

Non-coronary contrast CT scan in detection of myocardial Infarction

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INTRODUCTION

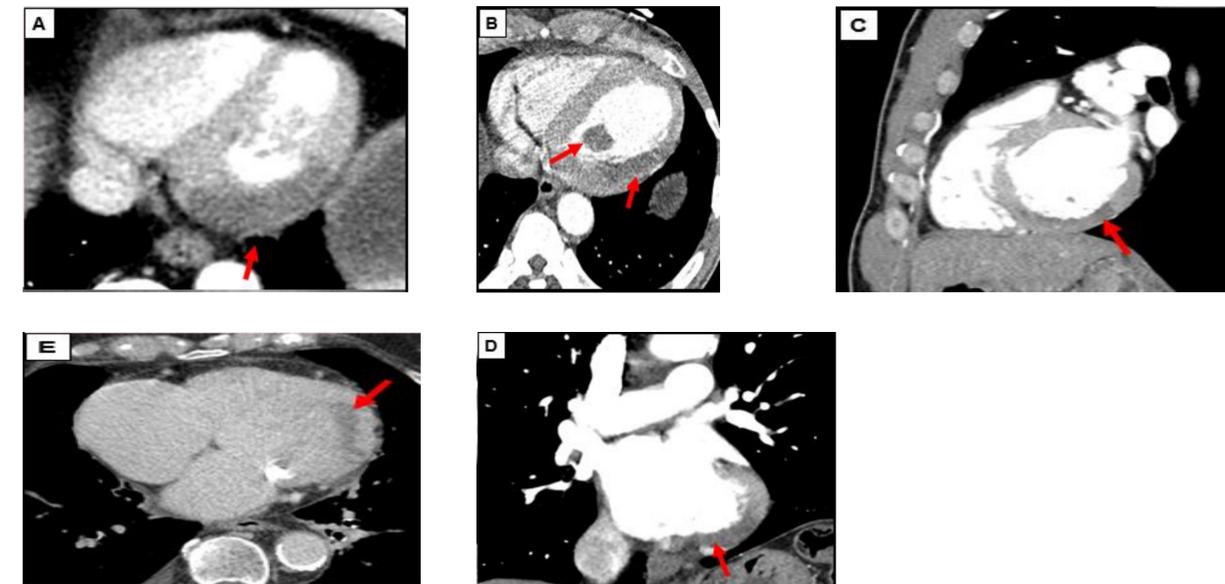
Non-coronary contrast CT scan may have utility in early detection of acute myocardial infarction (AMI), especially in detecting incidental cases where other diagnoses are deemed to be more clinically likely.

METHODS AND RESULTS

- Five patients with chest pain (typical and atypical) were selected using retrospective reporting of AMI from the cath lab.
- All the patients with a normal troponin-I and ECG on initial testing.
- The cases are described as A-E in [Table 1], with corresponding CT images in [Figure1].

DISCUSSION

- An acute MI can be detected on contrast-enhanced chest CT as areas of lipomatous metaplasia, myocardial calcifications, focal areas of wall thinning, aneurysm formation, perfusion anomalies and LV thrombi [1].
- In a retrospective review conducted by Gosalia A et al. [2], the sensitivity of CT for detecting an acute MI in this series was 83%, the specificity was 95% (n=69).



[Figure 1]: CT images: hypo enhancement (red arrow) in our cases. Case A had a CT abdomen, cases B-E had a non-coronary protocol of CT chest angiography to rule out aortic dissection and pulmonary embolism

Case	Presentation	CT Findings	Subsequent Findings	Angiographic findings
A	59 M, epigastric pain	CT abdomen: hypo-enhancement of LV inferior and inferolateral walls	ECG: ST elevation in II,III,aVF TropI: Significant rise	100% proximal LCA, RCA diffuse 80% stenosis
B	50 M, severe substernal CP, nausea, vomiting, diaphoresis	CTAc: r/o AD, had hypo-enhancement of LV basal lateral, mid inferolateral, posterior medial papillary muscle (Fig1B, red arrows)	ECG:ST elevation in V5-V6 TropI: Rising	Culprit lesion OM and mid to distal circumflex
C	32 M, sudden onset chest pain after cocaine	CTAc: r/o AD, had hypo-enhancement of LV inferior wall sub endocardium (Fig1C, red arrow)	ECG: New ST depressions in II,III,aVF TropI: Mild rise	100% proximal RCA diffuse occlusion
D	65 F, CP, shortness of breath after cocaine	CTAc: r/o AD and pulmonary embolism, had hypo-enhancement of LV proximal, mid lateral, inferolateral wall (Fig1D, red arrows)	ECG:ST elevation in V3-V4 TropI: Rising	Total occlusion of the mid circumflex, 70% stenosis of the LAD, 70% tubular lesion of PS
E	84 F, acute onset back pain, CP	CTAc: r/o AD, had subendocardial hypo-enhancement of LV apical, distal anterolateral (Fig1E, red arrows)	ECG:ST elevation in V3-V4 TropI: Mild rise	80% stenosis in D1 of LAD

[Table 1]: Cases A-E with chest pain M= male, CP=chest pain, LV=left ventricle, CTAc= non-coronary CT angiography chest, r/o AD=ruled out aortic dissection, LAD= left anterior descending, RCA= right coronary artery, OM=Obtuse marginal, PS=Proximal segment, D1=Diagonal branch.

CONCLUSION

- A high index of suspicion is warranted, especially in interpreting the CT scans as this could have life-saving ramifications.
- However, confirmatory testing is always the norm and troponin-I assays and subsequent angiography may be warranted.

REFERENCES

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- [2] Gosalia A, Haramati LB, Sheth MP, Spindola-Franco H. CT detection of acute myocardial infarction. AJR Am J Roentgenol. 2004 Jun;182(6):1563-6. doi: 10.2214/ajr.182.6.1821563. PMID: 15150010.