

Psychiatric emergency department boarding: From catatonia to cardiac arrest



Between the years 1998 and 2013 there has been a 35% drop in the number of inpatient psychiatric beds across the United States [1]. As a result, emergency departments have seen progressively longer boarding times for admitted psychiatric patients. Their average length of stay is of over 18 h for admitted psychiatric patients in 2012, and 66% of psychiatric patients wait over 24 h for an inpatient bed [2, 3]. At the authors' institution the average length of stay for an inpatient psychiatric bed is over 20 h in 2017, with wait times habitually surpassing 100 h.

It is well documented that medical patients awaiting an inpatient bed for extended lengths of time have increased morbidity and mortality [4–12]. However, there is a paucity of literature to determine if the same holds true for psychiatric patients. We believe this is the first case report of a psychiatric patient developing a massive pulmonary embolus and subsequent cardiac arrest attributable to prolonged boarding.

A 52 year old male with history of schizophrenia was brought to the emergency department with disorganized behavior and poor oral intake for four days in the setting of anti-psychotic medication non-compliance. Upon arrival to the emergency department he was evaluated by a psychiatry resident and found to have symptoms consistent with catatonia secondary to an acute exacerbation of his schizophrenia. Recommendation was for an involuntary admission. The emergency medicine resident's examination was unremarkable, including no lower extremity swelling or tenderness. The patient verbalized no complaints.

Vital signs and screening labwork were unremarkable. No inpatient psychiatric beds were available and he boarded in the emergency department. While boarding he received his home medications, including risperidone.

Approximately 12 h into his hospital stay the patient had a routine reassessment of his vital signs. He was found to have an asymptomatic tachycardia at a rate of 123 beats per minute. Given his history, this was attributed to volume depletion. Oral hydration normalized his heart rate, which remained normal for the remainder of routine vital sign checks. His pulse ox was never below 98% and at each reassessment he denied somatic complaints.

At slightly over 24 h into his ED stay the emergency medicine team was called to his room for seizure-like activity. He was found to be apneic and bradycardic. Shortly afterwards he went into cardiac arrest and CPR was initiated. The patient was intubated and underwent four rounds of ACLS prior to ROSC, including defibrillation once.

After ROSC a bedside echocardiogram revealed a dilated right ventricle collapsing the left ventricle (Fig. 1) and an EKG showed a new RBBB, signs concerning for a massive pulmonary embolus. The decision was made to administer TPA as the patient became hypotensive and bradycardic. His vital signs stabilized and he had a chest CT angiogram which showed massive bilateral pulmonary emboli (Fig. 2).

In the ICU his hemodynamics improved but his course was complicated by ischemic encephalopathy. He did not have any other end organ damage and no evidence of deep vein thrombosis was found. He was extubated and discharged to hospice 10 days later.

It is an unfortunate reality that the lack of access to inpatient psychiatric care has become epidemic across the United States. Our case is not the first instance of a patient suffering cardiac arrest from a pulmonary embolus due to long wait times, although we believe this to be the first case report of its kind. In 2008 a patient died at Kings County Hospital in Brooklyn, NY after sitting for 24 h in the psychiatric emergency department waiting room [13].

We theorize that the patient likely developed a DVT/PE over the 24 h he was boarding. Although inadvertent tachycardia ameliorated by volume expansion is frequently encountered in the ED, this was the only warning sign of the impending pulmonary embolus. Curiously, his vital sign reassessment two hours prior to his cardiac arrest revealed normal vital signs.

The unsettling truth is that we do not know if this is an isolated event, or if adverse outcomes from boarding are increasing across the country. Morbidity from psychiatric emergency department boarding is limited to a 2014 study by Bakhsh et al. which found that boarded psychiatric patients are at risk of frequent medication errors, predominantly related to incomplete medication histories [14]. However, it is unclear the degree to which these errors are clinically significant. There are known increases in mortality and hospital length of stay for boarded ICU patients, but no data for psychiatric patients [15].

Boarding of psychiatric patients in EDs has exceeded crisis level. In light of this, the medical community must continue investigating the effect of boarding on psychiatric patient outcomes. It is imperative that attention be turned to quantifying the increase in morbidity and mortality in psychiatric patients so that resources can be devoted to mitigating the risks associated with boarding.

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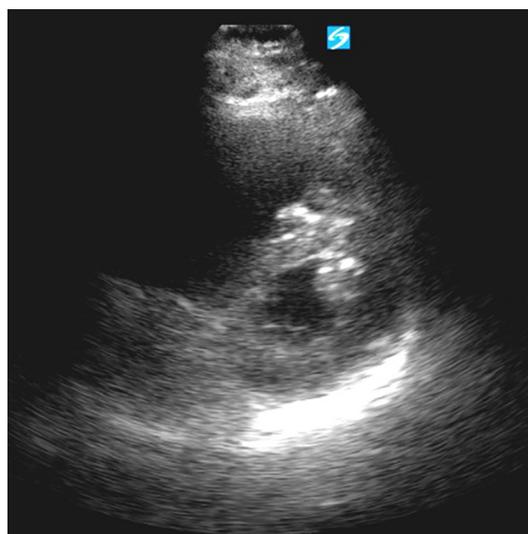


Fig. 1. Echocardiogram in the parasternal short axis showing right ventricular dilation and a “D sign”.

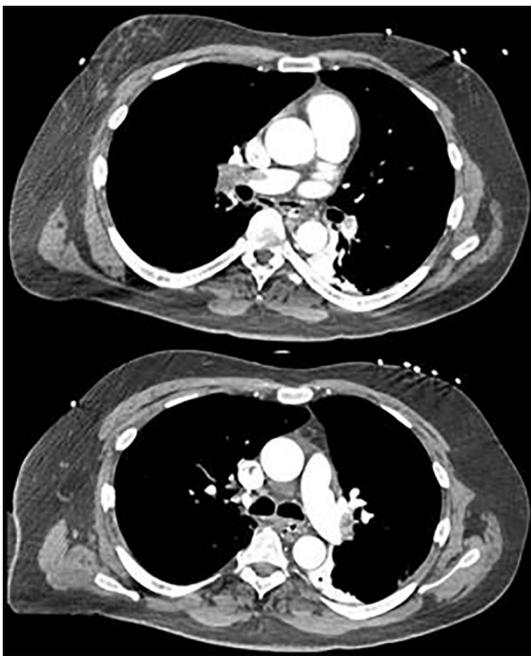


Fig. 2. Large thrombus in the right pulmonary artery (top). Segmental emboli in the left lower lobe pulmonary artery (bottom).

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Correspondence to 1-hour bundle, an updated version of 3-hour bundle☆

Dear Editor,

We would like to thank the reviewer for sharing their concerns and views after reading our study. We appreciate the comments and questions and hope the answers below will help address these concerns.

The reviewer raises concerns about the study including patients with severe sepsis and septic shock but not patients with sepsis. The Centers for Medicare and Medicaid Services (CMS) and The Joint Commission (TJC) released the Sepsis Core Measure (SEP-1) in October of 2015 which included early management bundle goals for patients with severe sepsis or septic shock only [1]. We selected this population to be consistent with the CMS core measures focused on severe sepsis and septic shock patients for both internal quality improvement and external applicability. However, the screening tool is used in the emergency department (ED) on every patient.

We agree that assessment of the test characteristics of the ED sepsis screening tool in relation to other screening tools such as the quick Sepsis-Related Organ Failure Assessment (q-SOFA) and systemic inflammatory response syndrome (SIRS) is needed [2]. Indeed, we in the process of determining the sensitivity, specificity and overall accuracy of our screening tool in a separate project that we hope to publish soon. However, the focus of this study was to determine the impact of the screening tool on compliance with the 3-hour sepsis bundle, which we felt was important for quality improvement.

In regards to the comment on the new 1-hour bundle, the present study was conducted between 2012 and 2015, so in practice relied on the guidelines and definitions that were endorsed at that time [3, 4]. Furthermore, our focus has been maximizing compliance with the CMS guidelines and definitions; even to date, CMS has not adopted the Sepsis-3 definitions or commented on the new 2018 1-hour bundle. Our study demonstrated that appropriate antimicrobials were initiated in a timelier manner and there was a trend towards decreased mortality. This study also identified elements our institution needs to improve on, such as appropriate fluid resuscitation. Delivering the highest quality patient care in sepsis has always been a top priority at our institution and these findings show that the sepsis screening tool has improved care for severe sepsis and septic shock patients in our ED.

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☆ Conflicts of interest: T Shah, MA Rech, E Sterk: no conflicts to disclose.