

Use of Multimodality Imaging in Diagnosing ATTR-CM

Actor portrayals.

ATTR-CM is a progressive, life-threatening heart disease¹

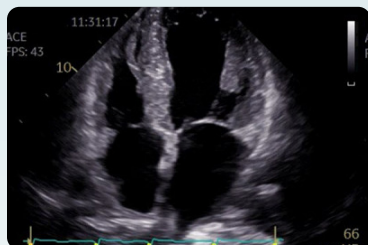


- The majority of patients with ATTR-CM do not receive a timely diagnosis due to overlap with other diseases and manifestations that may appear unrelated to a cardiac disease^{1,2}
- ASNC recommends an initial cardiac workup of a clinical examination and EKG if signs and symptoms are suggestive of ATTR-CM³

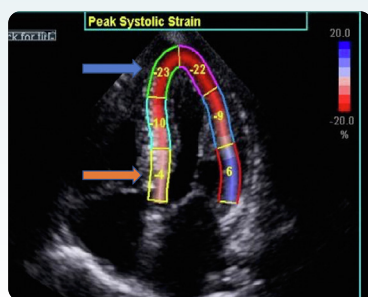
Imaging findings that may indicate a high index of suspicion for ATTR-CM

Echocardiography

- Grade 2 or worse diastolic function with apical sparing³
- Women had lower values for IVS, PWT, and LV diastolic diameter than men⁴



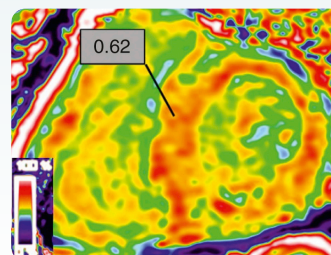
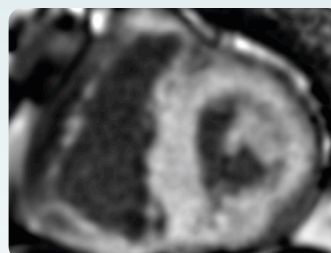
Increased LV wall thickness³



Abnormal longitudinal strain with apical sparing³

Cardiac Magnetic Resonance

- Increased LV wall thickness³
- Diffuse subendocardial or transmural LGE with increased ECV fraction³



High ECV³

Light chain amyloidosis must be ruled out via SPIE, UPIE, and SFLC²

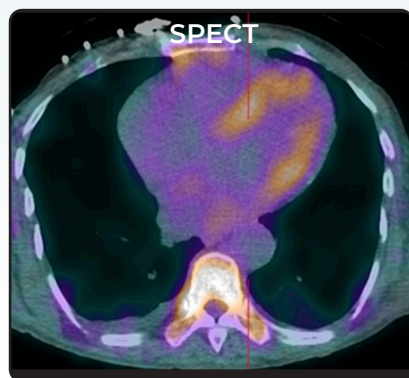
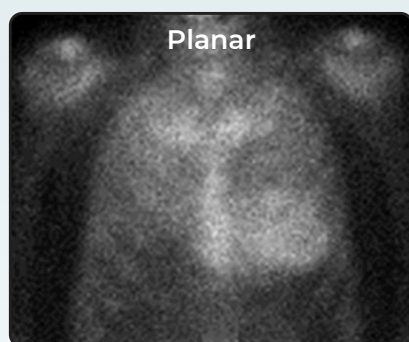


Scan here to learn more
about diagnosing ATTR-CM

Confirming an ATTR-CM diagnosis with cardiac scintigraphy

Cardiac Scintigraphy

- Cardiac uptake of radiotracer (relative to bone) is strongly suggestive of ATTR-CM⁵
- SPECT is used to distinguish myocardial uptake from blood pool radiotracer uptake (to avoid false positives)³
- Consider procedural and interpretation differences in the use of different radionuclide tracers, including ^{99m}Tc-PYP and ^{99m}Tc-HMDP. While ^{99m}Tc-PYP is most common, the ASNC also endorses the use of ^{99m}Tc-HMDP as an alternative tracer⁶



Perugini grading scale*

	SPECT	SPECT/CT	
Grade 0			Myocardial activity None
Grade 1			Myocardial activity < rib activity
Grade 2			Myocardial activity = rib activity
Grade 3			Myocardial activity > rib activity

If you suspect ATTR-CM, consider ordering a PYP or HMDP SPECT^{2†}

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Khor YM, et al, "^{99m}Tc Bone-Avid Tracer Cardiac Scintigraphy: Role in Noninvasive Diagnosis of Transthyretin Cardiac Amyloidosis," *Radiology*, Vol 306, No. 2, 2023 © RSNA; Martínez-Naharro A, et al, "Native T1 and Extracellular Volume in Transthyretin Amyloidosis," *JACC: Cardiovasc Imaging*, Vol 12, No. 5, 2019 © Elsevier; Hanna M, et al, *Am J Cardiol* 2021, © Elsevier; and Cuddy SAM, et al, *J Am Soc Echocardiogr*, 2022, © Elsevier — permissions conveyed through Copyright Clearance Center. Content from Brito D, et al, *Global Heart*, 2023, © The Author(s), is used under the CC BY 4.0 license. Content from Haaf P, et al, *Heart*, 2016 © BMJ Publishing Group Ltd., is reproduced under open-use terms.

*The Perugini Scale remains the most commonly used grading system, although differing perspectives and divergent views continue to shape discussion of its role in diagnosis.⁷

†As recommended by ASNC.⁶

^{99m}Tc-HMDP=^{99m}technetium-hydroxymethylenediphosphonate; ^{99m}Tc-PYP=^{99m}technetium-pyrophosphate; ASNC=American Society of Nuclear Cardiology; ATTR-CM=transthyretin amyloid cardiomyopathy; HMDP=hydroxymethylenediphosphonate; PYP=pyrophosphate; SPECT=single photon emission computed tomography.

References: 1. Rozenbaum MH, Large S, Bhambri R, et al. Impact of delayed diagnosis and misdiagnosis for patients with transthyretin amyloid cardiomyopathy (ATTR-CM): a targeted literature review. *Cardiol Ther*. 2021;10(1):141-159. 2. Witteles RM, Bokhari S, Damy T, et al. Screening for transthyretin amyloid cardiomyopathy in everyday practice. *JACC Heart Fail*. 2019;7(8):709-716. 3. Dorbala S, Ando Y, Bokhari S, et al. ASNC/AHA/ASE/EANM/HFSA/ISA/SCMR/SNMMI expert consensus recommendations for multimodality imaging in cardiac amyloidosis: Part 1 of 2—evidence base and standardized methods of imaging. *Circ Cardiovasc Imaging*. 2021;14(7):e000029. 4. Bruno M, Castaño A, Burton A, Grodin JL. Transthyretin amyloid cardiomyopathy in women: frequency, characteristics, and diagnostic challenges. *Heart Fail Rev*. 2021;26(1):35-45. doi:10.1007/s10741-020-10010-8. 5. Ajima T, Aikawa T, Saitou T, et al. Prognostic value of ^{99m}Tc-pyrophosphate uptake in patients with suspected transthyretin cardiac amyloidosis. *J Nucl Cardiol*. Published online August 5, 2025. 6. Miller EJ, Campisi R, Shah NR, et al. Radiopharmaceutical supply disruptions and the use of ^{99m}Tc-hydroxymethylene diphosphonate as an alternative to ^{99m}Tc-pyrophosphate for the diagnosis of transthyretin cardiac amyloidosis: An ASNC Information Statement. *J Nucl Cardiol*. 2022;29(5):2748-2760. 7. Sperry BW, Jaber WA. The Perugini grades after 20 years: time for a modern framework. *J Nucl Cardiol*. Published online August 13, 2025.

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