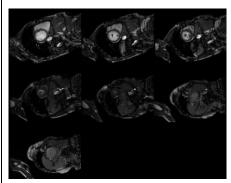
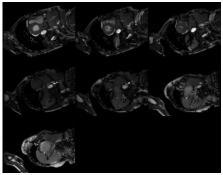
Prompt:

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:

These are black-blood cardiac MRI images, likely T2-weighted given their characteristics, which are typically used to assess the anatomy and function of the heart, as well as to evaluate the presence of any structural abnormalities.

In the first image (end-diastole), we would expect the ventricles to be at their most filled state, and therefore, they should appear larger than in the second image (end-systole), where the ventricles would be at their least filled state after the blood has been pumped out.

Here's what can be generally assessed from the images provided:

Ventricular Size and Thickness: At end-diastole, the ventricles should be full of blood and therefore larger. In end-systole, they are contracted and smaller. The myocardium (muscle wall of the heart) should thicken from diastole to systole as it contracts.

Wall Motion: Normal cardiac function would show smooth and symmetrical contraction of the ventricular walls from the end-diastolic to the end-systolic frames. Asymmetrical wall motion or sections of the wall that don't appear to move well can indicate ischemia or previous infarction.

Chamber Volumes: Comparing end-diastolic and end-systolic volumes provides information about the ejection fraction, which is a measure of cardiac function. A significantly reduced ejection fraction could suggest systolic heart failure.

Valve Function: Though not as clearly assessable in black-blood MRI as in other imaging modalities like echocardiography, one would look for the appropriate opening and closing of valves between frames.

Pericardium: The pericardium should be a thin line around the heart. A thickened pericardium may suggest pericarditis or other pericardial diseases.

Abnormal Masses or Fluid: Any unusual masses inside the chambers or around the heart (such as pericardial effusion) can sometimes be seen on MRI.

Reference answer:

HCM