Bronchial Rupture After Sled Trauma in a 13-Year-Old Boy

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A 13-year-old boy affected by a high-energy trauma (sled against tree) was admitted to the emergency department with respiratory distress and bradycardia. Roentgenography of the chest showed extended subcutaneous emphysema, bilateral pneumothoraces, and pulmonary consolidations (Fig 1). Computed tomography revealed massive subcutaneous emphysema, severe pneumomediastinum, bilateral pneumothoraces, peritoneal and retroperitoneal air, rib fractures, and bilateral pulmonary contusions. On axial, coronal, sagittal lung window, and minimum intensity projection (MinIP) reconstructions of the chest, the posterior wall of the intermediate bronchus was not identified, and contiguity existed between the air in the airway and that in the mediastinum—all signs of bronchial rupture (Fig 2). Bronchoscopy followed by thoracotomy confirmed the intermediate bronchus rupture, which involved the middle lobe and Nelson bronchi as well. A reimplantation of the ruptured bronchus, instead of a middle and lower bilobectomy, was attempted. Postoperative bronchoscopy showed an open inferior lobe bronchus and a stenosis of the middle bronchus anastomosis. Middle lobe atelectasis persists on imaging 3 months after the accident.

Bronchial rupture after blunt trauma is rare in children, with adolescent boys being more commonly involved. Symptoms can be nonspecific, leading to late diagnosis. Spiral computed tomography can depict the site of the bronchial tear. Special attention should be paid to the bronchial tree in the presence of extended subcutaneous emphysema or severe pneumothorax. Multiplanar reconstructions can detect bronchial ruptures initially missed on the standard axial plane [1].

Reference