



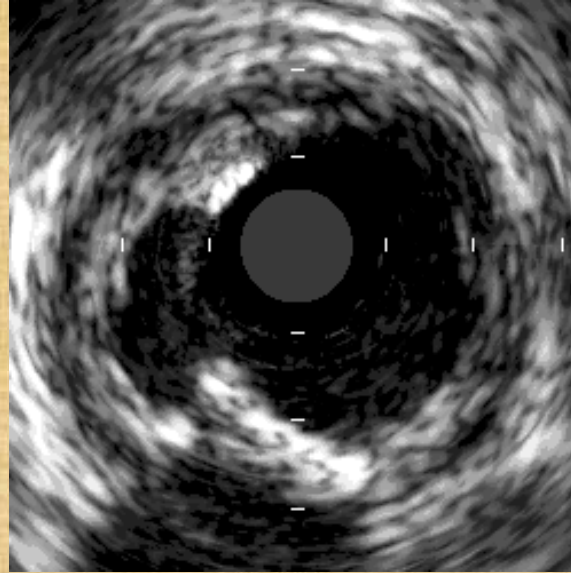
Going Beyond Angiography;

VH-IVUS defined plaque rupture

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Background



The rupture of a vulnerable plaque and subsequent thrombus formation are the most important mechanisms leading to ACS. A thin fibrous cap can contribute to plaque rupture and ACS.

(Naghavi M et al, *Circulation* 2003;108:1664 –1672.)

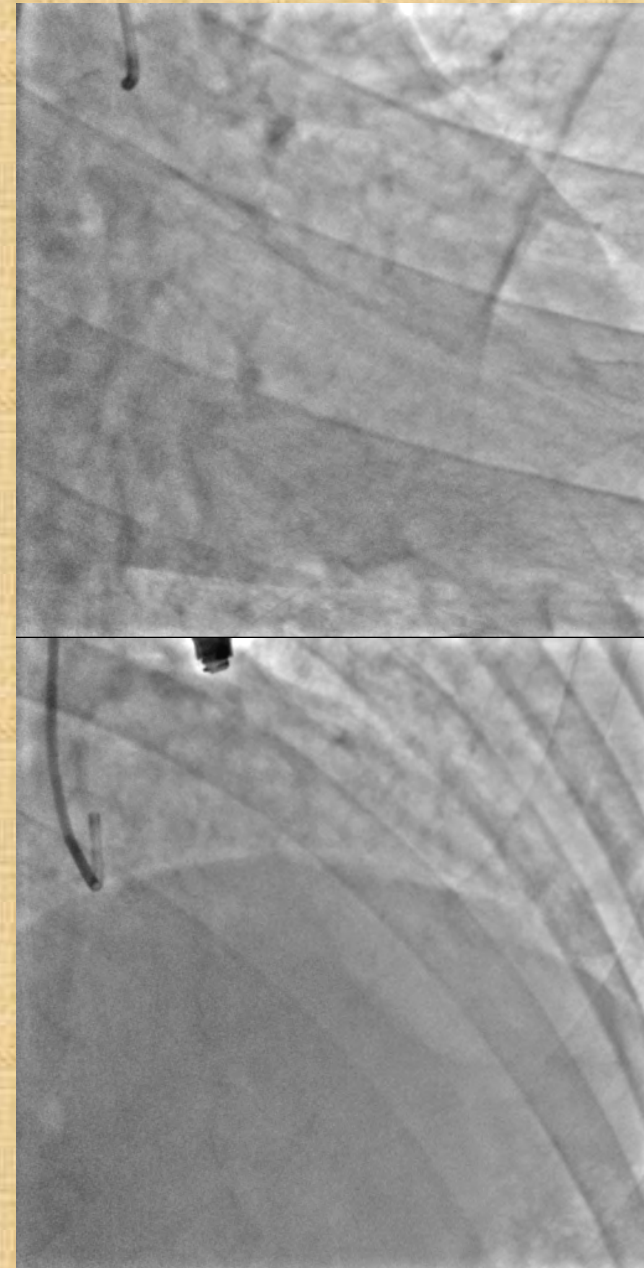
(Virmani R et al, *Arterioscler Thromb Vasc Biol* 2000;20:1262–1275.)

(Virmani R et al, *J Am Coll Cardiol* 2006;47:C13–C18.)

Case 1.

M/64, Acute ST elevation MI

Primary PCI and VH-IVUS

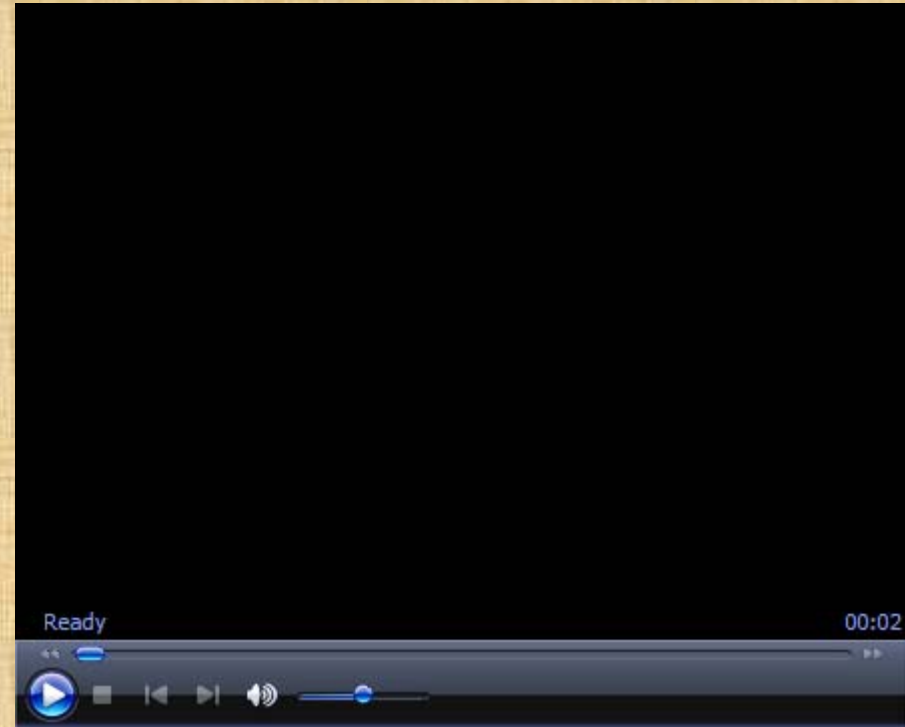


Grey scale IVUS



Lesion length (mm)	19.6
EEM area (mm ²) - ruptured site	20.5
Lumen area (mm ²) - ruptured site	4.5
Minimal lumen area (mm ²)	2.0
Plaque area (mm ²) - ruptured site	16
Plaque burden (%) - ruptured site	78
Remodeling index - ruptured site	1.0
Ruptured cavity (mm ²)	0.55

VH-IVUS



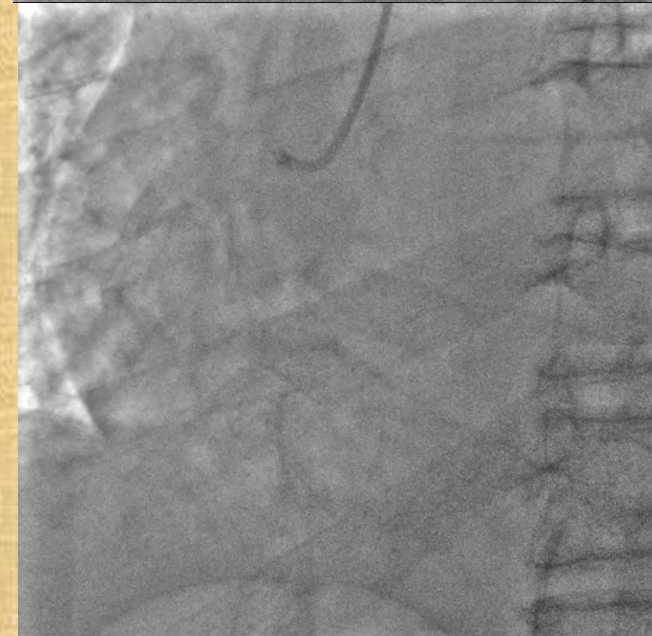
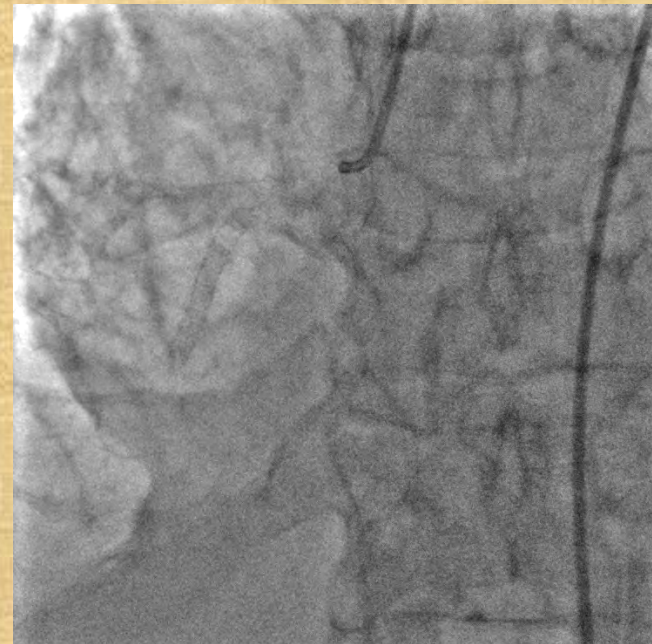
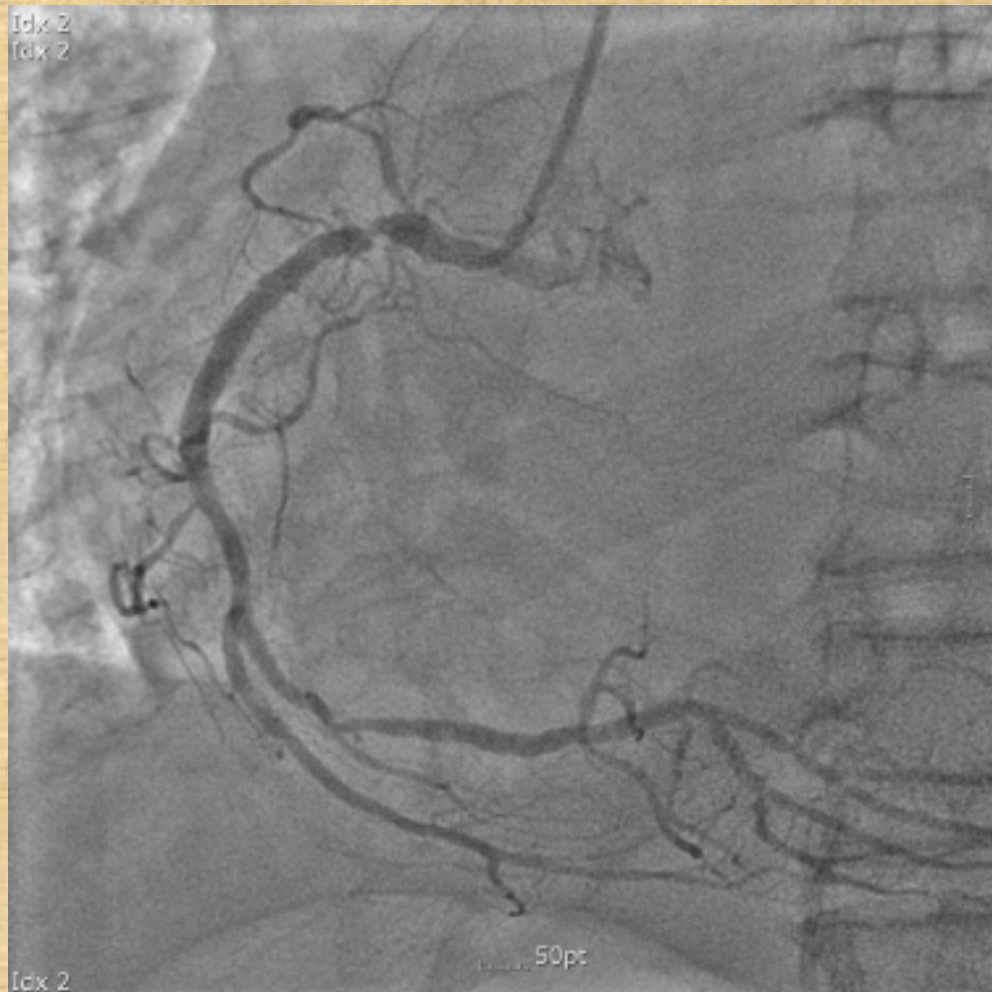
Ruptured plaque site

Fibrotic area (mm ²)	8.0
Fibrofatty area (mm ²)	2.6
Necrotic area (mm ²)	2.1
Dense calcium area (mm ²)	0.4
Fibrotic area (%)	61
Fibrofatty area (%)	19
Necrotic area (%)	16
Dense calcium area (%)	2.9

Case 2. M/72, Acute ST elevation MI

Past medical history; PCI mRCA, 2009.12.

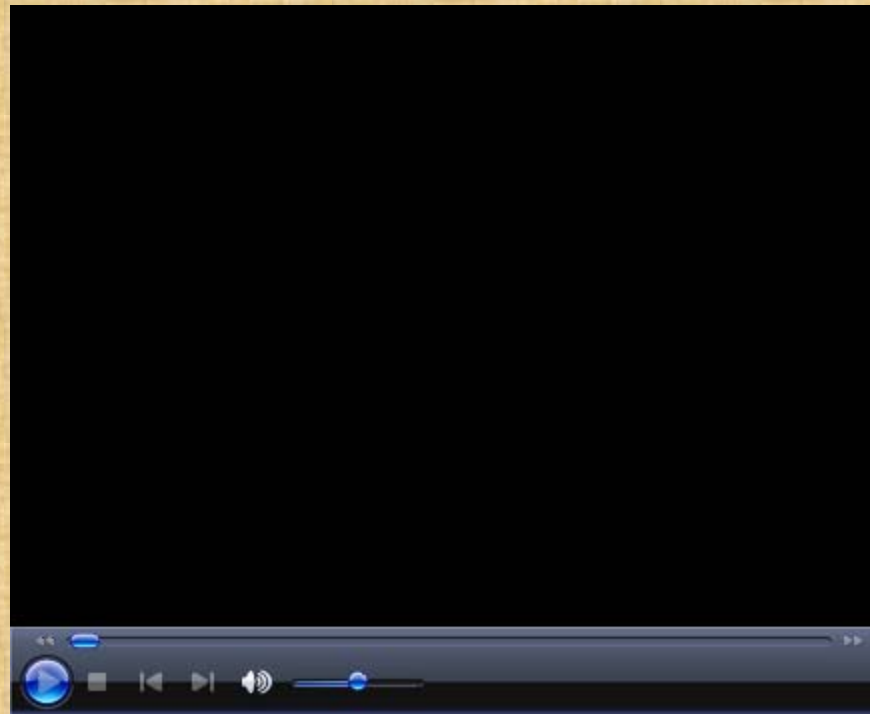
Primary PCI with VH-IVUS



Grey scale IVUS



VH-IVUS



Lesion length (mm)	12.2
EEM area (mm ²) - ruptured site	25.9
Lumen area (mm ²) - ruptured site	9.2
Minimal lumen area (mm ²)	4.4
Plaque area (mm ²) - ruptured site	16.7
Plaque burden (%) - ruptured site	64.3
Remodeling index - ruptured site	0.96
Ruptured cavity (mm ²)	2.88

Ruptured plaque site

Fibrotic area (mm ²)	6.6
Fibrofatty area (mm ²)	0.6
Necrotic area (mm ²)	5.5
Dense calcium area (mm ²)	0.8
Fibrotic area (%)	48.8
Fibrofatty area (%)	4.6
Necrotic area (%)	40.8
Dense calcium area (%)	5.7

Happy Halloween



Thank you for your attention
