Received: 12 December 2019 | Revised: 1 February 2020 | Accepted: 3 February 2020

DOI: 10.1002/emp2.12032

JACEP OPEN
JOURNAL OF THE AMERICAN COLLEGE OF EMERGENCY PHYSICIANS OPEN
A GLOBAL JOURNAL OF EMERGENCY MEDICINE
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CASE REPORT

The Practice of Emergency Medicine

Two pulmonary emboli in a psych pod

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Funding and support: By *JACEP Open* policy, all authors are required to disclose any and all commercial, financial, and other relationships in any way related to the subject of this article as per ICMJE conflict of interest guidelines (see http://www.icmje.org). The authors have stated that no such relationships exist.

[Correction added on 23 April 2020, after first online publication: Author name "Samantha J. King" has been corrected to "Samantha A. King".]

Abstract

Background: A female patient known to have schizoaffective disorder self-presented to an emergency department in a state of acute agitation and paranoia shortly after a 35-day inpatient stay at a psychiatric facility.

Case report: The patient exhibited no signs or complaints of dyspnea or hypoxia, but later collapsed and became hypoxic after sleeping comfortably with sedation for 12 h in the psychiatric unit. She was intubated and a computed tomography angiogram revealed bilateral lobar pulmonary emboli and right heart strain.

Conclusion: Psychiatric hospitalizations, medications, diagnoses and relevant sequelae increase venous thromboembolism risk more than many realize.

KEYWORDS

acute psychosis, pulmonary embolism, pulmonary embolism, venous thromboembolism risk, venous thromboembolism

1 | INTRODUCTION

Psychiatric emergencies are common and can be difficult to differentiate from medical emergencies, particularly when medical and psychiatric co-morbidities are present. Patients with pulmonary emboli can present with a variety of symptoms, most commonly hypoxia and tachycardia, but also confusion and agitation. Correctly diagnosing a pulmonary embolus in an initially non-hypoxic patient can be a challenge; adding acute psychosis to the mix makes it even more difficult. This case reveals the perils of diagnostic uncertainty when a patient presenting with seemingly isolated psychiatric symptoms deteriorates acutely secondary to acute pulmonary embolism of unclear etiology.

2 | CASE REPORT

A 44-year-old woman with a history of schizoaffective disorder, gastroesophageal reflux disease, and asthma self-presented to the emergency department responding to internal stimuli and exhibiting disorganized speech and paranoia. A chart review revealed that she had been discharged 1 week before from a 35-day inpatient psychiatric admission at another local hospital. Her triage vital signs were all within normal limits with the exception of her heart rate, which was 110 beats/min. She was agitated and combative with staff and required intramuscular administration of haloperidol, lorazepam, and diphenhydramine to address her aggression. Her degree of agitation also required the assistance of multiple security officers to move her

Supervising Editor: Bernard P. Chang, MD, PhD.

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to the psychiatric ED. It was noted on chart review that the patient had recently been admitted to another facility for a psychiatric admission and discharged on a course of benzodiazepines.

Once in the psychiatric ED, she slept comfortably under close observation for 12 h, after which she became abruptly agitated, banging on walls and demanding to be discharged until she collapsed. While the staff attempted to secure additional medications for sedation, the patient suffered an event after which she was found to be unresponsive, bleeding from the nose and a superficial lip laceration, and incontinent of urine. She was moved back to the medical ED where she showed some initial improvement in her mental status but remained hypoxic and severely agitated requiring her to be intubated. Despite fluid resuscitation, she remained hypotensive. Computed tomography (CT) of her head revealed no acute abnormality, but a CT angiogram revealed a bilateral lobar pulmonary emboli and right heart strain. She was heparinized and admitted to the medical ICU. Thirty-six hours later she was extubated and transitioned to enoxaparin. However, she remained uncooperative and unable to provide additional history.

3 | DISCUSSION

It is estimated that >500,000 Americans are affected by pulmonary embolism each year, with associated deaths between 200,000 and 300,000.[1] Although it is well known to the medical community that certain comorbid diagnoses, particularly in the setting of inpatient hospitalization making incidence of venous thromboembolism more likely, psychiatric disease and hospitalization are not as commonly considered in comparable context. Patient populations with schizophrenia and bipolar disorder have been found to have increased rates of venous thromboembolism,[2,3] and inpatient psychiatric patients have been found to have an increased incidence of venous thromboembolism as well.[4]

Patients admitted to psychiatric hospitals may have several characteristics that are otherwise considered to be typical risk factors for pulmonary embolism. These patients can be older, may be physically restrained, medically restrained, or catatonic and therefore bedbound, or have dementia, all of which has been associated with an increased risk of pulmonary embolism.[4] One psychiatric hospital evaluating the incidence of venous thromboembolism among their patients found an overall incidence of 2.3% but a much higher rate amongst groups that were catatonic and/or restrained.[5] In that population, the majority of venous thromboembolisms that were found (76.9%) were pulmonary embolisms,[5] and there is a case report of a patient who died secondary to massive pulmonary embolism during psychiatric hospitalization.[6] Even patients who were restrained and receiving prophylaxis to prevent venous thrombosis were still found to have venous thromboembolisms at a rate of 11.6% at one hospital in Japan.[7]

Nonetheless, classic risk stratification formulas, including Well's Criteria and Geneva Score, do not include psychiatric hospitalization or treatment among their risk factors because psychiatric hospitalization may, in fact, not always meet the criteria of immobilization. It is, in part, unclear whether or not psychiatric admission constitutes a risk factor because patients are frequently ambulatory during admission and diagnostic criteria in the initial studies is described as "bed bound for ≥72 h." This may not take into account factors such as decreased ambulation related to depression and anhedonia, somnolence from antipsychotics, and other barriers to physical activity.

Psychiatric patients are not only at risk secondary to factors related to restraint and hospitalization, but also because of stress and medication. Decompensated psychiatric patients are more prone to stress and with that, increased catecholamine surges, increase in acute phase reactants, sedentariness secondary to disease or medication, as well as medication side effects.[8,9] Current antipsychotic use has been associated with a significantly increased risk of developing venous thromboembolism.[10] This association has been seen with both typical, atypical, low-potency, and high-potency antipsychotics.[10,11,12,13] Although not classically listed as risk factors, having psychiatric illness, being hospitalized in a psychiatric facility, and taking medications to help treat their psychiatric disease may put these patients at a significantly higher risk of developing venous thromboembolisms than it may typically be thought.

Although the risk of venous thromboembolisms were still found to occur at a significant rate in prophylactically treated patients,[7] other studies and organizations are still evaluating the best method of prevention among this population. One study evaluating patients within their first days of hospitalization found that it appeared safe to withhold deep venous thrombosis prophylaxis treatment within the first 24 h, and subsequent low-molecular-weight heparin use for prophylaxis was safe among the patients studied.[14] Recognizing the risk of venous thromboembolism, Queensland Statewide Venous Thromboembolism Prevention guidelines recommend using Padua risk assessment model for mental health patients.[15] Even outside of implementing specific prevention strategies, awareness of risk may be just as important. One review noted that psychiatric patients may not recognize symptoms of deep venous thrombosis in addition to being frequently sedated.[16] This study recommends regular screening and assessment, including the use of d-dimer in psychiatric patients, to help prevent venous thromboembolism incidence. This screening may be especially important in patients who are restrained and therefore unable to self-assess as well as the associated sedentariness caused by restraint use.

4 | CONCLUSIONS

Clinicians should always keep an open mind, but perhaps even dramatically more so when dealing with the acutely psychotic. In addition to being classically unreliable historians, there are many potential causes of acute agitation, which is often accompanied by tachycardia. Confirmation bias toward an agitated patient with a known psychiatric diagnosis can too easily allow for concurrent or developing medical emergencies to be overlooked. Although it can be reasonable to sedate an acutely psychotic patient, serial evaluations are imperative as is

continued consideration of the clinical picture including any persistent vital sign abnormalities. Our patient experienced sustained hypoxia and an altered mental status after she collapsed, despite significant oxygen support, and although her hypoxia was unlikely the only factor affecting her mental status, it could certainly exacerbate an underlying psychiatric decompensation. Ultimately, her persistent hypoxia and re-evaluation were the keys to discovering her cardiopulmonary emergency in a timely enough manner to successfully resuscitate her.

CONFLICT OF INTEREST

The authors have no financial interests associated with this publication. This writing has not been previously published and it is not being considered by any other publications at this time.

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How to cite this article: King SA, Kelly SM, Richardson AC, Fischer KR, Smedley AD. Two pulmonary emboli in a psych pod. *JACEP Open*. 2020;1:416–418.
https://doi.org/10.1002/emp2.12032