

# Myocardial perfusion scintigraphy during chest pain: An atypical presentation of takotsubo cardiomyopathy?

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## Abstract

Although Takotsubo cardiomyopathy (TCM) knowledge is increasing, the exact pathophysiology remains unclear. TCM represents 1%–2% of all troponin positive acute coronary syndromes, affects predominantly postmenopausal women, and is commonly preceded by exposure to severe physical or emotional stress. Transient wall motion abnormalities mimicking ST-elevation myocardial infarction is expected as well as increase of troponin levels and echocardiography alterations. This case report is about a patient that as far as we know is the first case that shows the use of myocardial perfusion imaging in the acute phase of TCM. In general, the TCM Mayo Clinic diagnostic criteria have been very helpful in the clinical setting. In this specific case, however, the presence of reduced myocardial perfusion in the acute phase combined with increased troponin levels seemed to be in contradiction with the exclusion of obstructive coronary artery disease.

## Keywords

Takotsubo cardiomyopathy myocardial perfusion

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## Notes

## Disclosures

Maria Marta Maggioletto Sabra, Fernanda Salomão Costa, Jader Cunha de Azevedo, Claudio Tinoco Mesquita, and Hein J. Verberne declare that they have no conflicts of interest to disclose.

## References

1. Madhavan M, Prasad A. Proposed Mayo Clinic criteria for the diagnosis of Tako-Tsubo cardiomyopathy and long-term prognosis. *Herz* 2010;35:240–3. [CrossRef](#) (<https://doi.org/10.1007/s00059-010-3339-x>) [PubMed](#) ([http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&dopt=Abstract&list\\_uids=20582391](http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&dopt=Abstract&list_uids=20582391)) [Google Scholar](#) ([http://scholar.google.com/scholar\\_lookup?title=Proposed%20Mayo%20Clinic%20criteria%20for%20the%20diagnosis%20of%20Tako-Tsubo%20cardiomyopathy%20and%20long-term%20prognosis&author=M.%20Madhavan&author=A.%20Prasad&journal=Herz&volume=35&pages=240-243&publication\\_year=2010](http://scholar.google.com/scholar_lookup?title=Proposed%20Mayo%20Clinic%20criteria%20for%20the%20diagnosis%20of%20Tako-Tsubo%20cardiomyopathy%20and%20long-term%20prognosis&author=M.%20Madhavan&author=A.%20Prasad&journal=Herz&volume=35&pages=240-243&publication_year=2010))
2. Dorfman T, Aqel R, Allred J, Woodham R, Iskandrian AE. Takotsubo cardiomyopathy induced by treadmill exercise testing: An insight into the pathophysiology of transient left ventricular apical (or midventricular) ballooning in the absence of obstructive coronary artery disease. *J Am Coll Cardiol* 2007;49:1223–5. [CrossRef](#) (<https://doi.org/10.1016/j.jacc.2006.12.033>) [PubMed](#) ([http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&dopt=Abstract&list\\_uids=17367668](http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&dopt=Abstract&list_uids=17367668)) [Google Scholar](#) ([http://scholar.google.com/scholar\\_lookup?title=Takotsubo%20cardiomyopathy%20induced%20by%20treadmill%20exercise%20testing%3A%20An%20insight%20into%20the%20pathophysiology%20of%20transient%20left%20ventricular%20apical%20%28or%20midventricular%29%20ballooning%20in%20the%20absence%20of%20obstructive%20coronary%20artery%20disease&author=T.%20Dorfman&author=R.%20Aqel&author=J.%20Allred&author=R.%20Woodham&author=AE.%20Iskandrian&journal=J%20Am%20Coll%20Cardiol&volume=49&pages=1223-1225&publication\\_year=2007](http://scholar.google.com/scholar_lookup?title=Takotsubo%20cardiomyopathy%20induced%20by%20treadmill%20exercise%20testing%3A%20An%20insight%20into%20the%20pathophysiology%20of%20transient%20left%20ventricular%20apical%20%28or%20midventricular%29%20ballooning%20in%20the%20absence%20of%20obstructive%20coronary%20artery%20disease&author=T.%20Dorfman&author=R.%20Aqel&author=J.%20Allred&author=R.%20Woodham&author=AE.%20Iskandrian&journal=J%20Am%20Coll%20Cardiol&volume=49&pages=1223-1225&publication_year=2007))
3. Agewall S, Beltrame JF, Reynolds HR, Niessner A, Rosano G, Caforio AL, et al. ESC working group position paper on myocardial infarction with non-obstructive coronary arteries. *Eur Heart J* 2017;38:143–53. [PubMed](#) ([http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&dopt=Abstract&list\\_uids=28158518](http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&dopt=Abstract&list_uids=28158518)) [Google Scholar](#) ([http://scholar.google.com/scholar\\_lookup?title=ESC%20working%20group%20position%20paper%20on%20myocardial%20infarction%20with%20non-](http://scholar.google.com/scholar_lookup?title=ESC%20working%20group%20position%20paper%20on%20myocardial%20infarction%20with%20non-)

obstructive%20coronary%20arteries&author=S.%20Agewall&author=JF.%20Beltrame&author=HR.%20Reynolds&author=A.%20Niessner&author=G.%20Rosano&author=AL.%20Caforio&journal=Eur%20Heart%20J&volume=38&pages=143-153&publication\_year=2017)

4. Beltrame JF. Assessing patients with myocardial infarction and nonobstructed coronary arteries (MINOCA). *J Intern Med* 2013;273:182–5.  
[CrossRef](https://doi.org/10.1111/j.1365-2796.2012.02591.x) (https://doi.org/10.1111/j.1365-2796.2012.02591.x)  
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5. Pasupathy S, Air T, Dreyer RP, Tavella R, Beltrame JF. Systematic review of patients presenting with suspected myocardial infarction and nonobstructive coronary arteries. *Circulation* 2015;131:861–70.  
[CrossRef](https://doi.org/10.1161/CIRCULATIONAHA.114.011201) (https://doi.org/10.1161/CIRCULATIONAHA.114.011201)  
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6. Von Korn H, Graefe V, Ohlow MA, Yu J, Huegl B, Wagner A, et al. Acute coronary syndrome without significant stenosis on angiography: Characteristics and prognosis. *Tex Heart Inst J* 2008;35:406–12.  
[Google Scholar](http://scholar.google.com/scholar_lookup?title=Acute%20coronary%20syndrome%20without%20significant%20stenosis%20on%20angiography%3A%20Characteristics%20and%20prognosis&author=H.%20Korn&author=V.%20Graefe&author=MA.%20Ohlow&author=J.%20Yu&author=B.%20Huegl&author=A.%20Wagner&journal=Tex%20Heart%20Inst%20J&volume=35&pages=406-412&publication_year=2008) (http://scholar.google.com/scholar\_lookup?title=Acute%20coronary%20syndrome%20without%20significant%20stenosis%20on%20angiography%3A%20Characteristics%20and%20prognosis&author=H.%20Korn&author=V.%20Graefe&author=MA.%20Ohlow&author=J.%20Yu&author=B.%20Huegl&author=A.%20Wagner&journal=Tex%20Heart%20Inst%20J&volume=35&pages=406-412&publication\_year=2008)
7. Niccoli G, Scalone G, Crea F. Acute myocardial infarction with no obstructive coronary atherosclerosis: Mechanisms and management. *Eur Heart J* 2015;36:475–81.  
[CrossRef](https://doi.org/10.1093/eurheartj/ehu469) (https://doi.org/10.1093/eurheartj/ehu469)  
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8. Verberne HJ, van der Heijden DJ, van Eck-Smit BL, Somsen GA. Persisting myocardial sympathetic dysfunction in takotsubo cardiomyopathy. *J Nucl Cardiol* 2009;16:321–4.  
[CrossRef](https://doi.org/10.1007/s12350-008-9017-1) (https://doi.org/10.1007/s12350-008-9017-1)  
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