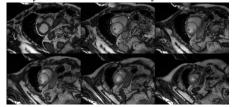
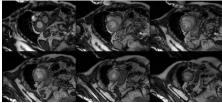
# **Prompt:**

Suppose you are a medical imaging specialist, analyze these two frames cardiac cine-MRIs. The first picture is a frame of end-diastole. The second picture is a frame of end-systole. Provide as detailed an analysis as possible. Tell me if there is any cardiac abnormality.





## GPT-4V:

### **General Observations:**

### **Chamber Size and Function:**

**End-Diastole:** At this phase, the chambers, especially the left ventricle, should be fully filled with blood. The chamber sizes are evaluated to assess for dilatation or hypertrophy.

End-Systole: At this phase, the chambers should be minimized in size due to the expulsion of blood. A comparison between end-systolic and end-diastolic volumes can provide insights into the systolic function of the heart.

Myocardial Wall Thickness and Motion:

**Thickness:** Myocardial walls should appear thicker in end-systole due to contraction. Abnormal thinning can suggest previous myocardial infarction or other myocardial diseases.

Motion: Symmetric wall motion during contraction is essential for efficient heart function. Asymmetric or absent wall motion could indicate ischemic heart disease or cardiomyopathy.

#### **Valvular Function:**

Valves should be seen opening fully in diastole (mitral and tricuspid) and in systole (aortic and pulmonary). Abnormalities in movement might suggest stenosis or regurgitation.

### Pericardium:

The pericardial space should be clear without excessive fluid. Pericardial effusion can appear as dark fluid around the heart. Ejection Fraction (EF):

EF is a key measure of cardiac function. A significantly reduced EF could be indicative of systolic heart failure.

#### **Specific to These Images:**

Upon visual inspection of the provided images, there are a few observations:

**Contrast and Resolution:** The images appear to have good contrast, allowing for differentiation between the myocardium, blood pool, and other cardiac structures.

**Chamber Size:** A proper assessment would require measurements, but visually, there seems to be a reduction in size from end-diastole to end-systole, which is expected.

Wall Thickness: There appears to be thickening from end-diastole to end-systole, suggesting myocardial contraction.

**Wall Motion:** Without a dynamic view, it is difficult to assess motion, but a specialist would look for consistent thickness and contraction patterns across the myocardial walls.

Pericardial Space: There does not appear to be evidence of a significant pericardial effusion in the still images provided. Limitations:

Without a dynamic view and without more clinical context, it's not possible to accurately determine the ejection fraction, detect subtle wall motion abnormalities, or identify potential abnormalities in valvular function. Additionally, certain pathologies may only be evident in the context of the patient's symptoms, lab results, and other imaging findings.

### **Conclusion:**

A full assessment requires a complete set of images over the entire cardiac cycle and often the use of additional sequences for tissue characterization. In a clinical setting, these images would be interpreted in conjunction with a full clinical history and other tests by a qualified cardiologist or radiologist.

# **Reference answer:**

MINF(myocardial infarction)