Smoke inhalation injury: bronchoscopy findings

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A 64-yr-old man with no significant medical history presented with smoke inhalation after extinguishing a fire. He had soot deposits on the face, no cutaneous burns, a headache, and was without a sore throat or stridor. Initial chest radiography showed no significant changes. The carboxyhemoglobin level was 24%, consistent with carbon monoxide poisoning. Wheezing was present for the first 12 h after admission, and the patient was intubated on day 2 of hospitalization because of further respiratory deterioration. Laryngoscopy revealed soot deposits around the vocal cords. Repeat chest radiography showed bilateral opacities consistent with inhalation injury. This was also confirmed via bronchoscopy that revealed

carbonaceous deposits and edema of the large airways. Sequential bronchoscopy revealed ischemia and mucous membrane necrosis on day 3 (Figure, panel A); epithelium desquamation, necrosis, and erosion on day 5 (Figure, panel B); tenacious secretions and erythema on day 9 (Figure, panel C); and eventual resolution by day 12 (Figure, panel D). The patient was extubated on day 14 and discharged on day 28. At discharge, he had no symptoms except for a minor cough.

Although bronchoscopy may be useful in pulmonary clearance, the value of immediate removal of debris visible on bronchoscopic examination has not been shown.¹ Nevertheless, flexible bronchoscopy notably enables

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Figure (A) Flexible bronchoscopic image of the trachea showing ischemia and mucous membrane necrosis at the carina on day 3 after smoke inhalation injury caused by a fire. (B) Bronchoscopic image showing epithelium desquamation, necrosis, and erosion at the bifurcation of the left main bronchus on day 5. (C) Bronchoscopic image showing tenacious secretions and erythema at the carina on day 9. (D) Bronchoscopic image showing the near-complete resolution of the inhalational injury at the carina by day 12

physicians to identify the extent² and healing process of an injury,³ and then remove the debris in cases of smoke inhalation injury without burns.

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