Case of the Month - Case 3/2000
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Citation

Abstract

CASE STUDY
This is a critically ill 24 year-old female patient, requiring a pulmonary artery (PA) catheter for hemodynamic management. Below are the 3 consecutive chest X rays, the first after a routine insertion of the PA catheter.

Figure 1

Figure 2

X-Ray 1

X-Ray 2
Question 1: What is your diagnosis?
A: The patient has developed a hemothorax due to rupture of the pulmonary artery, caused by the PA catheter.

Other potential complications due to use of a PA catheter include pneumothorax, arrhythmias, pulmonary infarction, sepsis and endocarditis, balloon rupture and subclavian artery injury.

Question 2: What is the incidence of this pathology?
A: Published reports range of pulmonary artery rupture as a complication of the PA catheter range from 0.001% to 0.47%. Postulated mechanisms include distal tip migration penetrating the wall during balloon deflation, overdistention of the balloon with fluid, and traction on an inflated, wedged balloon.

Question 3: What are the risk factors
A: Proposed risk factors include age over 60 years, pulmonary hypertension, improper balloon inflation, improper catheter positioning, cardiopulmonary bypass and anticoagulation.

Question 4: What is the known mortality rate?
A: Thoracotomy appears to improve survival (50%) in patients who develop a hemothorax, whereas conservative treatment in these patients is not successful. Patients who do not develop a hemothorax have a 25% mortality rate.

Question 5: What would be your treatment options?
A: Nonsurgical options include flexible bronchoscopy and Fogarty catheter tamponade, applying high PEEP, and conservative treatment, all of which are recommended in patients without a hemothorax. Double lumen intubation to protect the noninvolved lung has also been recommended. Surgical options require a thoracotomy with arterial repair, pneumonectomy, or lobectomy.

References
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