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Treatment of pulmonary artery haemorrhage with a single lumen tracheal tube

To the Editor:

The reported incidence of ruptured pulmonary artery after inserting a PA catheter is 0.016% to 0.2%^{1,2} with a mortality rate greater than 50%.³⁻⁵ Pulmonary artery rupture resulting in endobronchial haemorrhage is an uncommon but potentially fatal complication of pulmonary artery catheterization.^{3,6-9} We would like to present a method for its management.

An 83-yr-old man presented for aortocoronary artery bypass surgery. In the preoperative area, a pulmonary artery catheter was inserted through a percutaneous sheath introducer placed in the right internal jugular vein to 50 cm, and a pulmonary artery occlusion pressure (PAOP) of 20 mmHg was obtained using 1.5 ml air. General anaesthesia was induced uneventfully. A PAOP tracing was obtained with 1.5 ml air, and the balloon was then fully deflated. Three minutes later, 50 ml of blood was noticed in the tracheal tube. The bleeding stopped, probably because of positive pressure ventilation. The pulmonary artery catheter was withdrawn completely with the tip in the right atrium. Chest x-ray showed opacification in the right lung field. Flexible fiberoptic bronchoscopy revealed blood stains in the trachea and right bronchus greater than in the left. The patient was taken to the cardiac surgical unit and the lungs were mechanically ventilated. Upon emergence from anaesthesia, four hours later, the patient started coughing up copious amounts of blood in the tracheal tube. The 9.0 mm cuffed tracheal tube was rotated 90° counterclockwise and advanced to 28 cm at the lip to accomplish left mainstem intubation which was verified by auscultation. Despite adequate ventilation, oxygenation, and volume resuscitation the patient sustained a cardiac arrest, and the patient expired.

This is a report of a distal migration of a pulmonary artery catheter with balloon inflation-induced pulmonary artery rupture. Pre-existing tracheal intubation and positive pressure ventilation alleviated the bleeding. The pulmonary artery catheter had been pulled back accidentally to the atrium so that balloon tamponade was not feasible. The patient was taken to the cardiac surgical unit where bleeding recurred four hours later as the patient recovered

from anaesthesia and began coughing. We believe that the catheter had advanced distally and upon balloon inflation perforation of the pulmonary artery occurred. We proceeded to intubate the left mainstem bronchus selectively since chest x-ray and bronchoscopy had revealed the source of bleeding to be from the right. Selective bronchial intubation with a single lumen tube may be desirable when a double-lumen tracheal tube is not readily available, as in our case. We recommend that if this complication arises that the patient be kept fully sedated and paralyzed for at least 24 to 48 hr in order to prevent dislodgment of clots and recurrence of bleeding.

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