INTRAVASCULAR ULTRASOUND(IVUS) ASSESSMENT OF NON-CULPRIT CORONARY ARTERIES IN PATIENTS SUFFERING FROM ST ELEVATION MYOCARDIAL INFARCTION

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STEMI and its Plaques…

- Plaque instability is not a mere random "vascular accident"
- "Pan-coronary" process
- Presence of variable number of plaques in different culprit as well as non-culprit segments and also in non-infarct arteries
- These additional plaques have been found to correlate often with coronary risk factors and have added to the future risk

During Primary PCI...

- We intervene only IRA (infarct related artery)
- Even at that time there do persist other vulnerable plaques
- Angiography, angioscopy, IVUS, OCT can identify these plaques
- Goldstein et al. Demonstrated unstable lesions other than the culprit lesions in 21% STEMI
- After myocardial infarction, the presence of multiple complex plaques was associated with an increased incidence of recurrent ACS, repeated angioplasty, particularly of non–infarct related lesions

SPECIFIC OBJECTIVES OF THIS STUDY:

- 1. To determine the prevalence of atherosclerotic plaques in non-culprit vessels in patients with STEMI
- 2. To assess the composition and vulnerability of atherosclerotic plaques in non-culprit vessels in patients with STEMI
- 3. To compare plaque incidence and morphology in different subgroups

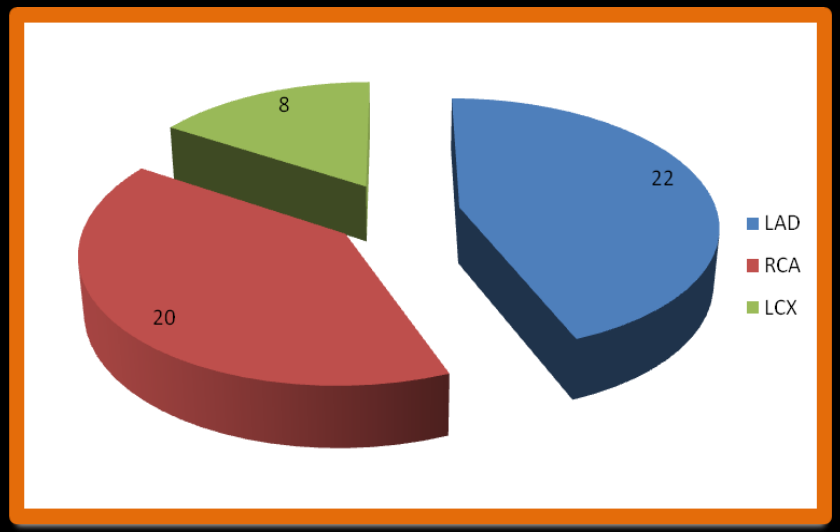
What is a vulnerable Plaque

- TCFA (Thin capped fibro-atheroma) is a lesion fulfilling the following criteria in at least 3 frames:

(i) plaque burden ≥ 40%;

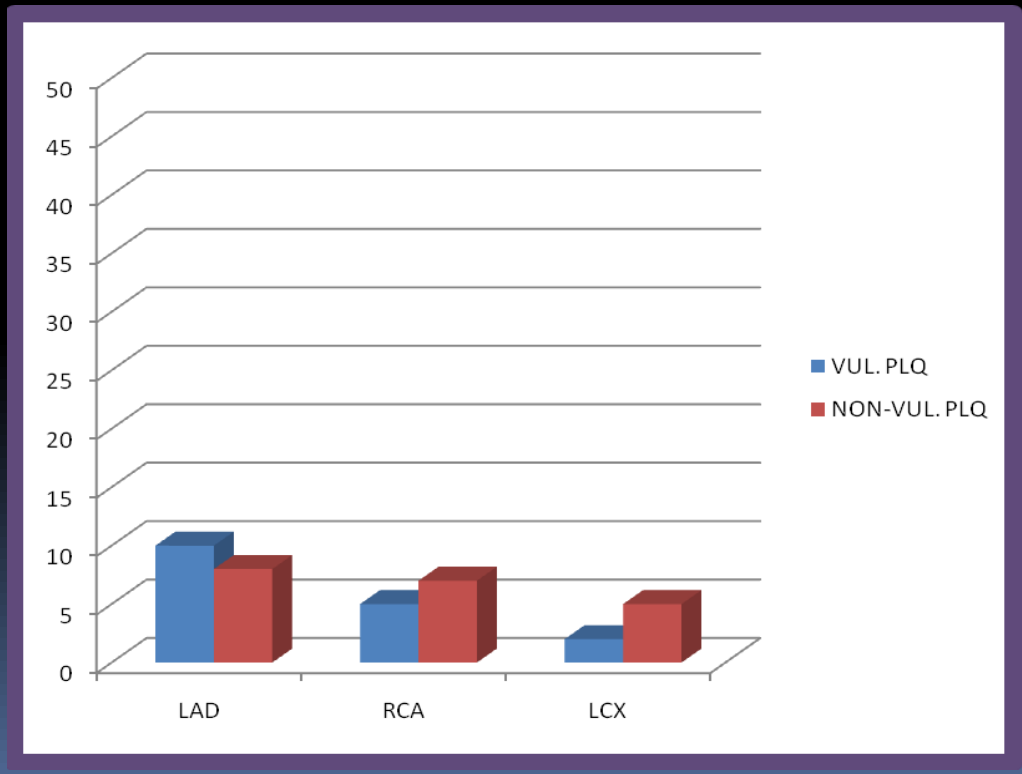
(ii) confluent necrotic core ≥ 10% in direct contact with the lumen (i.e. no visible overlying tissue).

- Thin fibrous cap
- Inflammatory cells
- Superficial thrombus
- Intra-plaque hemorrhage
- Positive remodelling



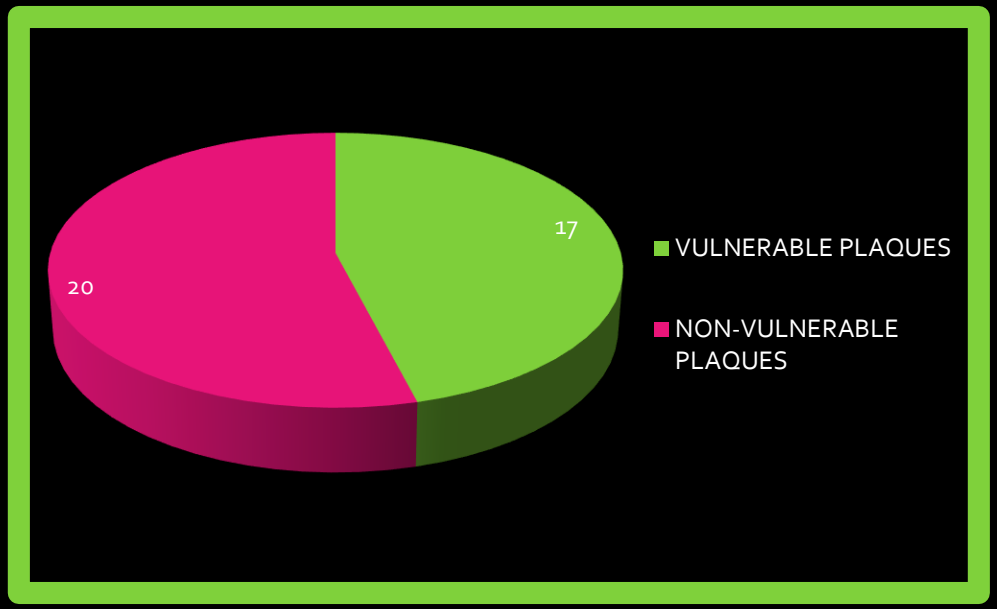
Distribution of IRA in our study

Distribution of IVUS detected plaques in non-IRA arteries.



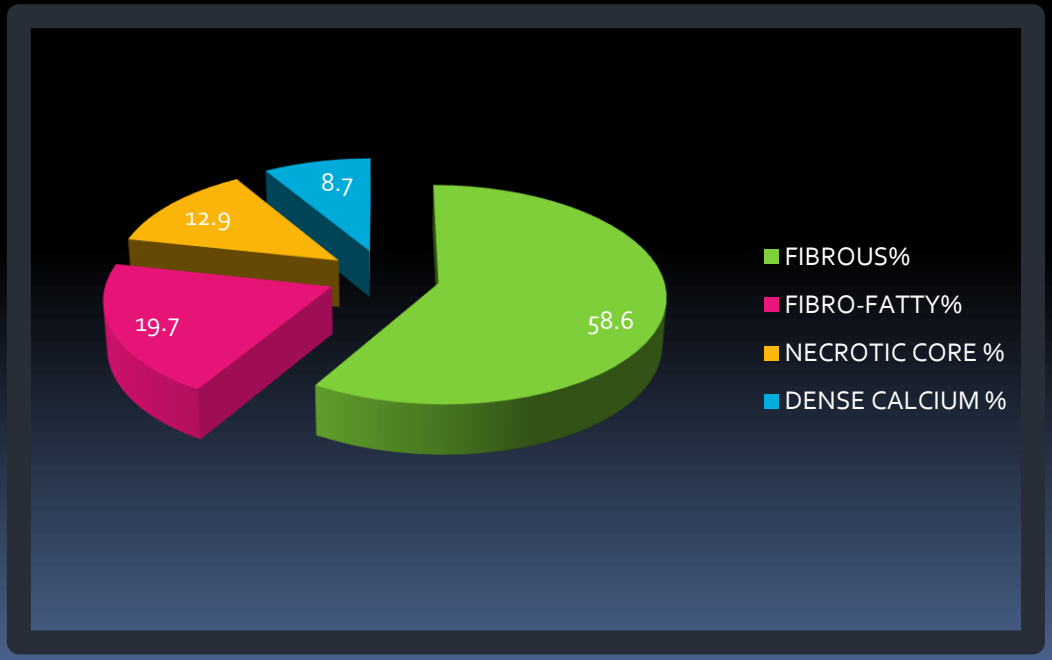
Among non-IRAs evaluated

18 plaques were found among 26 LADs,
12 plaques were found among 16 RCAs
7 plaques were found among 8 LCXs.



Character of non-IRA plaques in all coronaries

Plaque composition was similar in IRA and non-IRA plaques



Elevated hsCRP significantly related to presnce of plaques in non-IRAs

Table 12. Relationship between presence of plaques in non-IRA and hsCRP.			
hs CRP (mg/dl)	Plaque	Non - plaque	Total
<2	1	3	4
2-4.99	21	10	31
≥5	15	0	15
Total	37	13	50
P value < 0.001			

CONCLUSION

- We found **74%** prevalence of **non-IRA plaques** out of which **46%** were **vulnerable plaques**.
- All such plaques were obtained at coronary sites which looked apparently healthy in angiogram.
- Most of these non-IRA plques were found in LAD, followed by RCA and lastly in LCX.
- Plaque components in our study - 58.6% fibrous tissue, 19.7% fibro-fatty tissue, 12.9% necrotic core and 8.7% dense calcium.
- Most of the CV risk factors were found to be more prevalent among those with additional non-IRA plaques .
- hs-CRP was found to be significantly more prevalent among those with non-IRA plaques and further more in vulnerable plaques.

THANKYOU