

A 42-Year-Old Woman With Anemia, Shock, and Ischemic Stroke After Lung Transplantation



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CASE PRESENTATION: A 42-year-old woman with mixed connective tissue disease-associated interstitial lung disease underwent bilateral lung transplantation. She had an uneventful surgery and was extubated 3 h later. Induction immunosuppression therapy included methylprednisolone 500 mg intraoperatively, basiliximab (anti-IL-2 monoclonal antibody) on days 0 and 4 after transplantation, and methylprednisolone 125 mg intravenously bid for 2 days following surgery. Maintenance immunosuppression therapy consisted of prednisone 20 mg daily, mycophenolate mofetil 750 mg bid, and enteral tacrolimus 0.5 mg bid. Both the donor and the recipient were seropositive for cytomegalovirus. Infectious disease prophylaxis consisted of valganciclovir, trimethoprim-sulfamethoxazole, and voriconazole.

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On postoperative day 1, the patient developed a fever, leukocytosis (12,600/cmm), shock requiring vasopressor support, and acute renal failure. The antibiotic regimen of cefepime and vancomycin was broadened to include levofloxacin and inhaled tobramycin. A transthoracic echocardiogram on day 1 was consistent with distributive shock, with no wall motion or valvular abnormalities. On postoperative day 2, the patient developed anemia and thrombocytopenia requiring frequent transfusions over the next few days to maintain a hemoglobin level and platelet count > 8 mg/dL and 80,000/cmm, respectively (Table 1). There was no evidence of intrathoracic or intra-abdominal hemorrhage according to a CT scan. Chest tube output was not sanguineous, and there was no evidence of overt GI bleeding. On postoperative day 3, she developed right-sided hemiparesis.

Physical Examination Findings

The patient was intubated and sedated. Examination revealed warm, well-perfused extremities with vital signs of BP of 84/60 mm Hg on vasopressors, heart rate of 120 beats/min, respiratory rate of 14 breaths/min, and an oxygen saturation of 95% on 50% FIO₂. The neck examination showed no jugular venous distention. Auscultation of the lungs revealed coarse crackles in the infrascapular areas bilaterally. Cardiac examination revealed sinus tachycardia. Heart sounds were normal with no murmur, gallop, or rub. Neurologic examination revealed right-sided weakness.

Diagnostic Studies

Results of laboratory evaluations through postoperative day 5 are detailed in Table 1. Notably, the platelet count fell rapidly from a baseline of 182,000/cmm

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TABLE 1] Laboratory Findings

Variable	Day -1	Day 1	Day 3	Day 5	ECU Day 6
Lactic acid (0.3-1.5 mmol/L)		0.9	8.4	11.7	8.2
Hemoglobin (12.0-16.0 g/dL)	11.9	11.9	6.9	6.9	6.9
Platelet (150-450 10 ³ /cmm)	182	146	58	32	66
Total bilirubin (0-1.0 mg/dL)	0.1	0.1	0.3	2.4	2.8
INR (0.9-1.2)	1.1	1.4	1.7	1.9	1.8
aPTT (23-38 s)	27	27	46	78	153

aPTT = activated partial thromboplastin time; ECU = eculizumab; INR = international normalized ratio.

preoperatively to reach a nadir of 32,000/cmm on day 4 after surgery. Hemoglobin levels dropped from 11.9 g/dL preoperatively to 6.9 g/dL on day 3. Hemolysis evaluation included an elevated total and indirect bilirubin and lactate dehydrogenase, low serum haptoglobin level (< 10 mg/dL), and presence of schistocytes on peripheral blood smear. Fibrinogen level and activated partial thromboplastin time were normal; the international normalized ratio was mildly elevated at 1.4. Lactic acid levels peaked at 11.7 mmol/L. The patient had severe proteinuria (300 mg %) and hematuria (139 RBC/hpf) on urinalysis.

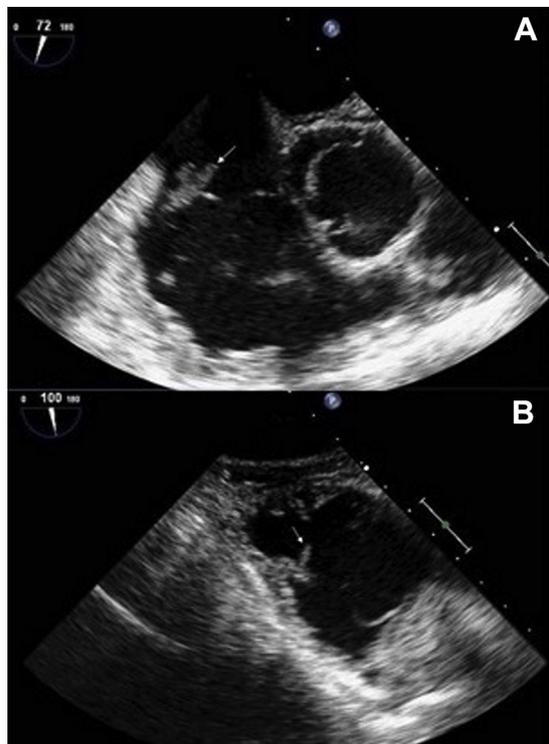


Figure 1 – A, Mid-esophageal view at the level of the aortic valve with transesophageal echocardiography demonstrates a 7- to 8-mm mobile mass (arrow) attached to the atrial surface of the tricuspid valve. B, Transesophageal echocardiogram (transgastric right ventricular view) demonstrates a linear, independently mobile structure (arrow) attached to a papillary muscle in the right ventricle.

An MRI of the brain on day 3 demonstrated changes consistent with an early left middle cerebral artery (MCA) territory ischemic stroke. A transesophageal echocardiogram on the same day demonstrated 7- to 8-mm mobile vegetation on the atrial surface of the tricuspid valve (Fig 1A), small vegetation on the mitral valve, and mobile vegetation on the papillary muscle of the right ventricle (Fig 1B; Videos 1 and 2). Additional studies to investigate the cause of thrombocytopenia and cardiac thrombi revealed negative heparin-induced thrombocytopenia (HIT) antibodies. Similarly, an extended antiphospholipid antibody panel to check for IgG and IgM isotypes of anticardiolipin/aCL and anti- β_2 glycoprotein 1 antibodies was negative. Serum complement protein C3 and C4 levels were 72 mg %

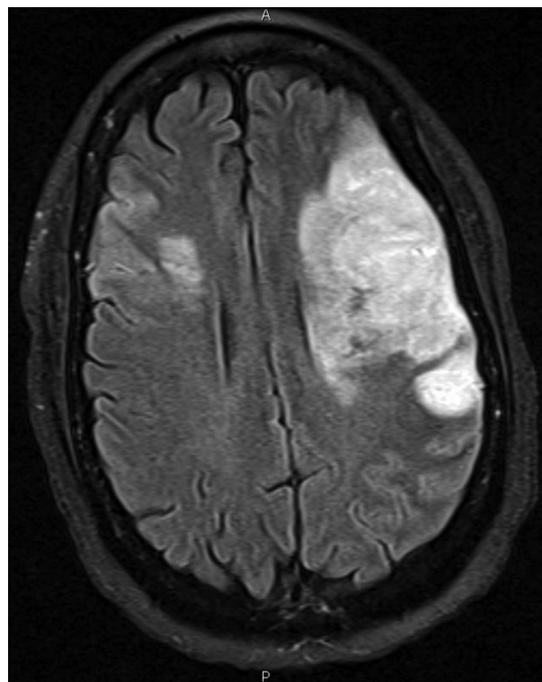


Figure 2 – Diffusion-weighted MRI of the brain demonstrates restricted diffusion in the left middle cerebral artery vascular distribution consistent with evolution of infarction. New patchy areas of restricted diffusion can now be seen in the left thalamus, right caudate head, and right anterior middle cerebral artery vascular territory.

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