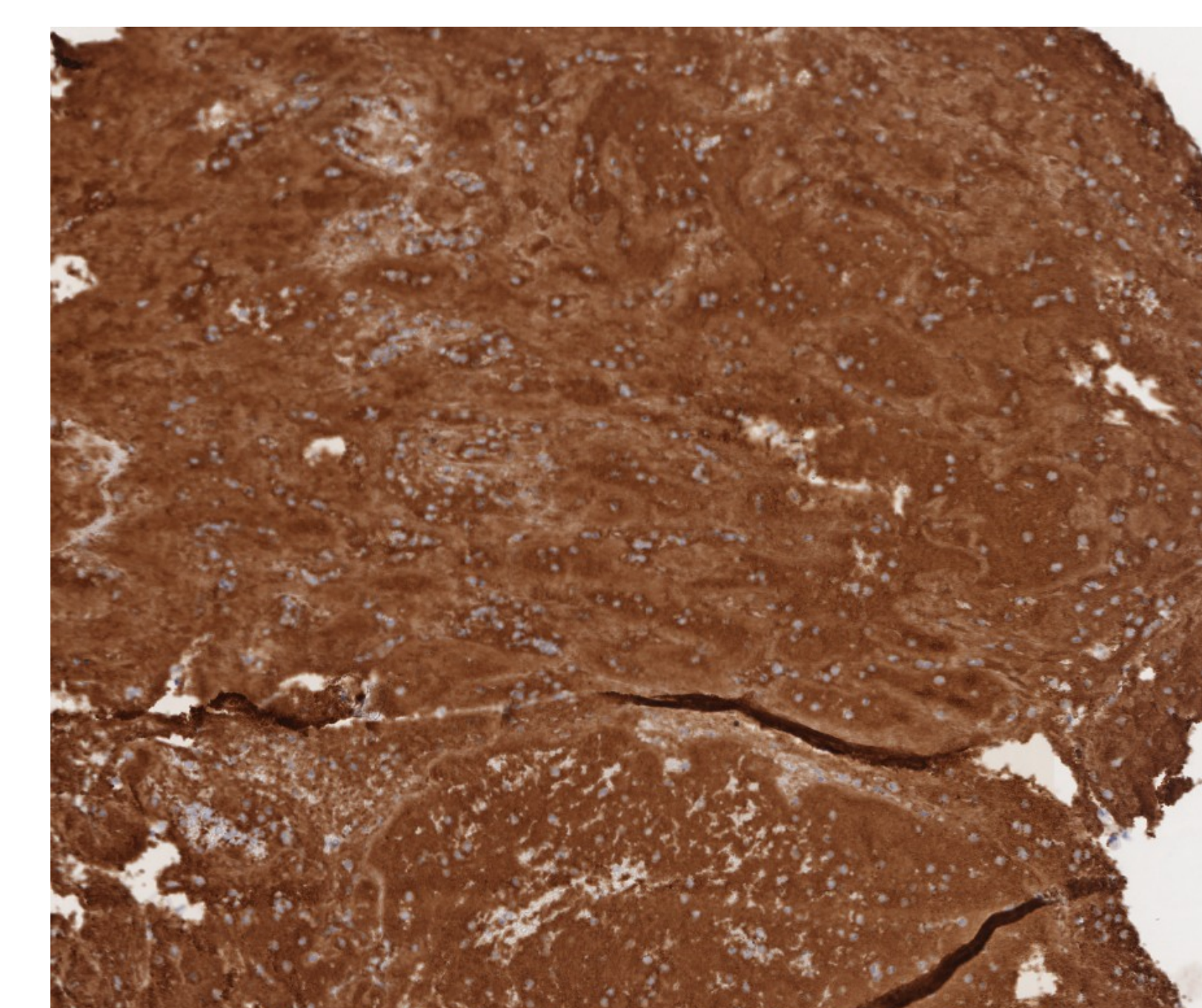
Thrombus aspirate.



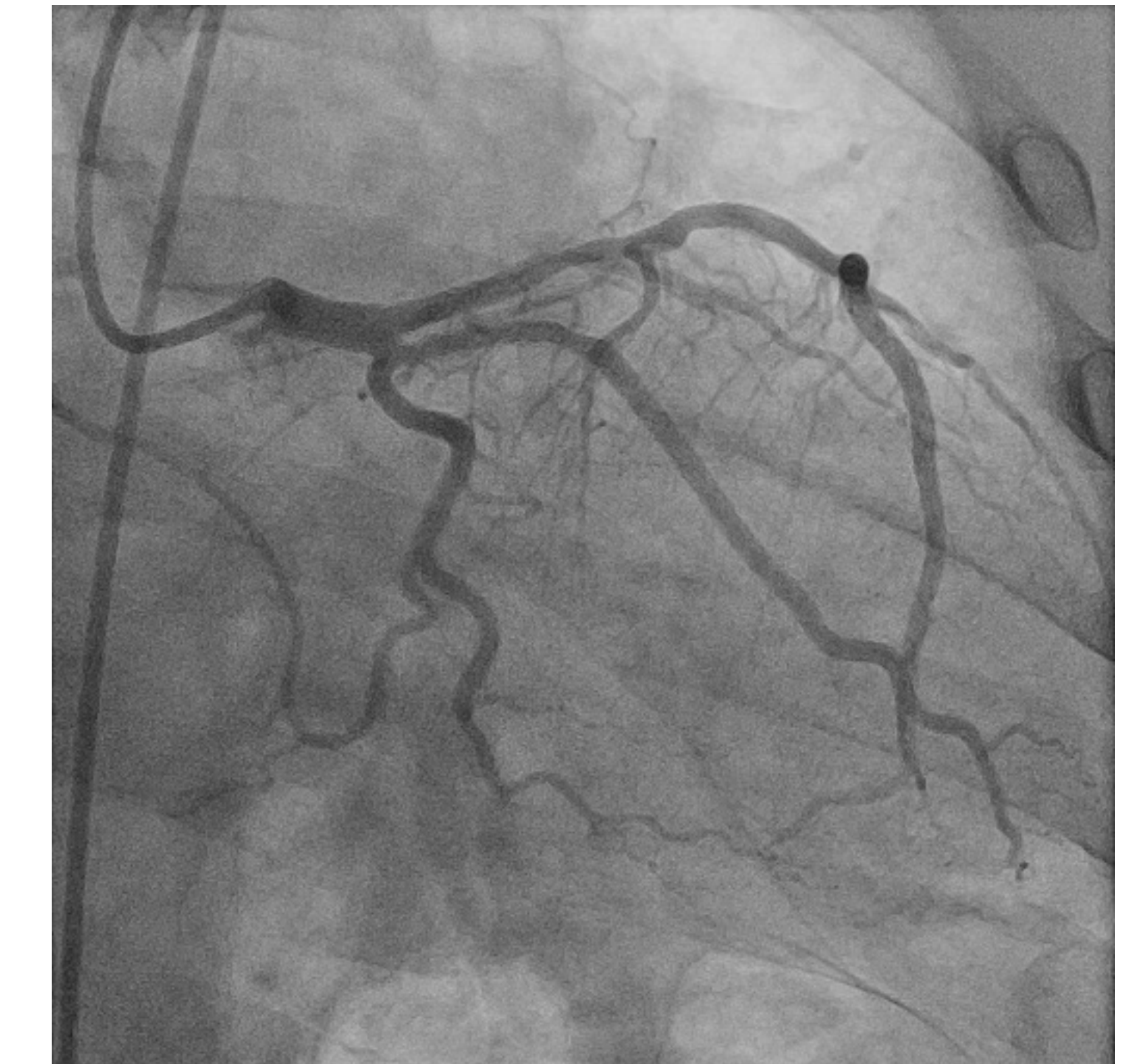
Low power H & E (10X) photomicrograph showing that the thrombus consists of red blood cells and finely granular eosinophilic platelets.



Higher power H & E (40X) photomicrograph showing in granular detail the platelet rich clot.



Immunohistochemical stain for CD61, a marker for platelets, documenting dense abundance of platelets.



Final angiography result following thrombectomy and balloon angioplasty

Conclusions

- We demonstrate a case of “very” very late stent thrombosis (VVLST) presenting beyond 7 years after initial implantation of first-generation DES related to non-compliance with antiplatelet therapy and non-adherence to smoking cessation.
- OCT analysis was critical for assessing lesion characteristics and confirming adequate stent apposition during the case without need for additional stent placement.
- Histologic analysis of extracted thrombus demonstrated platelet abundance.
- Prior case series of 7 patients demonstrating “very” very late stent thrombosis at our institution was limited by a lack of imaging and histologic analysis to define the mechanism of stent thrombosis which we demonstrate in this case.

(Kaliyadan A, Siu H, Fischman D, Ruggiero N, Jasti B, Walinsky P, Ogilby D, Savage MP. “Very” Very Late Stent Thrombosis: Acute Myocardial Infarction From Drug-Eluting Stent Thrombosis More Than 5 Years After Implantation. *Journal of Invasive Cardiology*. 2014;26[9]: 413-416)