Coronary plaque erosion: a clinical case

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Coronary plaque erosion: a clinical case

B.M.

Age: 59 years

Sex: female.

Cardiological risk factors: smoker, family history of cardiovascular disease.

Cardiological History: no prior cardiovascular events. Chest pain at rest; EKG: ST segment elevation in antero-septal leads and ST segment depression in infero-lateral leads. TnI on admission: 2,3 ng/ml.

Coronary angiography: Hazy image on proximal ADA.

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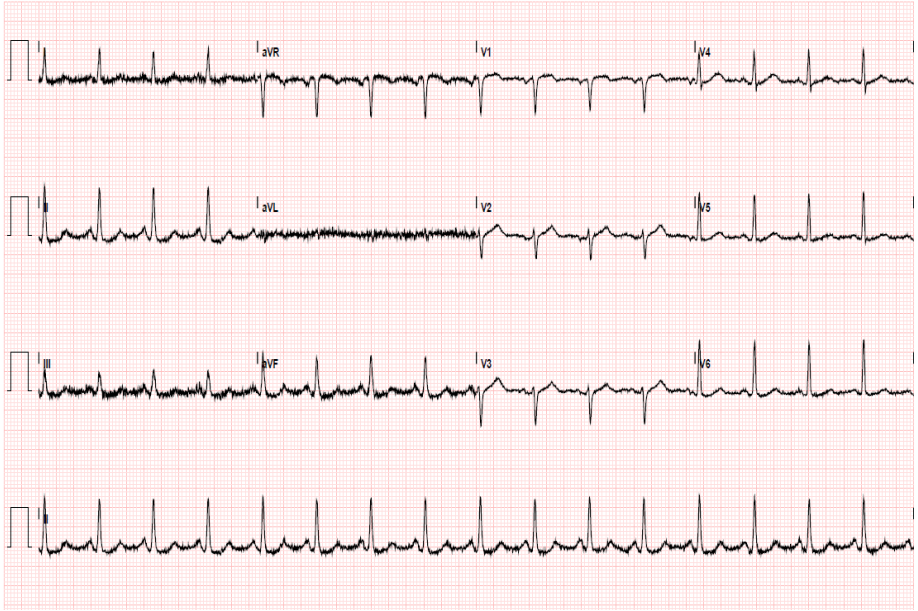

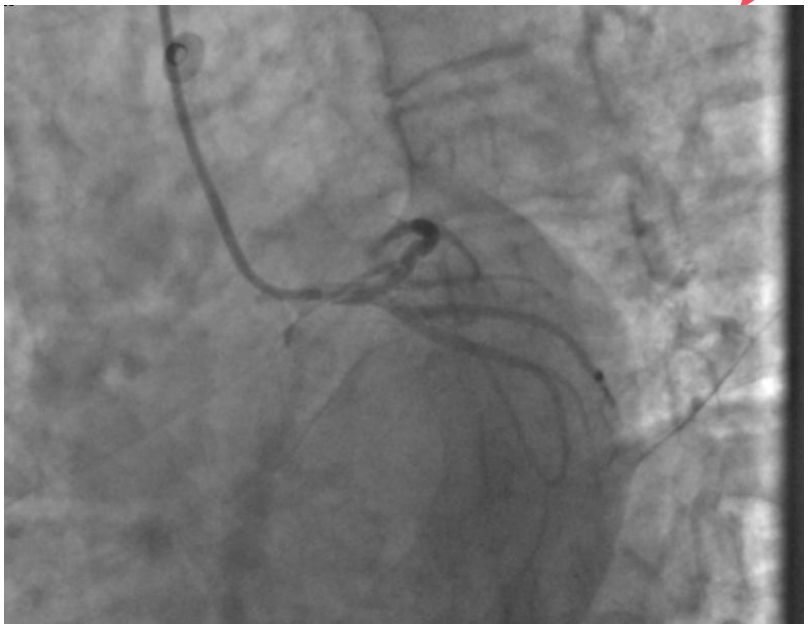

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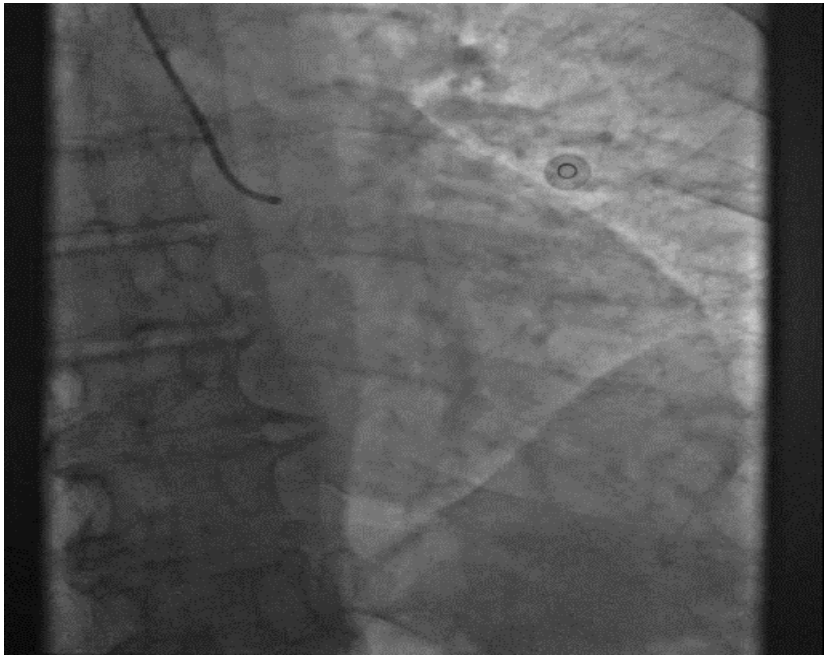
Angiography



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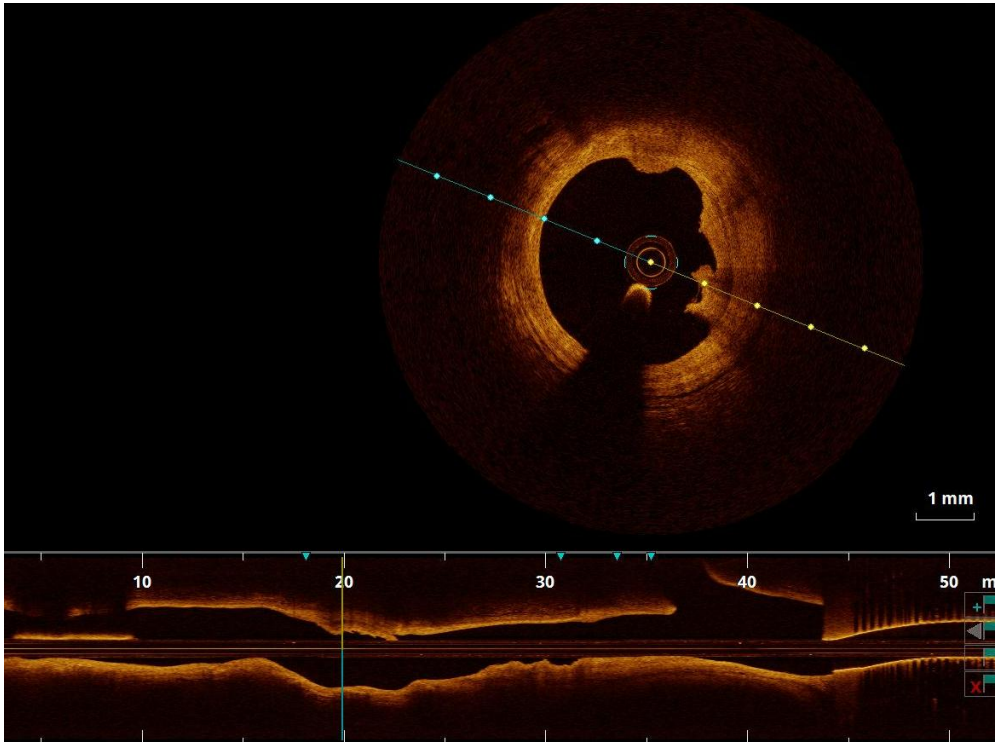
Area: 8,9 mm2

Medium Diameter: 3,4 mm



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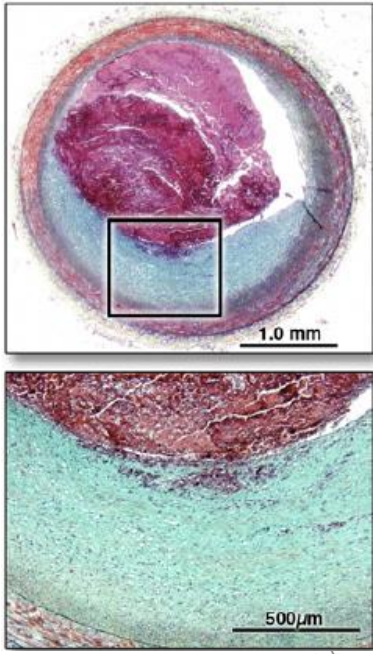
Definition

- 25% of thrombotic coronary occlusions
- Plaque erosion was identified when the fibrous cap of the culprit lesion was intact (thrombus often overlies atherosclerotic plaque without evident disruption of the fibrous cap).
- How to treat:
  - Conservative medical therapy (antiaggregation/anticoagulation therapy)
  - Invasive strategy (stent implantation)



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OCT-Based Diagnosis and Management of STEMI Associated With Intact Fibrous Cap

- OCT evaluation of 31 STEMI patients with plaque erosion in absence of local critical stenosis.
- 2 Groups :
  - 40% treated with thromboaspiration followed by dual antiplatelet therapy without percutaneous revascularization (group 1)
  - 60% treated with thromboaspiration followed by coronary angioplasty and stenting (group 2).
- Median follow-up of 753 days.
- After a median follow-up of 753 days, target lesion revascularization was performed in 1 patient in group 2, but no myocardial infarction, heart failure, or deaths occurred in either group.
- Conclusions: DAPT is an alternative treatment strategy for patients with acute coronary events and optical coherence tomography–verified intact fibrous cap (or plaque erosion), where nonobstructive lesions might be managed without stenting.

Prati et Al - J Am Coll Cardiol Img 2013;6:283–7

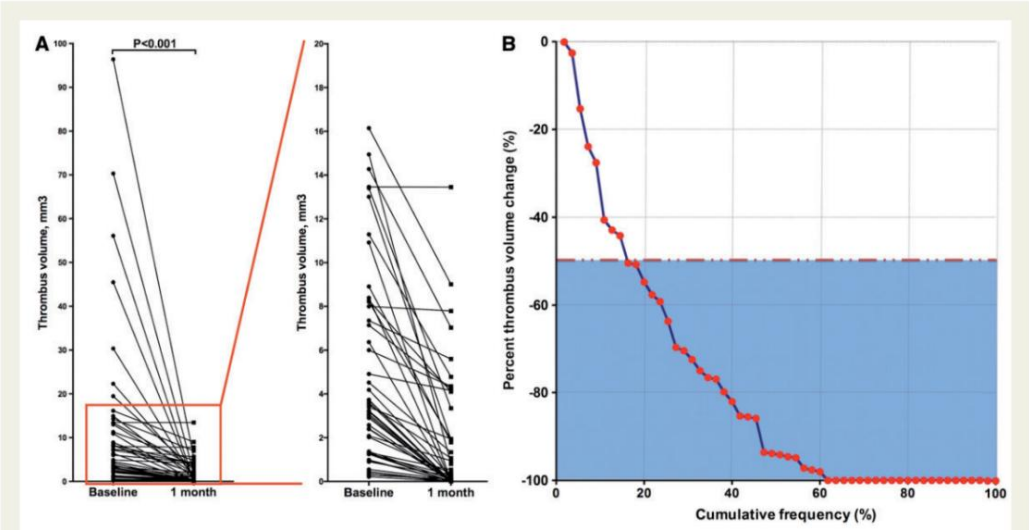
Coronary plaque erosion: a clinical case

Evidences in literature

The EROSION Study

Thrombus volume reduction (>50%) after 1 month OCT-follow up in 47/60 (78,3%) ACS patients treated with conservative medical therapy without stent implantation:

- ASA 100 mg/die
- Ticagrelor 90 mg bid
- Unfractioned Heparin or Enoxaparin (just for 3 days after admission).



Haibo J. et al - European Heart Journal (2016) 0, 1–9

Coronary plaque erosion: a clinical case

Stenting or not stenting?

MORPHOLOGICAL PLAQUE EROSION FEATURES CRITERIA:

1. absent or deeply seated necrotic core with an intact fibrous cap.

2. stenosis of coronary lumen may not always be significant in eroded plaques (plaque erosion had an average 70% area stenosis).

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Treatment strategy

- **Conservative medical therapy (ASA 100 mg/die, Ticagrelor 90 mg x 2)**
- **Therapy on discharge: Ramipril 2,5 mg/die, ASA 100 mg/die, Ticagrelor 90 mg x 2, Bisoprolol 2,5 mg/die, Atorvastatin 40 mg/die.**
- **At 9 months clinical follow up no adverse events recorded.**

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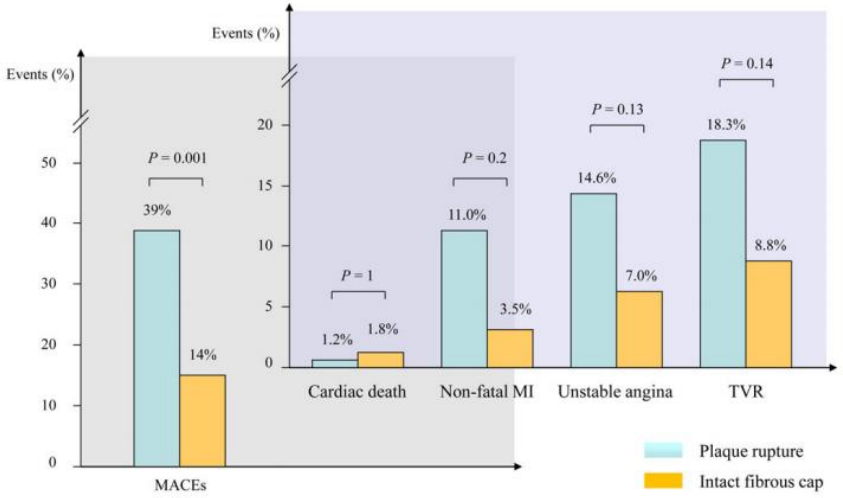
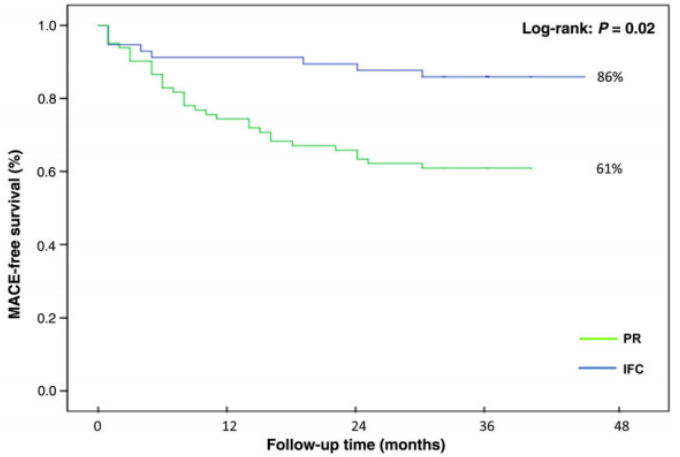
Coronary plaque erosion: a clinical case

Plaque rupture and intact fibrous cap assessed by optical coherence tomography portend different outcomes in patients with acute coronary syndrome



Procedural data, *n* (%)			
Stent implanted			
DES	100 (71.9)	60 (73.2)	40 (70.2)
BMS	29 (20.9)	17 (20.7)	12 (21.0)
POBA	10 (7.2)	5 (6.1)	5 (8.8)



No. at risk				
Intact fibrous cap	57	52	51	49
Plaque rupture	82	61	54	50

Niccoli et al. European Heart Journal (2015) 36, 1377–1384

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EDITORIAL COMMENT

Coronary Plaque Erosion

Recognition and Management*

Eugene Braunwald, MD

Boston, Massachusetts

Braunwald E, JACC Imaging, 2013

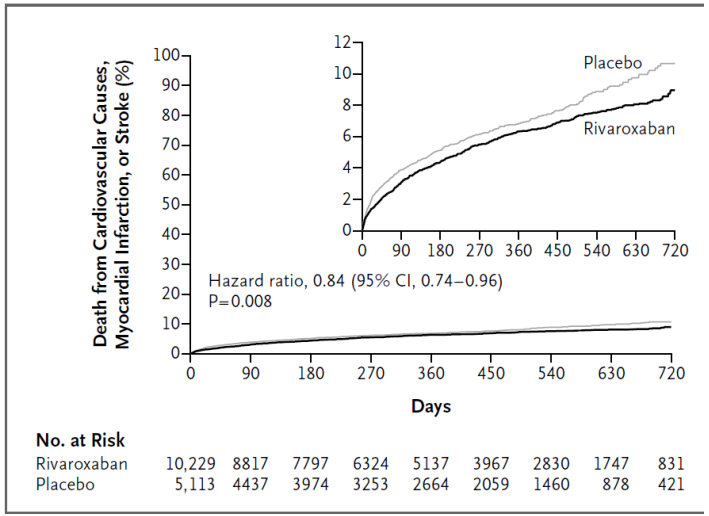
The NEW ENGLAND JOURNAL of MEDICINE

ESTABLISHED IN 1812 JANUARY 5, 2012 VOL. 366 NO. 1

ATLAS-ACS2-TIMI51

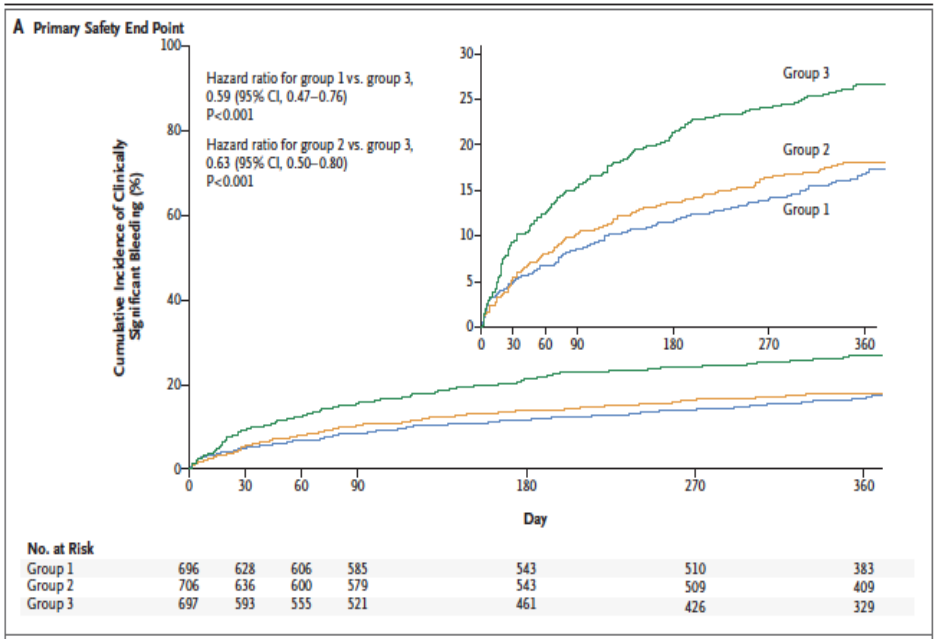
Rivaroxaban in Patients with a Recent Acute Coronary Syndrome

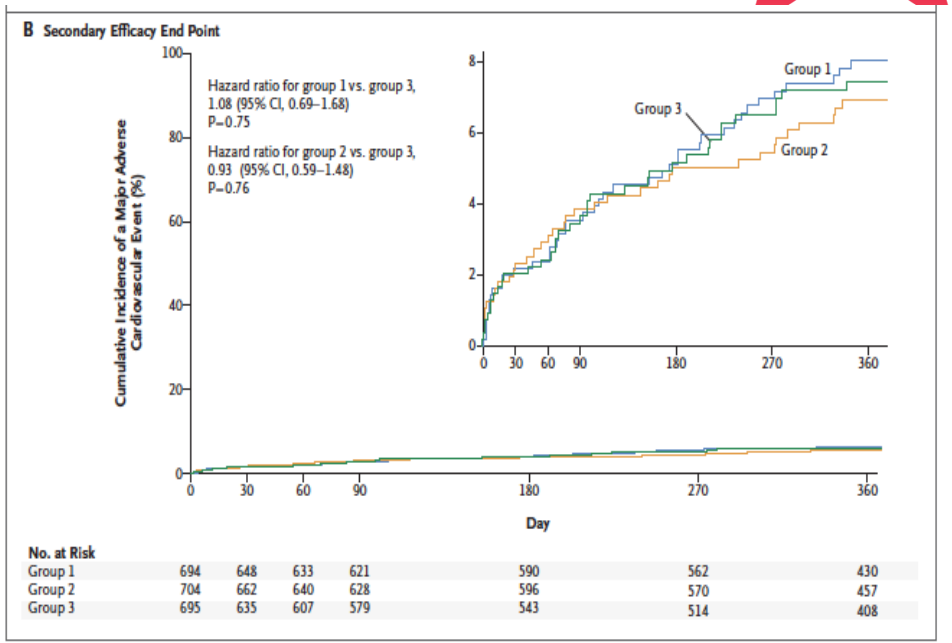
Jessica L. Mega, M.D., M.P.H., Eugene Braunwald, M.D., Stephen D. Wiviott, M.D., Jean-Pierre Bassand, M.D., Deepak L. Bhatt, M.D., M.P.H., Christoph Bode, M.D., Paul Burton, M.D., Ph.D., Marc Cohen, M.D., Nancy Cook-Bruns, M.D., Keith A.A. Fox, M.B., Ch.B., Shinya Goto, M.D., Sabina A. Murphy, M.P.H., Alexei N. Plotnikov, M.D., David Schneider, M.D., Xiang Sun, Ph.D., Freek W.A. Verheugt, M.D., and C. Michael Gibson, M.D., for the ATLAS ACS 2–TIMI 51 Investigators*



- 15,526 patients with an ACS to receive twice-daily doses of either 2.5 mg or 5 mg of rivaroxaban or placebo for a mean of 13 months and up to 31 months.
- The primary efficacy end point was a composite of death from cardiovascular causes, myocardial infarction, or stroke.
- Rivaroxaban reduced the risk of the composite end point of death from cardiovascular causes, myocardial infarction, or stroke.
- Rivaroxaban increased the risk of major bleeding and intracranial hemorrhage but not the risk of fatal bleeding.

PIONEER-AF





Gibson MC et al, NEJM, 2016

Conclusions

- **Management of coronary erosion is controversial**
- **The decision to implant or not a stent is the first issue**
- **The second issue is related to the type of antithrombotic regimen**
- **Finally lenght of antithrombotic therapy needs to be elucidated**

Thank you for your attention