



Case Report of a Diver Suffering from an Arterial Gas Embolism from an Unusual Cause

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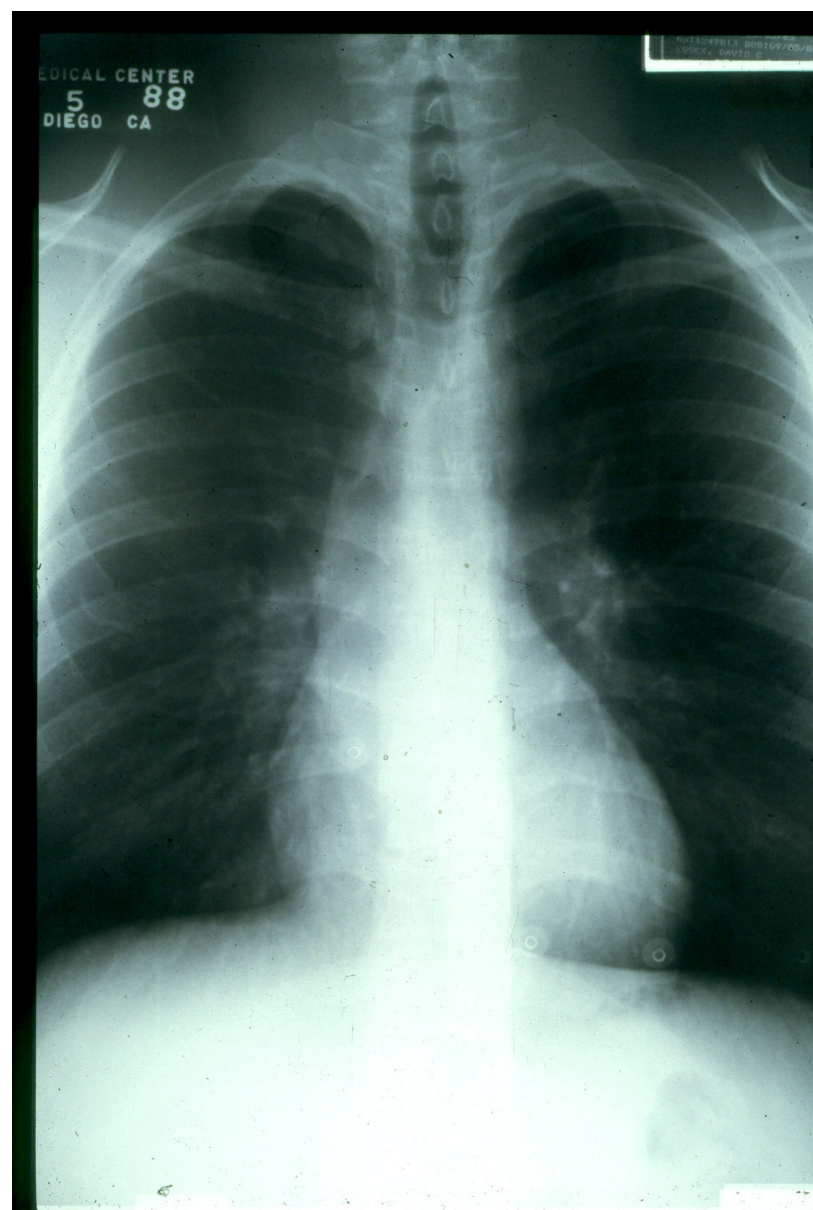
Introduction

- Arterial gas embolism (AGE) is a rare but potentially devastating event, with a mortality of up to 9%
- Results from surgical interventions, trauma, intravascular catheter use, etc. In divers, it occurs with rapid / uncontrolled or breath hold ascents, causing barotrauma
- Underlying lung pathology such as obstructive lung disease (emphysema, asthma) or cysts may increase the risk of pulmonary barotrauma and AGE
- Occurs in about 7 / 100,000 dives, or ~100 cases/year
- **We present a case of AGE occurring during a normal ascent but in a person with underlying *Coccidioides***

Case

- 25 year old healthy male dived to 85 feet of seawater (FSW) for 25 minutes without incident
- He performed a normal ascent without breath holding
- Immediately upon surfacing, he developed bilateral blindness and left lower extremity weakness
- He received 100% O₂ and his blindness resolved in 10 min
- At the hospital, his vitals were stable, but he remained unsteady on his feet and was unable to write his signature nor draw complex figures
- He received a USN Treatment Table 6A with no extensions and had complete resolution of his symptoms
- Imaging revealed only a small right upper lobe cavitory lesion. There were no signs of barotrauma
- Spirometry was normal
- However he had a recent history of valley fever confirmed by repeat skin testing. He sought follow up w his MD in Arizona for further evaluation / treatment

A



C

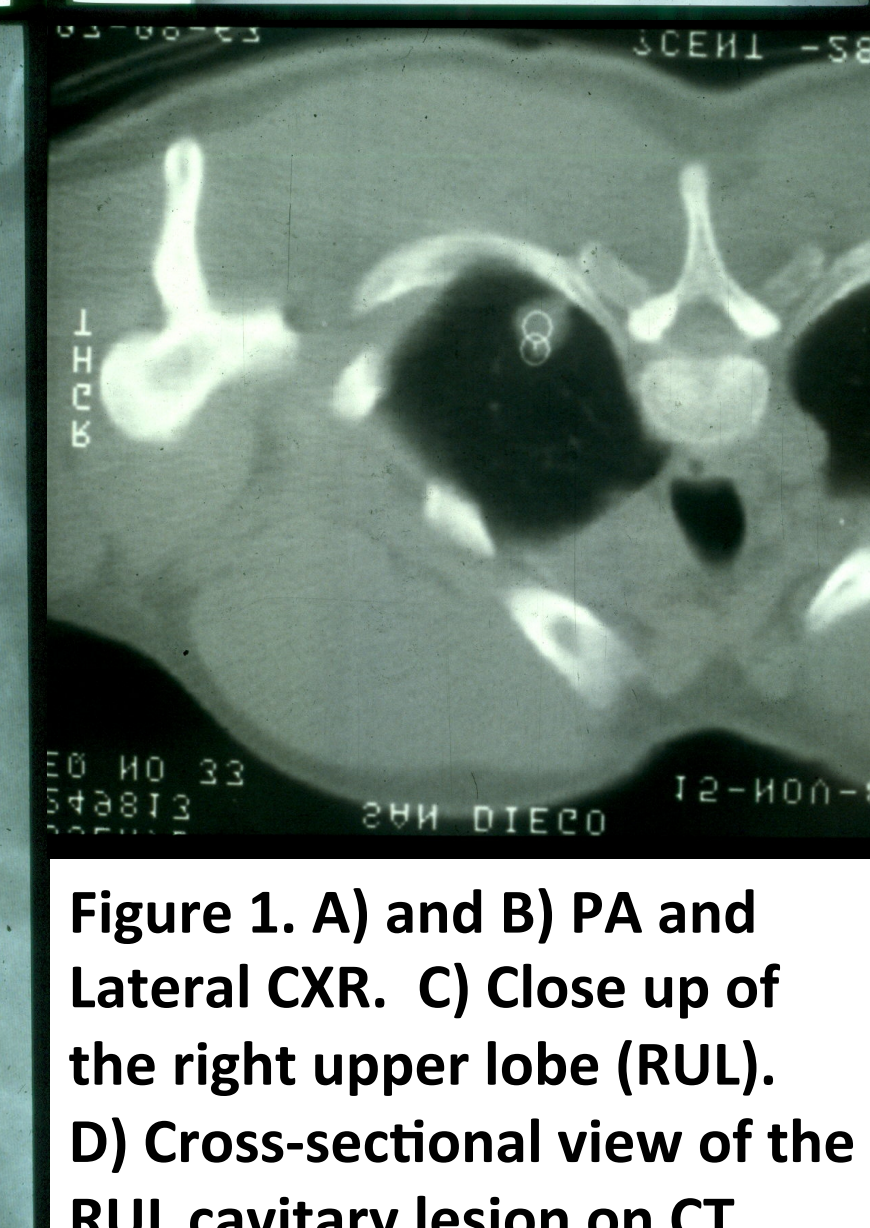
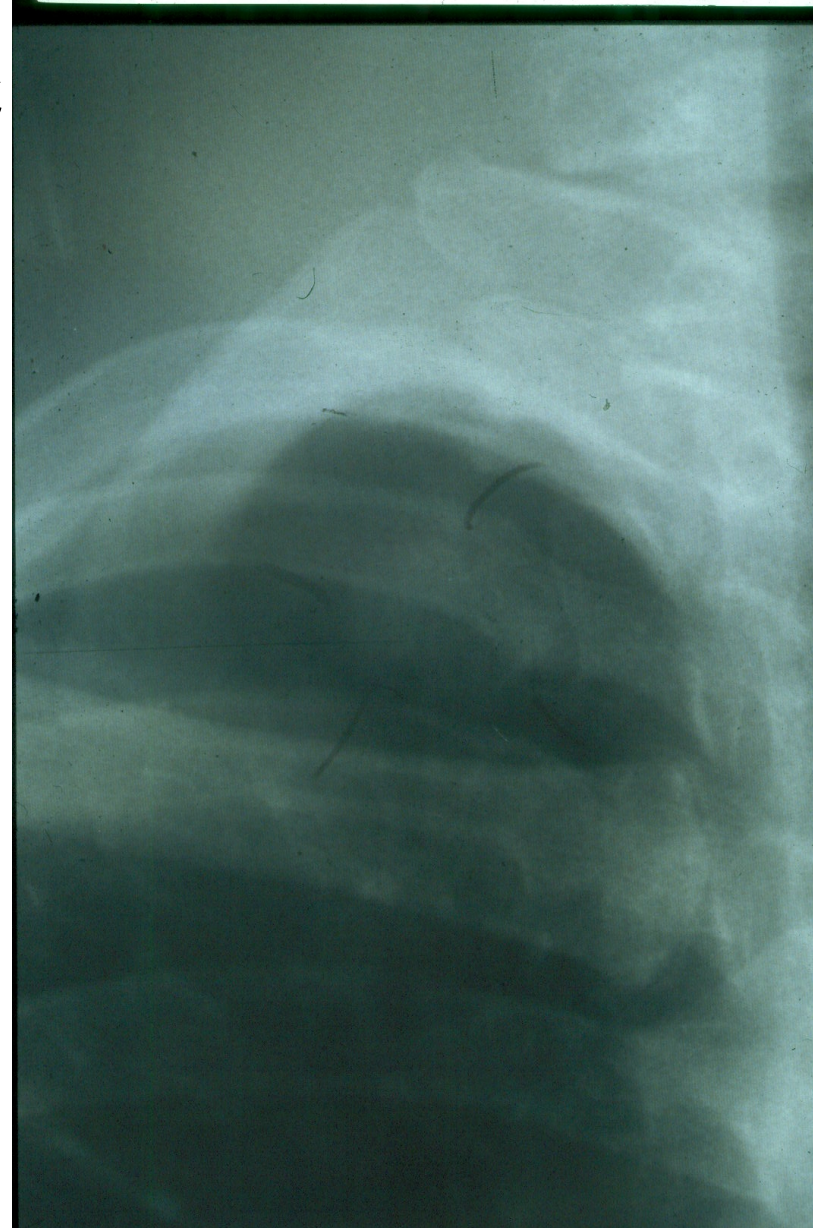


Figure 1. A) and B) PA and Lateral CXR. C) Close up of the right upper lobe (RUL). D) Cross-sectional view of the RUL cavitory lesion on CT.

B

Discussion

- *Coccidioides* are fungi endemic to the southwest United States and Central / South America (Figure 2)
- In the endemic US, its incidence is 42 / 100,000 or ~22,401 cases in 2011
- Up to 60% of individuals are asymptomatic after inhalation of the spores
- The remainder typically present w symptoms of a community acquired pneumonia
- Most cases of primary pulmonary cocci resolve spontaneously in 1-2 months
- 8-15% will develop cavitory disease (thin walled, chronic cavitory, ruptured)
- Most are thin walled, 2-4 cm in diameter, solitary, peripheral, and upper lobe
- Up to 3% will develop a pneumothorax as a complication
- Up to 50% of cavitory lesions will resolve spontaneously in 2 years
- Of the patients with cavitory disease, up to 75% will have symptoms of hemoptysis, cough, chest pain, and fatigue.
- **Divers who live in endemic areas and who have symptoms /or are at high risk for complication (diabetes, HIV, malignancy, steroid use, Filipino or African American descent) should be screened for cavitory lung disease**

E



Figure 2. E) Endemic areas where *Coccidioides* is found