

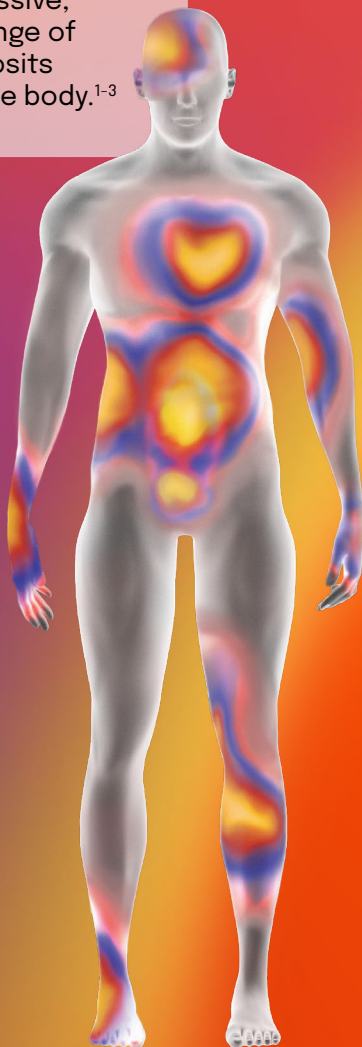
RECOGNIZING RED-FLAG SYMPTOMS OF ATTR

What is ATTR?

ATTR is an underdiagnosed, progressive, and fatal disease that causes a range of symptoms due to TTR amyloid deposits accumulating in various parts of the body.¹⁻³



Learn more about red-flag symptoms



Not a comprehensive list of all the symptoms associated with ATTR amyloidosis.

Each patient may not experience all of these symptoms or may not experience them at the same time.

*Patients with ATTR-CM can have intolerance to standard medications for heart failure, including ARNi, ACEi, ARB, or β blockers.⁶

MULTISYSTEM INVOLVEMENT MAY BE A SIGN OF ATTR



Cardiac³⁻⁷

- Unexplained left ventricular (LV) wall thickening
- Heart failure with preserved ejection fraction (HFpEF)
- Conduction system disease
- Aortic stenosis
- Intolerance to medications*
- Edema



Neurologic^{3,8}

- Altered sensation, numbness, and tingling
- Muscle weakness, difficulty walking
- Autonomic dysfunction (eg, gastrointestinal symptoms, orthostatic hypotension, recurrent urinary tract infections, sexual dysfunction)



Musculoskeletal^{3,5}

- Bilateral carpal tunnel syndrome
- Lumbar spinal stenosis
- Biceps tendon rupture

Patients with ATTR may be **diagnosed 3 to 8 years after symptom onset.**^{1,9,10}

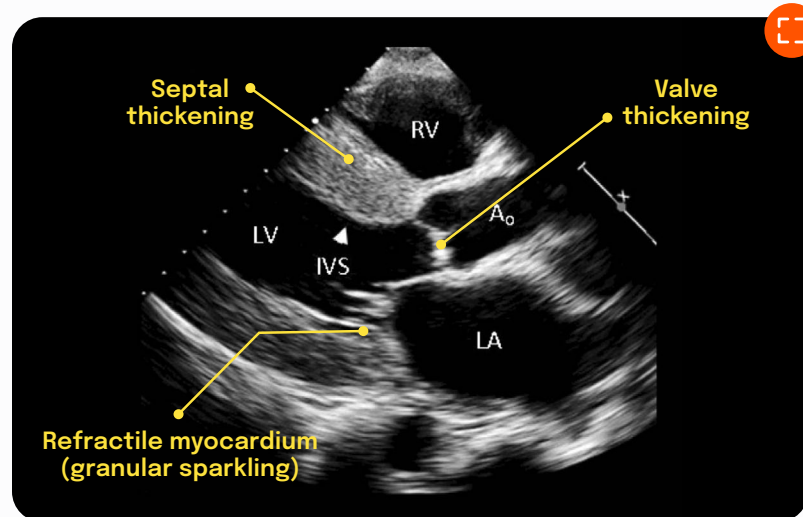
ACEi=angiotensin-converting enzyme inhibitor; ARB=angiotensin receptor blocker; ARNi=angiotensin receptor-neprilysin inhibitor; ATTR=transthyretin-mediated amyloidosis; ATTR-CM=cardiomyopathy of transthyretin-mediated amyloidosis; TTR=transthyretin.

IDENTIFYING THE SIGNS

Echocardiographs can help to raise clinical suspicion for patients with ATTR-CM

Not a comprehensive list of all tools to raise suspicion for ATTR-CM.

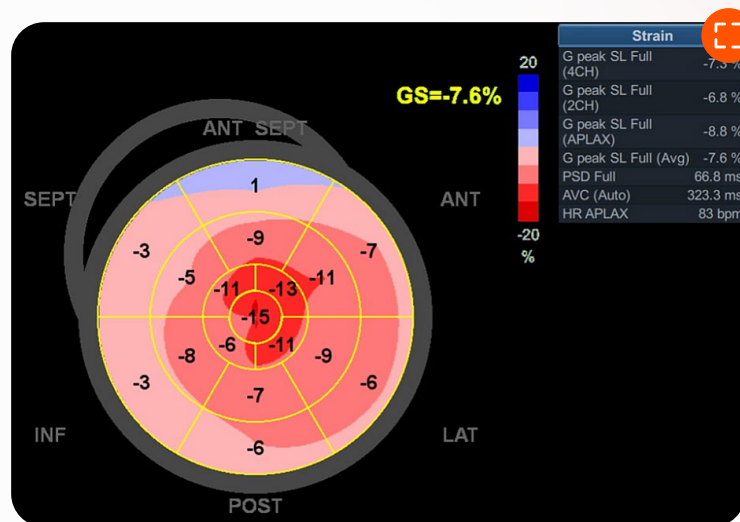
ECHOCARDIOGRAPHY



2D echocardiogram⁶

Look for^{3,6}:

- Left ventricular (LV) wall thickness ≥ 12 mm, thickening of valves/septum, and refractile myocardium (granular sparkling)



Longitudinal strain bull's-eye map¹¹

Look for^{11,12}:

- Reduction in longitudinal strain with relative apical sparing, presents in a "cherry-on-top" pattern

A single screening result cannot establish a diagnosis, but may be a warning sign of ATTR-CM.

Diagnosis is based on the independent medical judgment of the healthcare professional.

References: 1. Hawkins PN, et al. *Ann Med*. 2015;47(8):625–638. 2. Maurer MS, et al. *J Am Coll Cardiol*. 2016;68(2):161–172. 3. Kittleson MM, et al. *J Am Coll Cardiol*. 2023;81(11):1076–1126. 4. Kittleson MM, et al. *Circulation*. 2020;142(1):e7–e22. 5. Maurer MS, et al. *Circ Heart Fail*. 2019;12(9):e006075. 6. Dharmarajan K, et al. *J Am Geriatr Soc*. 2012;60(4):765–774. 7. Castaño A, et al. *Eur Heart J*. 2017;38(38):2879–2887. 8. Conceição I, et al. *J Peripher Nerv Syst*. 2016;21(1):5–9. 9. Rozenbaum MH, et al. *Cardiol Ther*. 2021;10(1):141–159. 10. Adams et al. *J Neurol*. 2021;268(6):2109–2122. 11. Baptista P, et al. *Cureus*. 2023;15(1):e33364. 12. Dorbala S, et al. *Circ Cardiovasc Imaging*. 2021;14(7):e000029.

IDENTIFYING THE SIGNS

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4. Kittleson MM, et al. *Circulation*. 2020;142(1):61-62. 5. Madhri MS, et al. *Circ Heart Fail*. 2016;12(5):e006616. 6. Dharmarajan R, et al. *Ann Intern Med*. 2012;156(4):168-174. 7. Castano A, et al. *Eur Heart J*. 2017;38(38):2879-2887. 8. Conceição I, et al. *J Peripher Nerv Syst*. 2016;21(1):5-9. 9. Rozenbaum MH, et al. *Cardiol Ther*. 2021;10(1):141-159. 10. Adams et al. *J Neurol*. 2021;268(6):2109-2122. 11. Baptista P, et al. *Cureus*. 2023;15(1):e33364. 12. Dorbala S, et al. *Circ Cardiovasc Imaging*. 2021;14(7):e000029.

ECHOCARDIOGRAPHY



2D Echocardiogram

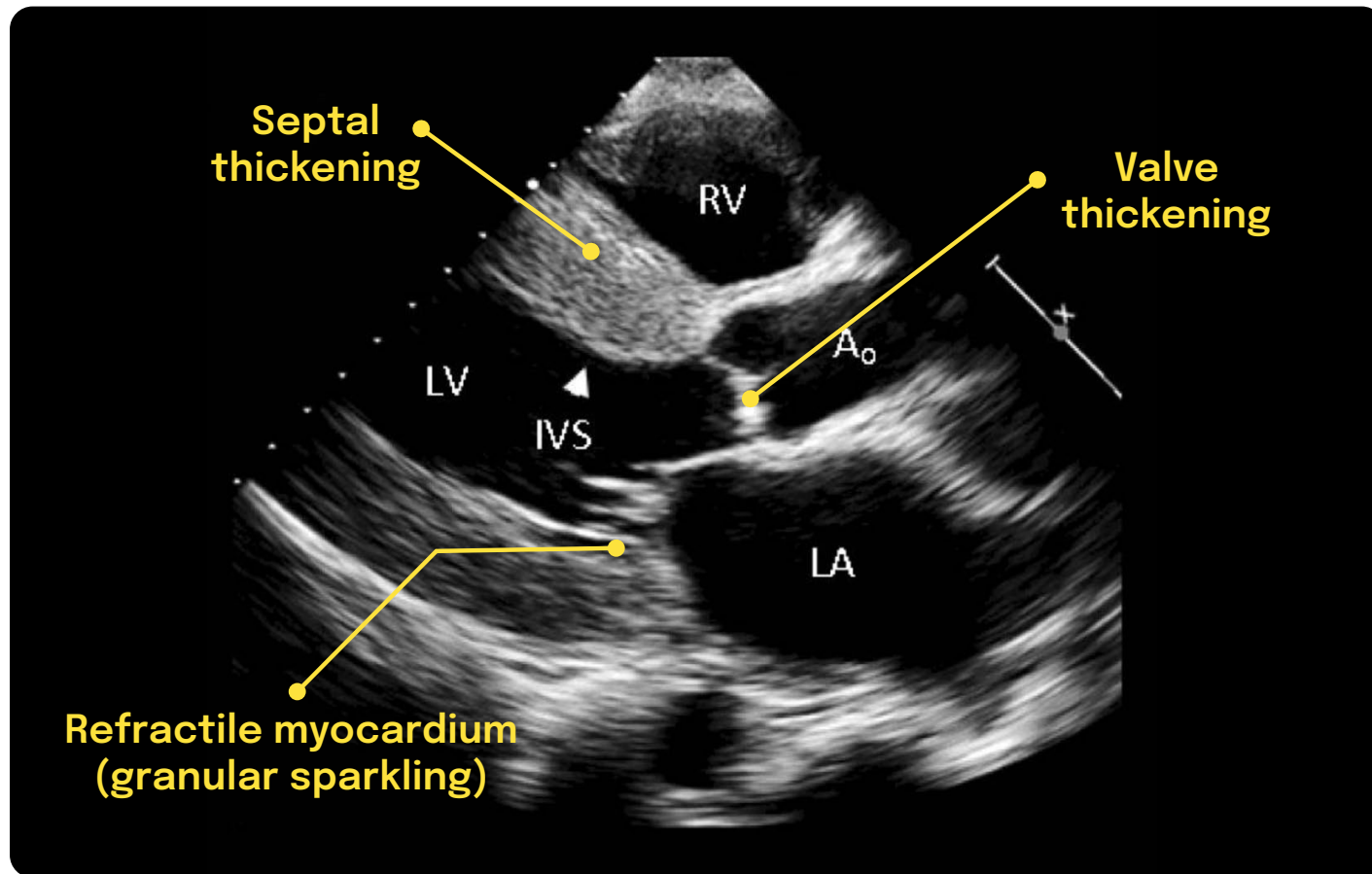


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IDENTIFYING THE SIGNS

ECHOCARDIOGRAPHY

Longitudinal strain bull's-eye map

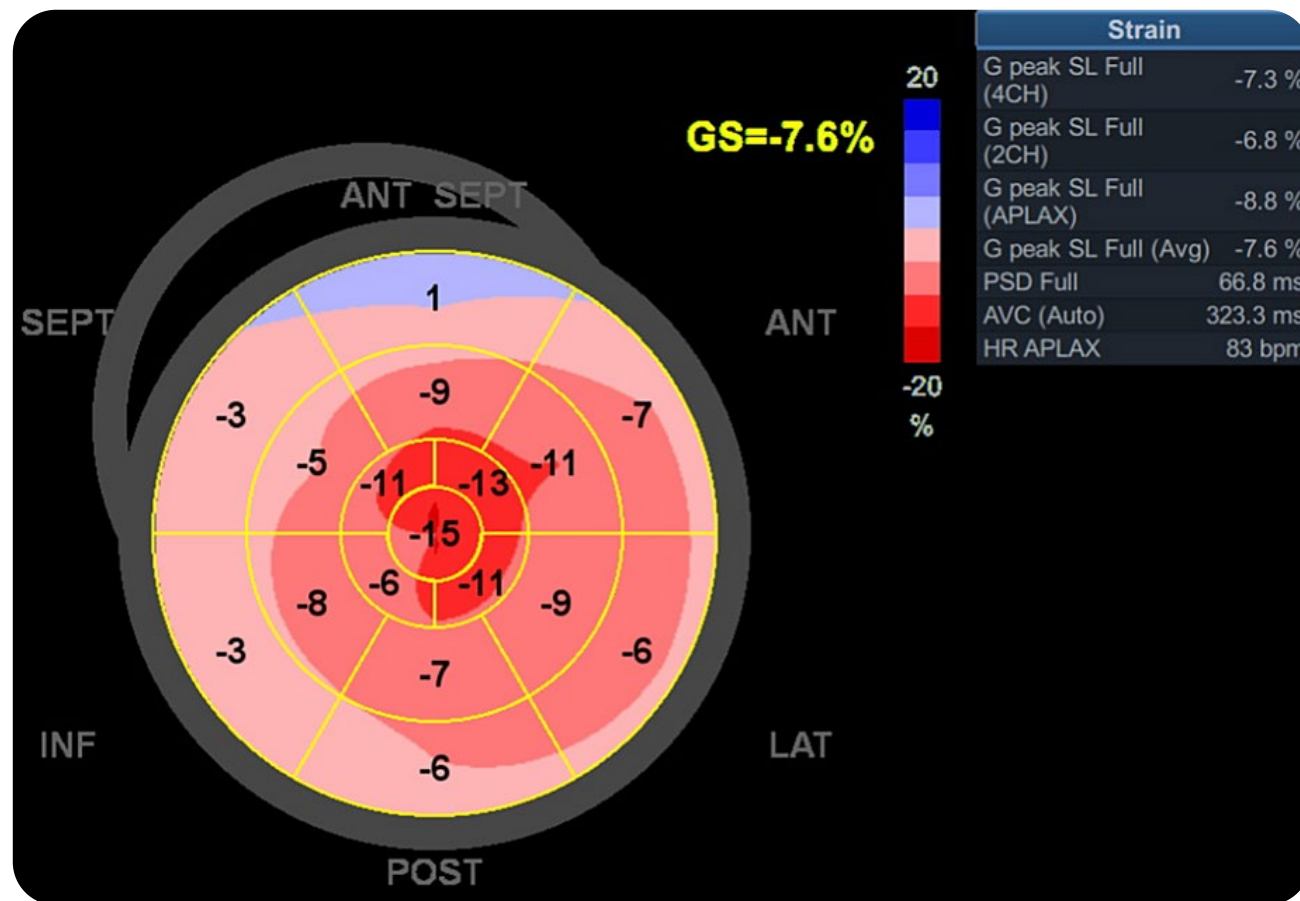


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- Kittleson MM, et al. *Circulation*. 2020;142(1):61-72.
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