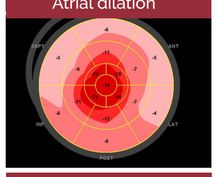
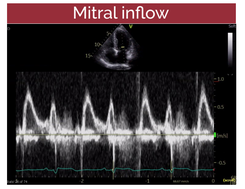
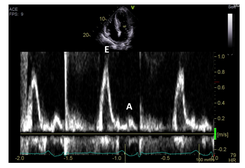
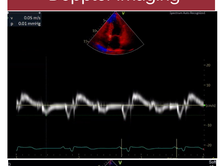
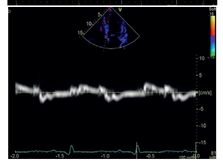
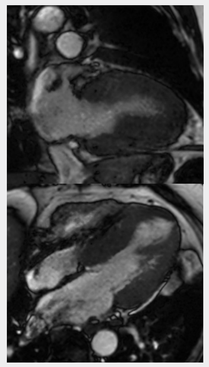
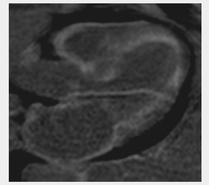
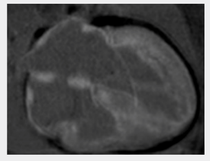
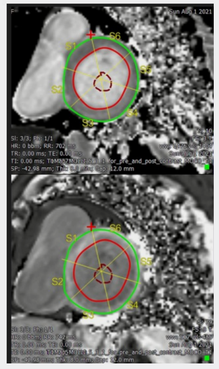
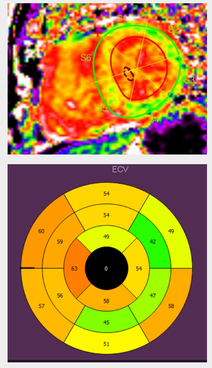
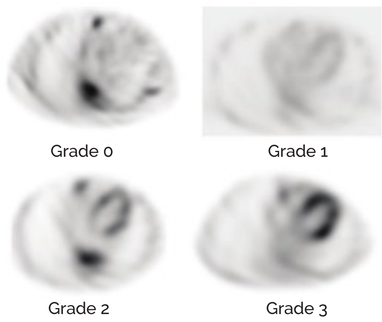
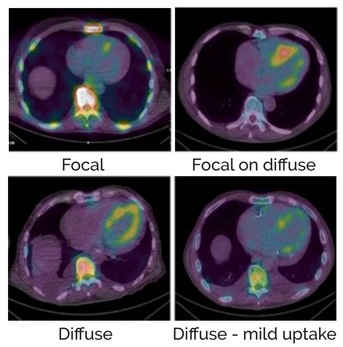
Think Amyloid™

Multimodality Imaging in the Diagnosis of ATTR-CM

Modality	Imaging Findings	Limitations
Echocardiography • Usually, first test after “red flags” and clinical features raise suspicion • Characterizes wall thickness and mass • Identifies valvular heart disease and features of diastolic dysfunction • Apical sparing strain pattern may further enhance clinical suspicion • Widely available	Increased ventricular wall thickness  Atrial dilation  Apical sparing on global longitudinal strain Abnormal diastolic function indices Mitral inflow   Mitral annular tissue Doppler imaging   Diastolic indices show more features typical of restrictive cardiomyopathy with disease burden	• Thickened heart walls and diastolic dysfunction not specific to cardiac amyloidosis. • Findings can be seen in hypertrophic and hypertensive cardiomyopathies • Cannot directly assess myocardial tissue characteristics • Other tests are needed to confirm ATTR-CM diagnosis
Cardiac Magnetic Resonance • High accuracy for confirmation of amyloid • Integrates function and tissue characteristics • Identifies characteristic patterns of myocardial tissue abnormalities by late gadolinium enhanced (LGE) imaging • Measurement of extracellular volume (ECV) identifies extent of amyloid infiltration (normal ECV <30%)	 Cine CMR sequences depicting significant left ventricular hypertrophy  Diffuse subendocardial LGE  Diffuse transmural LGE  Pre- and post-contrast T1 mapping  Parametric mapping (ECV measurement)	• Not definitive for diagnosis of ATTR-CM • Cannot distinguish ATTR-CM from light-chain amyloidosis • LGE patterns can overlap with other comorbidities • Non-classic LGE patterns can be seen, especially in early disease • ECV is not diagnostic of ATTR-CM • Limited role in patients with cardiac devices and chronic kidney disease
Cardiac Amyloid Radionuclide Scintigraphy • High sensitivity and specificity for diagnosis of ATTR-CM once light chain amyloidosis has been ruled out • High negative predictive value for ATTR-CM • Similar diagnostic accuracy for ^{99m}Tc-DPD/HDP/PYP • Visual scores in ATTR-CM can vary from 0-3 • Non-diffuse tracer distribution can be seen in many cases	 Grade 0 Grade 1 Grade 2 Grade 3 Visual scores on SPECT  Focal Focal on diffuse Diffuse Diffuse - mild uptake Patterns of tracer uptake on SPECT/CT	• False positive or negative findings when SPECT or SPECT/CT is not employed • Study may be negative with some genetic variants or in early disease • ^{99m}Tc-HDP has a faster washout from the heart than ^{99m}Tc-PYP, thus imaging timing may need to be adjusted accordingly **Get More ATTR-CM Resources** *Hover over image with your camera*

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