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DEVELOPMENT OF AORTIC FISTULAS INTO THE BRONCHIAL TREE AND LUNG PARENCHYMA FOLLOWING CARDIAC SURGERY

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Aortic fistulas into the airways may develop after unpredictable periods after surgery and are often the consequence of pseudoaneurysms. They are more common after descending thoracic aorta (DTA) procedures. Postoperative aortic pseudoaneurysms (PSAs) may arise from disruption of one or more arterial wall layers with extravasation of blood into the surrounding spaces. The hematoma is then held by the remaining vascular layers, fibrous tissue, and sometimes the parietal pericardium. A neointima may develop. Disruption may be related to different sites depending on the type of operation. A PSA is not the only possible cause of bronchopulmonary damage, which may also be due to neoaneurysms involving the native aortic wall next to suture lines. In other cases slow but continuous damage to lung parenchyma is caused by strictly adjacent foreign material such as graft substance, remnant of temporary bypass, silk knots and suture material, endobronchial expandable metal stents, or kinking of an aortic stent-graft. Hemoptysis is the first (and often the only) symptom of aortic fistulas into the bronchial tree or lung parenchyma. It may be massive or intermittent, depending on the size of the opening. If left untreated, ABPFs are uniformly fatal. Management of the airways must be immediate and must first include bleeding control by selective endotracheal intubation. The inflated cuff of a Carlens tube or a Fogarty embolectomy catheter may be positioned into the bleeding side of bronchial tree to protect the contralateral side from hemorrhage. Otherwise a single-lumen endotracheal tube may be positioned in the healthy main stem bronchus. Various approaches have been described, either surgical or endovascular. When the fistula is located in the ascending aorta, femoral–femoral cannulation should be established before opening the sternum, as the false aneurysm may potentially rupture during sternotomy.

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