A 19-year-old white man with a nonrevealing past medical history presented with acute onset of retrosternal discomfort associated with mild dyspnea, paroxysmal cough and minimal hemoptysis. In addition, he noted an occasional wheeze and cough productive of a minimal amount of yellowish tenacious sputum over the past three months.

On the evening prior to presentation he had sniffed cocaine, smoked marijuana and abused alcohol. He recalled retching, but did not vomit. Social history was also remarkable for a half pack per day tobacco use. He denied intravenous drug use. Physical examination was unremarkable. A PA and lateral chest film were obtained (Fig 1,2).
Diagnosis: Spontaneous pneumomediastinum

The most striking abnormality was present on the lateral chest film (Fig 1). This is a well-defined lucency apparently encircling the right pulmonary artery, originally described by Hammond1 as the “ring around the artery” sign.4 Additional radiographic findings on the lateral film include a thin radiolucent line best seen anteriorly along the cardiac border representing displaced mediastinal pleura. There is also “highlighting” of the aortic knob on the PA chest film (Fig 2). The pneumomediastinum was confirmed by CAT scan of the chest (Fig 3).

Spontaneous pneumomediastinum occurs in about 1 in 7,000 to 13,000 admissions in the USA.5 It is believed to be a consequence of alveolar rupture with dissection of air along the bronchovascular sheaths to the hilum, and into the mediastinal soft tissue. The air may subsequently decompress into the subcutaneous tissue or retroperitoneum, or may rupture the pleura, resulting in pneumothorax.

Spontaneous pneumomediastinum has been documented with prolonged Valsalva maneuvers during parturition, emesis, violent coughing and straining at stool.4 It has also been associated with cocaine use, marijuana smoking, pulmonary function testing, asthma, vigorous exercise and a reduction in atmospheric pressure seen in decompression sickness, mountain climbing and air travel.4,4

Patients commonly present with pleuritic chest pain, but may be asymptomatic or complain of dyspnea, puffy face or even crepitations of the skin. In more than 50 percent of the cases a Hamman’s “mediastinal crunch” can be auscultated. Definitive diagnosis is made by chest radiograph.4

The mediastinal accumulation of air usually follows a benign course, although there are some potentially life-threatening complications. These include pneumothorax and tension pneumopericardium. Conservative management is indicated with close clinical and radiographic follow up, as the majority of cases resolve spontaneously and recurrences are extremely rare.4,4

REFERENCES
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4 Maunder RJ, Pierson DR, Hudson LD. Subcutaneous and mediastinal emphysema: pathophysiology, diagnosis, and management. Arch Intern Med 1984; 144:1447-53