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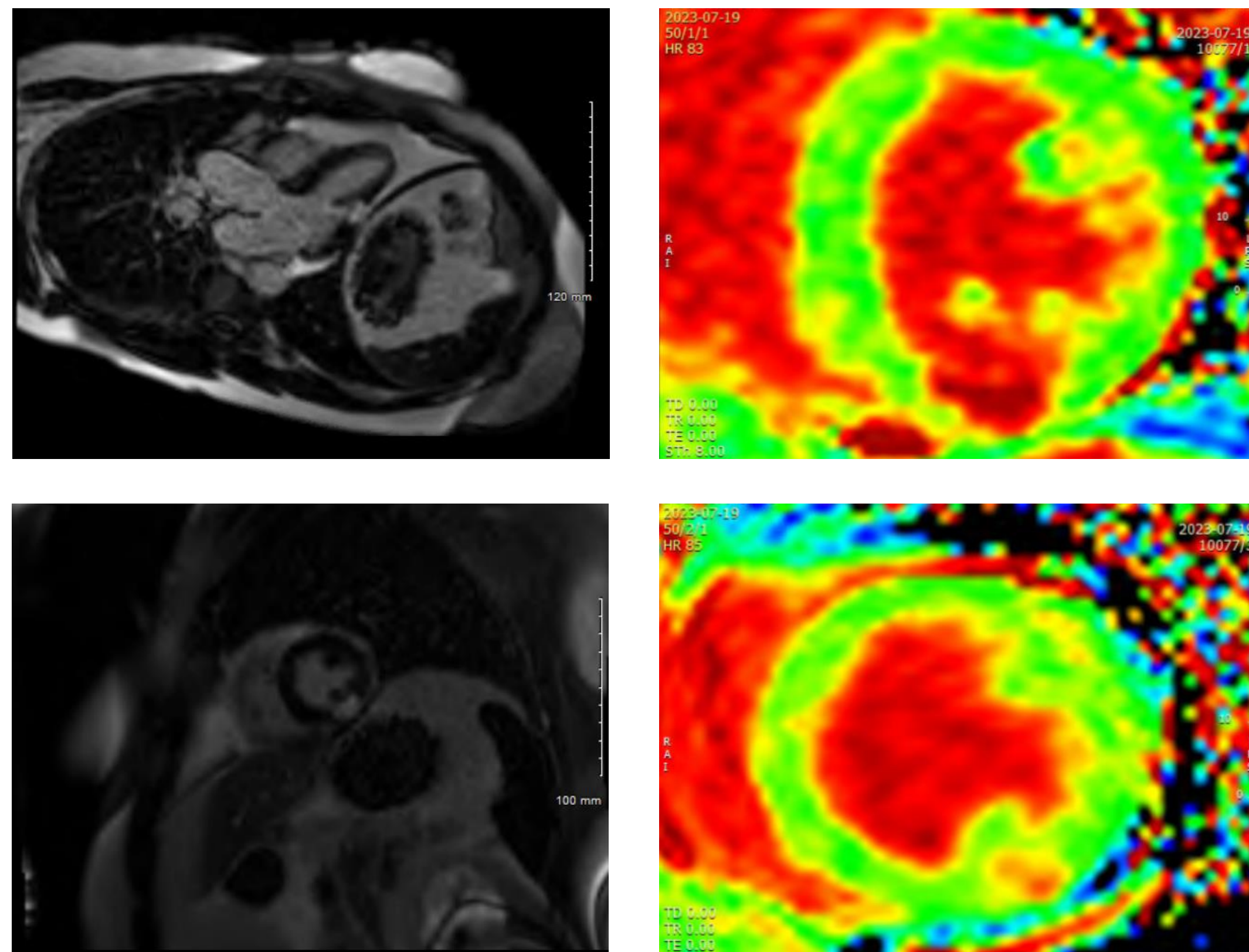
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## Introduction

- Myocardial infarction with non-obstructive coronary arteries (MINOCA) poses a challenge, especially in young females with few traditional cardiovascular risk factors.
- MINOCA accounts for approximately 15% of acute myocardial infarctions (AMI), with a notable impact on this specific demographic.
- The unique profile of young females demands the implementation of thorough diagnostic and management approaches to address MINOCA effectively.

## Figure



Focal transmural LGE in long and short axes at the level of mid inferolateral segment with corresponding elevated ECV.

## Case Presentation

- A 45-year-old female with a medical history of hypertension, hyperlipidemia, and migraine, presents with acute onset of chest pain radiating to the arm, accompanied by dyspnea and lightheadedness. Transported via Emergency Medical Services to an external medical facility with a markedly elevated high-sensitivity troponin (hsTNT) level of 373.
  - Coronary angiography: Only minimal evidence of disease observed within the left anterior descending artery (LAD).
  - Discharged with aspirin 81mg daily.
- Persistent intermittent chest pain, which intensified with exertion. Subsequent admission with elevated cardiac troponin I (TNI) levels (peaking at 1.81) and elevated C-reactive protein (CRP) levels.
  - Initiation of colchicine therapy and increased aspirin dosing (650 mg every eight hours) due to suspected myocarditis.
- Persistent and vexing chest pain despite intervention. Thus, referral to Women Heart Center. Underwent cardiac magnetic resonance imaging (CMRI) evaluation: Mid inferolateral wall hypokinesis and a transmural region of late gadolinium enhancement (LGE) with a "punched out" configuration at the mid inferolateral segment level (Figure).
  - Diagnosis established: Myocardial Infarction with No Obstructive Coronary Artery Disease (MINOCA), likely due to plaque rupture. Persistent chest pain attributed to vasospastic and microvascular angina, common in post-MINOCA patients.
  - Patient was started on clopidogrel and maintained on aspirin, metoprolol succinate, and rosuvastatin regimen, with initiation of cardiac rehabilitation.

## Discussion

- MINOCA, a diverse syndrome, predominately affects females with a heterogenous working diagnosis.
- Criteria for MINOCA diagnosis:
  - Presence of positive cardiac biomarker, indicating myocardial injury or infarction.
  - Absence of significant stenosis ( $\geq 50\%$ ) in any epicardial coronary arteries.
  - Lack of alternative explanations for the initial clinical presentation.
- To ascertain the underlying cause, a comprehensive approach involving multimodality imaging is essential.
- Plaque disruption, comprising rupture, erosion, and calcified nodules, emerged as a prominent factor in MINOCA.
- Coronary vasospasm, a contributing element, was observed in a substantial proportion of patients. Cardiac magnetic resonance imaging (CMRI) emerged as a valuable tool, aiding in uncertain diagnoses, in up to three-fourth of all MINOCA patients.
- In cases of plaque disruption, aspirin and high-intensity statins emerge as foundational treatments. Dual antiplatelet therapy holds potential, especially in those not undergoing stenting, with shown low revascularization rates based on observational studies.