A RARE CASE OF NEUROGENIC PULMONARY EDEMA

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Introduction

Neurogenic pulmonary edema is a clinical syndrome characterized by acute onset of respiratory distress and pulmonary edema following a significant acute central nervous system injury. Its pathophysiology is largely debated although several feasible theories of mechanism have been proposed over the years.

Case Report

A 54-year-old male with a history of traumatic brain injury sustained in a motor vehicle accident three years prior presented to the emergency department after experiencing a witnessed tonic-clonic seizure. Over the following four hours, he became increasingly dyspneic and hypoxic, requiring intubation and ventilator support. Copious amounts of frothy pink sputum was noted during intubation and physical exam demonstrated diffuse rhonchi bilaterally. His CXR revealed bilateral diffuse infiltrates consistent with pulmonary edema and his PaO2:FiO2 was less than 200. Earlier that year, he had presented to the ED of a different hospital with the same symptoms following a witnessed generalized seizure. Chest radiographs at that time also revealed diffuse infiltrates bilaterally. He rapidly improved within 24 hours and was discharged on Keppra, but reported noncompliance in the weeks leading up to this hospitalization for recurrent seizure activity and pulmonary edema. During both admissions, infectious and complete rheumatologic work up was done and returned negative. Transthoracic echocardiogram showed normal ejection fraction. Bronchoscopy revealed blood tinged secretions and no evidence of active alveolar hemorrhage. He clinically improved after empiric course of antibiotics and diuresis while being supported on mechanic ventilation with low tidal volume and high PEEP settings. After successful liberation from ventilator support, he was discharged on Keppra.

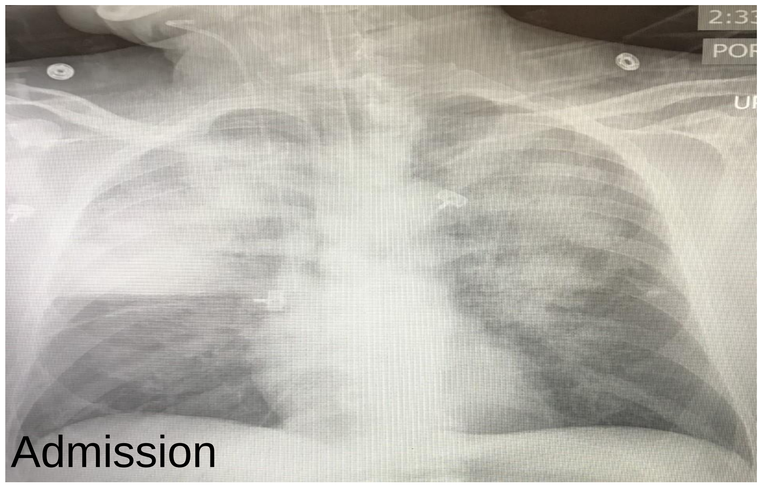
Labs/Imaging

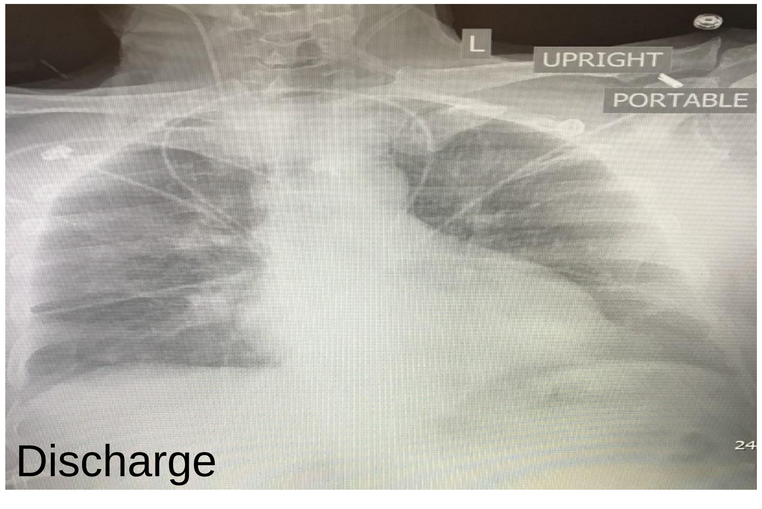
Vital Signs				
Temp	HR	RR	BP	O2
97.3	112	20	145/90	86% on RA

Levetiracetam
2.7

CBC									
WBC	RBC	Hgb	Hct	MCV	MCH	MCHC	RDW	Plts	MPV
40.50	6.2	17.6	53.8	86.8	28.4	32.7	14.4	316	9.4

ABG						
pH	pCO2	pO2	HCO3	Be	sO2	Lactate
7.34	29.6	65.6	15.6	-8.5	91.6	6.97





Results

Infectious and rheumatologic work ups were negative on both admission. Transthoracic echocardiogram was also performed and showed normal ejection fraction. Bronchoscopy revealed blood tinged secretions and no evidence of active alveolar hemorrhage. These results, in combination with radiographic findings, confirmed a diagnosis of neurogenic pulmonary edema secondary to a generalized tonic-clonic seizure.

Discussion

Although aspiration pneumonia is often suspected in patients who exhibit dyspnea after an epileptic seizure, neurogenic pulmonary edema should be considered when evaluating these patients. Identifying seizure activity as the triggering event for neurogenic pulmonary edema is crucial so that these patients can be counseled on the importance of anti-epileptic drug compliance to prevent recurrent episodes.

References

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