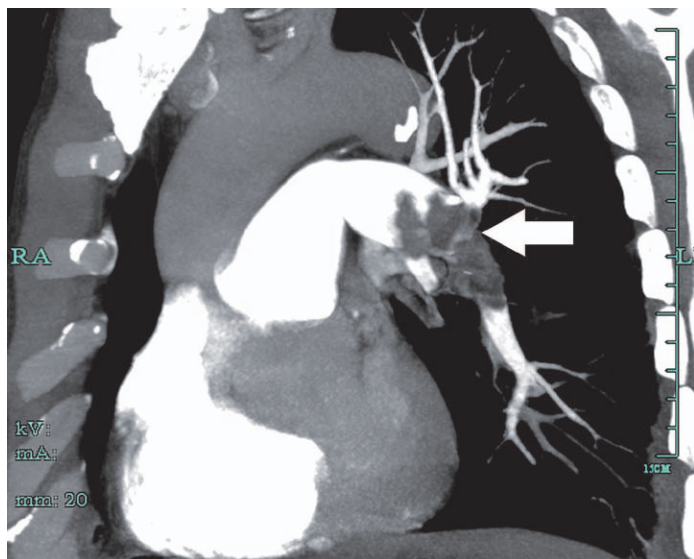


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Massive Postoperative Pulmonary Artery Tumor Embolism from Renal Cell Carcinoma

Kui-Rong Wang, M.D., Ph.D.



A 54-YR-OLD man with renal cell carcinoma underwent radical nephrectomy and inferior vena cava (IVC) thrombectomy. The tumor thrombus in the IVC had a length of 8.8 cm and extended 2.6 cm from the right atrium. Surgery was completed smoothly with suprahepatic IVC cross-clamping. Transesophageal echocardiographic examination was conducted, which did not reveal any embolism in the heart or pulmonary artery.

On postoperative day 2, the patient complained of dyspnea, accompanied by hypoxemia and tachycardia. Enhanced computed tomography revealed defects in both pulmonary arteries. The arrow in the image indicates an embolus in the left pulmonary artery. An emergency operation was performed under cardiopulmonary bypass. The patient's blood pressure remained normal before anesthesia induction; however, it decreased dramatically after induction, and the administration of inotropic or vasopressor agents was not very effective.

Hypotension (systolic blood pressure, approximately 70 mmHg; mean blood pressure, approximately 50 mmHg) was not corrected until extracorporeal circulation was established. However, the hypoxemia was improved after tracheal intubation. The cancer thrombus and clots were removed from the pulmonary artery. Because of the probability that clots were formed in the IVC as the result of the residual thrombus, anticoagulation therapy—involving subcutaneous injection of low-molecular-weight heparin for 10 days, followed by oral administration of aspirin—was initiated following the operation for pulmonary embolism removal. The patient was discharged without further complications 2 weeks later.

Radical nephrectomy with IVC thrombectomy is the most effective therapeutic option for renal cell carcinoma patients with tumor thrombus of the IVC.¹ Thrombus embolization is rare, but is associated with an extremely high mortality rate.² Use of transesophageal echocardiography for this operation helps in the diagnosis of thrombus migration.³ However, in the present case, transesophageal echocardiography did not detect residual thrombus in the IVC.

Competing Interests

The authors declare no competing interests.

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References

1. Tanaka M, Fujimoto K, Okajima E, Tanaka N, Yoshida K, Hirao Y: Prognostic factors of renal cell carcinoma with extension into inferior vena cava. *Int J Urol* 2008; 15:394–8
2. Shuch B, Laroche JC, Onyia T, Vallera C, Margulis D, Pantuck AJ, Smith RB, Belldegrun AS: Intraoperative thrombus embolization during nephrectomy and tumor thrombectomy: Critical analysis of the University of California-Los Angeles experience. *J Urol* 2009; 181:492–8; discussion 498–9
3. Galvez JA, Clebone A, Garwood S, Popescu WM: Fatal intraoperative cardiac thrombosis in a patient with renal cell carcinoma. *ANESTHESIOLOGY* 2011; 114:1212

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