



### I35 A Fatal Pulmonary Embolism in a Hospitalized Psychiatric Patient: A Medicolegal Analysis

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**Learning Overview:** After attending this presentation, attendees will understand that venous thrombosis among patients with severe mental disorders can result from various mechanisms that cause blood vessel injury or venous stasis, potentially determining fatal consequences due to the occurrence of a Pulmonary Embolism (PE).

**Impact on the Forensic Science Community:** This presentation will impact the forensic science community by deepening awareness about specific psychiatric disorders and how guidelines must be incorporated in order to prevent fatal thromboembolic complications and to, ultimately, avoid the risk of a lawsuit for alleged negligent medical care.

Psychiatric patient mortality is three-fold higher than the rate in the general population and nearly 60% is due to cardiovascular disorders. Specific risk factors included lifestyle issues and adverse effects of long-term medication, as well as an increased occurrence of obesity, diabetes, and hypertension.

Venous Thromboembolism (VTE) is the combination of PE and Deep Venous Thrombosis (DVT) and is known as a risk factor for sudden death in patients hospitalized in mental health units.

PE accounted for nearly 4% of unexpected sudden deaths in psychiatric patients; nevertheless, risk factors of VTE have not systematically been investigated in psychiatric inpatients.<sup>1</sup>

The main causative factor in these cases is immobility associated with venous stasis. Injuries to the extremities during physical restraint or compression and a reduction in blood flow of the extremity veins may also have prothrombotic effects enhancing tissue factor expression in endothelial cells, resulting in thrombosis formation.

Treatment with antipsychotics, especially phenothiazines, results in an increased platelet aggregation. Metabolic symptoms caused by antipsychotics, such as body weight increase, hyperleptinemia, hyperglycemia, and dyslipidemia, are known to be risk factors for VTE and to interfere with the coagulation and fibrinolysis processes.

**Case:** The case of a 45-year-old man with bipolar affective disorder and metabolic syndrome was reported. He went to the Psychiatric Emergency Department for management of a psychotic mood disorder associated with violence and property damage. During hospitalization, he was difficult to manage and aggressive toward the medical staff. Hence, he was given clonidine and lorazepam, then treated with aripiprazole and valproic acid. Four-point and two-point physical restraints were intermittently applied for five days. The vital parameters were normal, apart from occasional tachycardia. After removal of the physical restraints three days later, he collapsed and all efforts to resuscitate him failed. The patient's family filed a wrongful death lawsuit against the hospital, alleging that negligent medical care at the psychiatric ward led to his death. A medicolegal examination was requested.

An external examination of the body revealed obesity (1.85 m; 120 kg) in the absence of traumatic injuries. At autopsy, a saddle embolus completely occluding the right and left pulmonary arteries and extending throughout the peripheral branches of the pulmonary arterial circulation was observed. Dissection of the deep veins showed patchy occlusive thrombosis of the left popliteal vein, extending the ipsilateral saphenous vein. Morphological and histological heart and kidney examinations were in accordance with hypertrophic cardiomyopathy and renal chronic disease. PE was identified as the cause of death.

**Discussion:** A comprehensive analysis of the patient's medical records was performed. During hospitalization, the patient had never experienced cardiovascular or pulmonary symptoms. The patient's obesity, age, and immobility assessed low or intermediate clinical probabilities for pulmonary thromboembolism. Hence, the possible medical liability for not having administered heparin prophylaxis was herein discussed.

**Conclusion:** The goal of this case is to underline the importance of making a correct analysis of VTE risk factors in hospitalized psychiatric patients. This case further suggests the need to incorporate the presence of psychiatric disorders and exposure to antidepressants and/or antipsychotics in scoring systems for pulmonary thromboembolism.

#### Reference(s):

1. Jiří Masopust, Radovan Malý, Martin Vališ. Risk of Venous Thromboembolism During Treatment With Antipsychotic Agents. *Psychiatry and Clinical Neurosciences* 2012;66:541–552.

#### Venous Thrombosis, Mental Disorders, Negligent Medical Care