

Is the pulmonary artery perforated? Case report

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Case

Sixty-year-old patient admitted to the intensive care unit with respiratory failure and shock. A pulmonary artery catheter (PAC) was inserted with no complications for diagnosis and management of her shock. Pulmonary artery waveforms and pulmonary artery occlusion pressures (PAOP) were displayed from the monitors with ease (**Figures 1 and 2**). Chest X-ray confirmed the catheter in good position (**Figure 3**). A CT scan of her chest without contrast was obtained the next day, and reported as rupture of the main pulmonary artery (**Figure 4**).

The patient continued to improve hemodynamically, never had hemoptysis or hemothorax

Discussion

Perforation of the pulmonary artery secondary to insertion of PAC is very rare, reported at 0.03%. (1) Symptoms

occur almost immediately with 100% of patients suffer hemoptysis, 50% develop hemothorax. Mortality approach 70-80% even with emergent thoracotomy. (1,2)

The CT image was attributed to anomalous pulmonary artery branch but not to rupture. Pulmonary artery anomalies are rare and could be either congenital or acquired. (3) Congenital anomalies for example: proximal interruption, anomalous origin of the left pulmonary artery (pulmonary artery sling), and idiopathic dilatation of the pulmonary trunk are usually found incidentally at chest radiography or computed tomography. Acquired anomalies include diffuse or focal enlargement of the arteries because of pulmonary hypertension, aneurysm, and intravascular pulmonary metastasis; decreased arterial diameter because of bronchial carcinoma, mediastinal fibrosis, and Takayasu arteritis; and intraluminal filling defects due to pulmonary thromboembolism and pulmonary artery sarcoma. (3,4)

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Figure 1. Pulmonary artery pressure tracing with some variation during inspiration and expiration

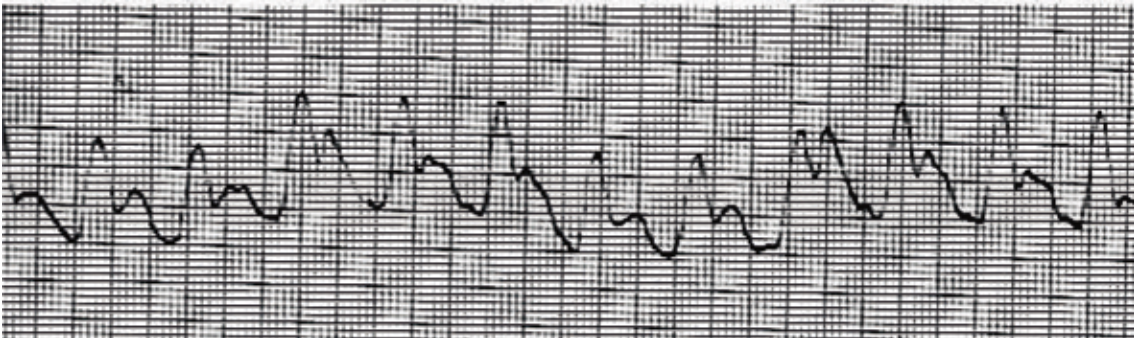


Figure 2. Pulmonary artery occlusion pressure (PAOP) tracing with the balloon inflated followed by reappearance of the pulmonary artery pressure at the end of the tracing upon deflation of the balloon

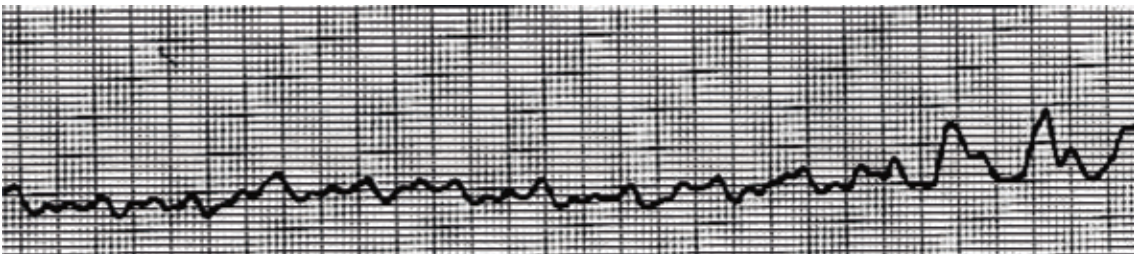


Figure 3. CXR showing pulmonary artery catheter in good position in the right pulmonary artery

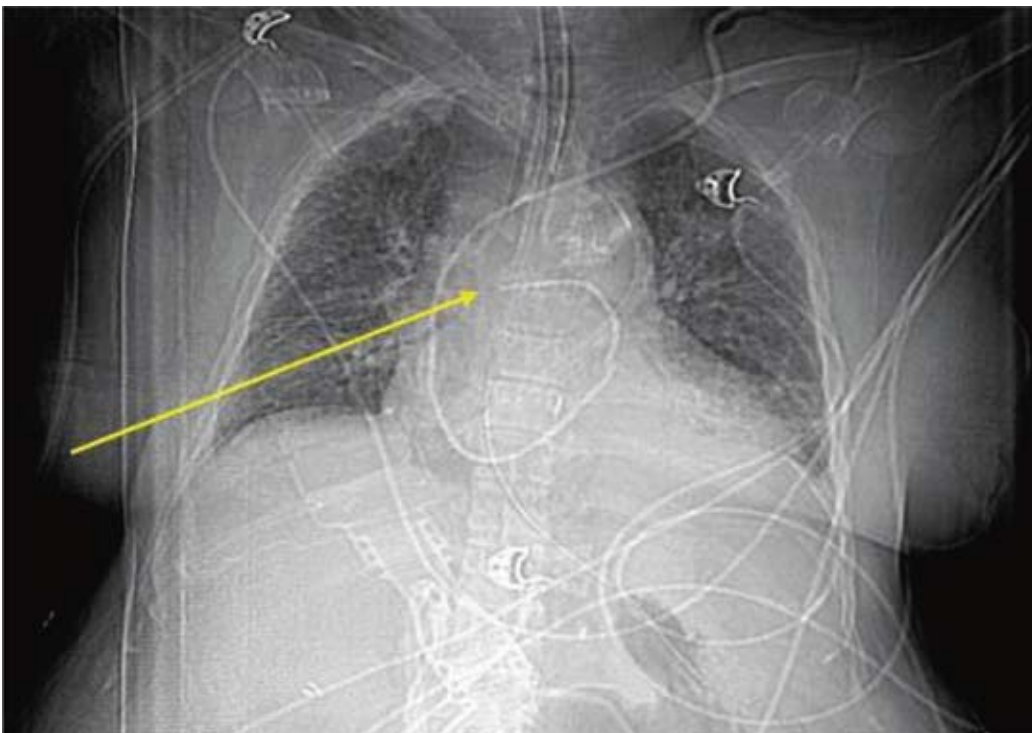
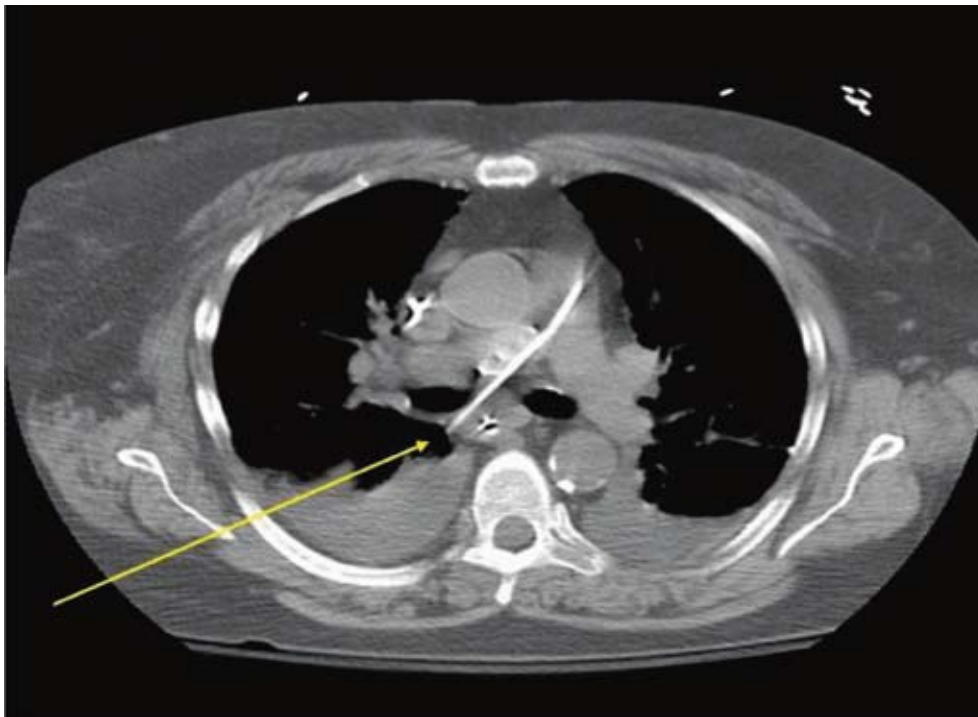


Figure 4. Pulmonary artery catheter directing toward a branch to the right lower lobe



References

1. Kearney TJ, Shabot MM. Pulmonary artery rupture associated with the Swan-Ganz catheter. *Chest* 1995;108:1349-52.
2. Bossert T, Gummert JF, Bittner HB, Barten M, Walther T, Falk V, et al. Swan-Ganz catheter-induced severe complications in cardiac surgery: right ventricular perforation, knotting, and rupture of a pulmonary artery. *J Card Surg* 2006;21:292-5.
3. Castañer E, Gallardo X, Rimola J, Pallardó Y, Mata JM, Perendreu J, et al. Congenital and acquired pulmonary artery anomalies in the adult: radiologic overview. *Radiographics* 2006;26:349-71.
4. Maldonado JA, Henry T, Gutiérrez FR. Congenital thoracic vascular anomalies. *Radiol Clin North Am* 2010;48:85-115.