


CLINICAL IMAGE

Tying the knot: An uncommon complication

Konstantinos Boumpoulis¹ | Andrew C. Chatzis¹  | Marina Balanika² |
Michael Milonakis¹ | Mazen Khoury¹

¹2nd Department of Cardiac Surgery, Onassis Cardiac Surgery Centre, Athens, Greece

²Department of Anaesthesia, Onassis Cardiac Surgery Centre, Athens, Greece

Correspondence

Andrew C. Chatzis, 2nd Department of Cardiac Surgery, Onassis Cardiac Surgery Centre, 356 Syngrou Ave., Kallithea 17674, Athens, Greece.
Email: achatzis1955@gmail.com

Abstract

Cardiothoracic procedures require continuous hemodynamic monitoring and a fair proportion of these require the insertion of a pulmonary artery catheter, known also as Swan-Ganz catheter. Given, however, the invasive nature of these procedures, unforeseen complications may ensue. Early recognition and appropriate handling are essential to minimize adverse outcomes.

KEYWORDS

complications, entangled indwelling catheter, pulmonary artery catheter, Swan-Ganz

A 40-year-old man underwent uneventful elective cardiac surgery (CABG) for coronary artery disease. Central venous access achieved via the right subclavian approach, included both a central venous and a pulmonary artery catheter (PAC). Immediate postoperative chest x-ray revealed self-entanglement of the PAC (Figure 1). The catheter was successfully removed by means of a minor vascular procedure.

A certain number of patients with PAC experience complications. Complications may arise at any step of the procedure, from central venous puncture to catheter insertion

and of course during their presence inside the patient. These include accidental arterial puncture, hematomas, thrombosis and embolism, arrhythmias, air embolization, infections, even right ventricular free wall, and pulmonary artery rupture. Although entanglement with other catheters such as central venous lines indwelling in the same vein is well described, pulmonary artery catheter knotting is extremely rare (0.03%). Nonetheless, pulmonary catheters are more likely to knot due to their length and flexibility. Surgical removal is the only safe option.^{1,2}

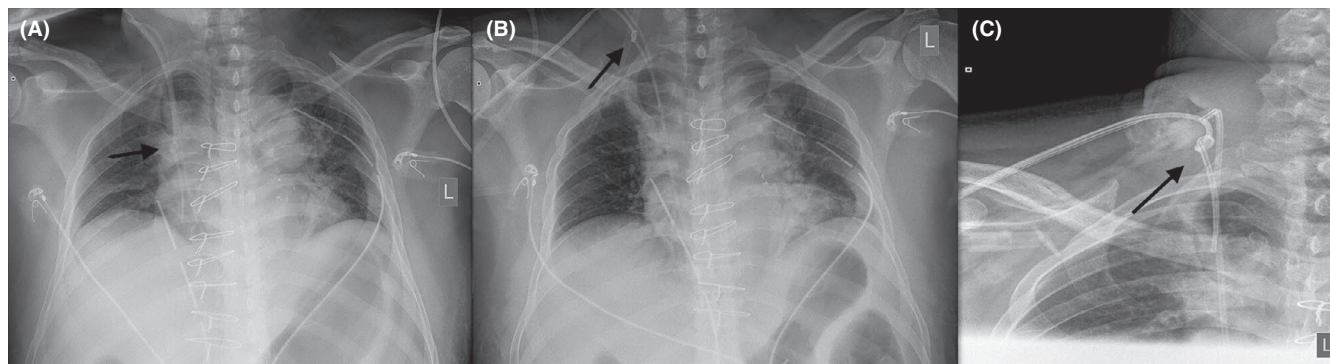


FIGURE 1 Pulmonary artery catheter (PAC) knot at the original discovery position (A), retrieved to the entry (removal) point (B), and closer view (C)

This is an open access article under the terms of the Creative Commons Attribution License, which permits use, distribution and reproduction in any medium, provided the original work is properly cited.

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

ACKNOWLEDGMENTS

None.

CONFLICT OF INTEREST

None declared.

AUTHOR CONTRIBUTION

KB: collected the data and drafted the article. ACC: conceived the study, analyzed and interpreted the data, and revised the article critically for important intellectual content. MB, MM: collected the data. MK: approved the final version of the manuscript.

ORCID

Andrew C. Chatzis  <https://orcid.org/0000-0002-9467-1627>

REFERENCES

1. Evans DC, Doraiswamy VA, Prosciak MP, et al. Complications associated with pulmonary artery catheters: a comprehensive clinical review. *Scand J Surg.* 2009;98:199-208.
2. Frazier SK, Skinner GJ. Pulmonary artery catheters: state of the controversy. *J Cardiovasc Nurs.* 2008;23:113-121.

How to cite this article: Boumpoulis K, Chatzis AC, Balanika M, Milonakis M, Khoury M. Tying the knot: An uncommon complication. *Clin Case Rep.* 2019;7:1619–1620. <https://doi.org/10.1002/ccr3.2279>