Plastic Bronchitis Complicating Primary Graft Dysfunction After Lung Transplantation

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A 32-year-old man underwent bilateral lung transplantation for bronchiolitis obliterans 5 years after an allogeneic bone marrow transplant for acute leukemia. Before transplant, the recipient had severe respiratory failure ($P_{CO_2} = 136$ mm Hg) and right heart failure. Intraoperatively, there were dense adhesions, likely from his total body radiation prior to bone marrow transplant. Cardiopulmonary bypass was necessary to complete the difficult dissection. There was significant bleeding from his chest wall requiring massive transfusion and recombinant factor VIIa. Severe primary graft dysfunction and right heart failure required venoarterial extracorporeal membrane oxygenation support (Fig 1). On postoperative days 1 and 3, bronchoscopy was performed to assess airway patency because of high airway pressures and low respiratory system compliance. At both times large, fibrinous central airway cast were extracted. Figure 2 shows a cast extracted on postoperative day 3, which extended from the left mainstem bronchus into the left lower lobe. Airway pressures improved after extraction.

Plastic bronchitis is an uncommon and underdiagnosed entity, characterized by large, branching bronchial casts [1]. Plastic bronchitis complicating primary graft dysfunction after lung transplantation has not been described. Increased pressure in the pulmonary venous system is thought to be the precipitant in cardiac conditions associated with plastic bronchitis, like congenital heart disease and following the Fontan operation. Increased pressure in the lymphatic system is also described as a precipitant. Both these factors together with recombinant factor VIIa and other blood products might have been precipitants of plastic bronchitis in this case.

Reference