



AALBORG UNIVERSITY
DENMARK

Aalborg Universitet

Conservatively managed saddle pulmonary embolism

Kristensen, Anna Meta Dyrvig; Rosberg, Victoria; Juel, Jacob; Pareek, Manan

Published in:
Clinical Case Reports

DOI (link to publication from Publisher):
[10.1002/ccr3.2174](https://doi.org/10.1002/ccr3.2174)

Creative Commons License
CC BY-NC-ND 4.0

Publication date:
2019

Document Version
Publisher's PDF, also known as Version of record

[Link to publication from Aalborg University](#)

Citation for published version (APA):
Kristensen, A. M. D., Rosberg, V., Juel, J., & Pareek, M. (2019). Conservatively managed saddle pulmonary embolism. *Clinical Case Reports*, 7(6), 1259-1260. <https://doi.org/10.1002/ccr3.2174>

General rights

Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

- Users may download and print one copy of any publication from the public portal for the purpose of private study or research.
- You may not further distribute the material or use it for any profit-making activity or commercial gain
- You may freely distribute the URL identifying the publication in the public portal -

Take down policy

If you believe that this document breaches copyright please contact us at vbn@aub.aau.dk providing details, and we will remove access to the work immediately and investigate your claim.

CLINICAL IMAGE

Conservatively managed saddle pulmonary embolism

Anna Meta Dyrvig Kristensen¹ | Victoria Rosberg¹ | Jacob Juel² | Manan Pareek¹ ¹Department of Cardiology, North Zealand Hospital, Hillerød, Denmark²Department of Cardiology, Aalborg University Hospital, Aalborg, Denmark**Correspondence**Manan Pareek, Department of Cardiology, North Zealand Hospital, Dyrehavevej 29, DK-3400 Hillerød, Denmark.
Email: mananpareek@dadlnet.dk**Abstract**

Massive, submassive, and nonmassive pulmonary embolism relate to the hemodynamic state, while saddle pulmonary embolus is a purely radiologic term. Patients with saddle embolus often present with hemodynamic compromise. However, treatment depends on the clinical presentation, and stable patients with a saddle pulmonary embolus can respond well to conventional anticoagulation.

KEYWORDS

anticoagulants, computed tomography angiography, factor Xa inhibitors, fibrinolysis, pulmonary embolism

1 | CASE HISTORY

A 68-year-old man presented with progressive dyspnea and swelling of the right leg over a 3-day period. He was

hemodynamically stable, but required low-dose oxygen therapy (Table 1). Echocardiography showed dilatation of the right-sided cavities, interventricular septal flattening, moderate tricuspid regurgitation, and an elevated right ventricular

TABLE 1 Clinical and biochemical variables at admission

Vital signs	
Respiratory rate (per minute)	18
Oxygen saturation (without oxygen supplementation) (%)	90
Oxygen saturation (with oxygen supplementation 3 L/min by nasal cannula) (%)	95
Blood pressure (mm Hg)	133/88
Heart rate (beats per minute)	83
Arterial blood gas analysis (with oxygen supplementation 3 L/min by nasal cannula)	
pO ₂ (kPa)	13.7
pH	7.52
pCO ₂ (kPa)	3.6
HCO ₃ ⁻ (mmol/L)	24.9
Blood tests	
Fibrin D-dimer (mg/L)	10.0 (reference: <0.5)
High-sensitivity troponin I (ng/L)	140 (reference: <47)
N-terminal pro-B-type natriuretic peptide (ng/L)	3.920 (reference: <125)

Clinical and biochemical variables at admission.

This is an open access article under the terms of the Creative Commons Attribution-NonCommercial-NoDerivs License, which permits use and distribution in any medium, provided the original work is properly cited, the use is non-commercial and no modifications or adaptations are made.

© 2019 The Authors. *Clinical Case Reports* published by John Wiley & Sons Ltd.

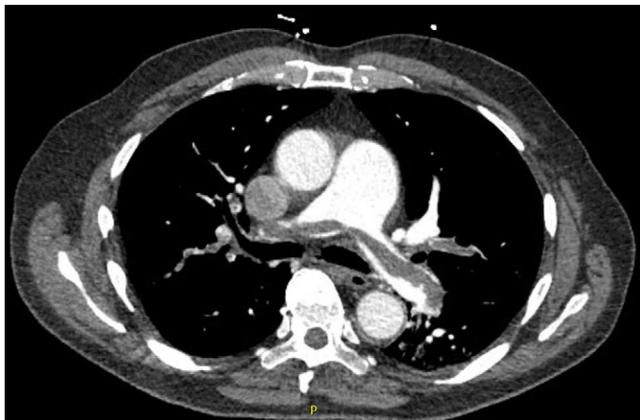


FIGURE 1 Acute CT pulmonary angiography showing a saddle pulmonary embolism and multiple emboli in the arteries supplying all lobes on both sides

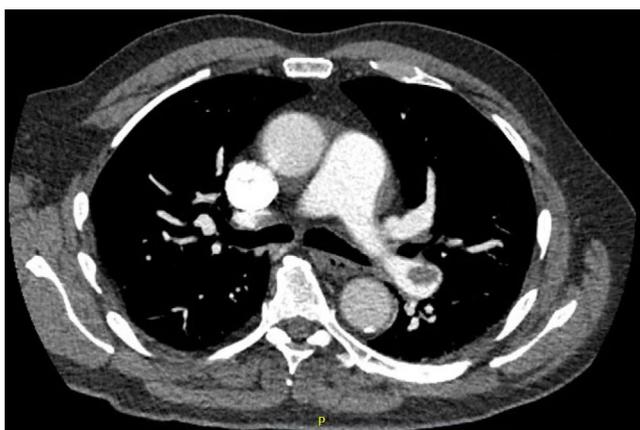


FIGURE 2 Repeat CT pulmonary angiography showing significant resolution of the saddle embolism

systolic pressure of 50 mm Hg. CT pulmonary angiography revealed a saddle pulmonary embolism and multiple bilateral emboli (Figure 1). Compression ultrasound confirmed a right-sided deep vein thrombosis. He was treated initially with tinzaparin and subsequently switched to rivaroxaban. A repeat CT performed 6 days later showed significant resolution of the saddle embolism (Figure 2). He was discharged after two weeks. His postdischarge course has been uncomplicated. Echocardiography performed 6 months later showed a normalized right ventricular systolic pressure of 35 mm Hg.

Fibrinolysis is first-line therapy in patients with pulmonary embolism presenting with shock or hypotension. Conversely, most stable patients are treated with conventional

anticoagulants.¹ The terminology may be confusing as the terms *massive*, *submassive*, and *nonmassive* describe the hemodynamic state, while *saddle embolus* is a radiologic term. The latter often worries physicians who may feel inclined to pursue aggressive therapy. However, while such patients more often present with hemodynamic compromise, their prognosis does not significantly differ from those presenting in a stable fashion.² Accordingly, treatment depends on the clinical presentation.¹ The present case illustrates that hemodynamically stable patients with a saddle pulmonary embolus can respond well to conventional treatment.

CONFLICT OF INTEREST

None declared.

AUTHOR CONTRIBUTION

AK and VR: wrote the initial draft. MP: performed the echocardiogram and provided expertise in image interpretation and appropriate anticoagulation. All authors participated in collecting patient data (pictures and clinical history), reviewing the literature, interpretation of clinical findings, critical revision of the manuscript for important intellectual content, and approval of the final version.

ORCID

Manan Pareek  <https://orcid.org/0000-0002-0867-5825>

REFERENCES

1. Konstantinides SV, Torbicki A, Agnelli G, et al. 2014 ESC guidelines on the diagnosis and management of acute pulmonary embolism. *Eur Heart J*. 2014;35(43):3033-3069, 3069a-3069k.
2. Alkinj N, Pannu BS, Apala DR, Kotecha A, Kashyap R, Iyer VN. Saddle vs nonsaddle pulmonary embolism: clinical presentation, hemodynamics, management, and outcomes. *Mayo Clin Proc*. 2017;92(10):1511-1518.

How to cite this article: Kristensen AMD, Rosberg V, Juel J, Pareek M. Conservatively managed saddle pulmonary embolism. *Clin Case Rep*. 2019;7:1259–1260. <https://doi.org/10.1002/ccr3.2174>