Case Report

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# A Case of Pulmonary Embolism after Receiving a Dose of Sildenafil

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## Abstract

Several studies have posited the potential of PDE5Is to precipitate arterial and venous thrombotic or embolic incidents, albeit rare occurrences. The present investigation documents a case of pulmonary thromboembolism (PTE) in an elderly male patient, aged 81, following the consumption of sildenafil. An 81-year-old male patient who was previously diagnosed with syncope was admitted to our Emergency Department. He reported symptoms of dyspnea and vertigo. Approximately two hours before admission, there was a history of accidentally ingesting a total dose of 100 milligrams of sildenafil. The occurrence of PTE after sildenafil administration in this case, albeit rare, underscores the significance of meticulous evaluation of medications during patient history-taking. This case report, the importance of thorough efforts to rule out the diagnosis of PTE and to address even the slightest suspicion.

**Keywords:** Pulmonary embolism, phosphodiesterase 5 inhibitors, adverse effect

## Introduction

On a globalscale, phosphodiesterase-5 inhibitors (PDE5Is) like sildenafil and tadalafil have garnered extensive prescriptions for the management of male erectile dysfunction. Sildenafil augments the actions of nitricoxide (NO) through the inhibition of phosphodiesterasetype 5 (PDE5), an enzyme responsible for the breakdown of cyclic guanosine monophosphate (cGMP) with in the corpus cavernosum. Nevertheless, it is recognized that vasodilation is not confined solely to the corpuscavernosum (1-3).

Several studies have posited the potential of PDE5Is to precipitate arterial and venous thrombotic or embolic incidents, albeit rare occurrences (4,5). The present investigation documents a case of pulmonary thromboembolism (PTE) in an elderly male patient, aged 81, following the consumption of sildenafil.

## Case Report

An 81-year-old male patient who was previously diagnosed with syncope was admitted to our Emergency Department. He reported symptoms of dyspnea and vertigo. Approximately two hours before admission, there was a history of accidentally ingesting a total dose of 100 milligrams of sildenafil.

As per his family's account, the patient suffered a sudden loss of consciousness while seated on the couch, followed by a recovery to consciousness within a span of two to three minutes. Initial physiological assessments revealed a blood pressure of 115/75 mmHg, a heart rate of 86 beats per minute, a respiratory rate of 18 breaths per minute, a body temperature of 36.7 °C, an oxygen saturation level of 91%, and a finger stick blood glucose level of 215 mg/dL. The cognitive state was characterized by a heightened level of concentration. The findings of an auscultatory examination indicated the absence of any cardiac murmur and the presence of typical respiratory sounds.

During emergency monitoring, the patient experienced a syncope episode lasting one minute. After a period of bed rest, consciousness was restored. Subsequent blood pressure measurements recorded 90/60 mmHg initially and 120/80 mmHg after two hours of recumbency. The laboratory tests conducted upon admission yielded the following results: white blood cell count of 7.2 x 10^3/mm^3, hemoglobin level of 15.5 g/dL, platelet count of 130,000/uL, urea level of 68 mg/dL, creatinine level of 1.55 mg/dL, and d-Dimer level of 5.9 mg/L (with a normal range of 0-2 mg/L). The findings of the cerebral magnetic resonance imaging and computed tomography imaging (CTI) scans were unremarkable. Echocardiography revealed the presence of right ventricular

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dilatation and since the d-dimer value is also outside there reference range prompting the performance of chest CTI due to suspected acute PTE. A thrombus was observed within the major pulmonary artery. PTE was diagnosed through CTI evaluation (Figure-1).

An 80 mg dose of enoxaparin was administered via subcutaneous injection in the emergency department. Subsequently, the patient was admitted to the hospital under the care of the chest disorders clinic. Bilateral Doppler ultrasonography of the lower limbs revealed unremarkable findings.

After a 13-day hospitalization period, the patient was discharged with a follow-up care plan in place.

## Discussion

The administration of sildenafil and other PDE5Is is frequently linked with adverse effects, including headache, dyspepsia, lumbago, myalgia, flushing, and rhinorrhea or nasal congestion. There is no established association between the use of PDE5Is and hypercoagulable states. However, some studies have suggested that in rare instances, PDE5I usage may be implicated in arterial and venous thrombotic or embolicevents. A hemodynamic impact of sildenafil has been observed to result in a decrease of approximately 8-10 mm Hg in systolic and diastolic blood pressure, as demonstrated in previous studies (5-7).

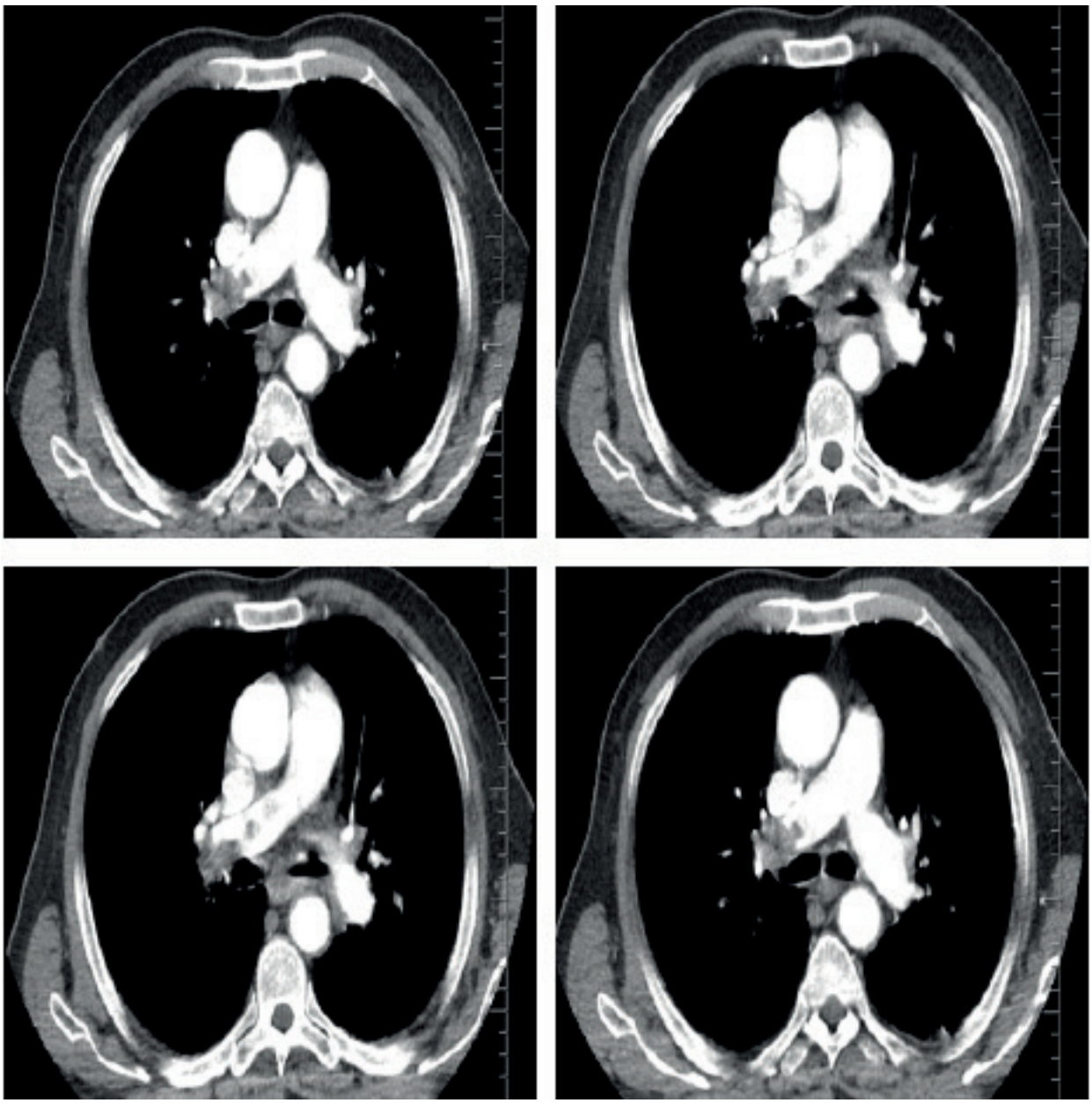

**Figure 1.** CTI Imaging of the Patient

The hypotension observed in this case was likely initially attributed to using sildenafil. Furthermore, the low D-dimer value under scores the importance of meticulous case evaluation and the judicious selection of diagnostic methods to avoid over looking the PTE, which can pose a significant risk to life (8). Rare occurrences of PTE have been documented in correlation with the usage of sildenafil. In a scientific article by Chi Chen, a case of PTE following the administration of tadalafil 20 mg to manage erectile dysfunction in a 56-year-old male devoid of prior coronary artery disease history is reported (9).

The patient presented with symptoms of hemoptysis, dyspnea, and mild left chest discomfort. The patient was transported to the emergency medical facility, where his vital signs, including blood pressure, body temperature, and pulse, were observed to be with in the standard range. However, tachycardia was detected. The electrocardiogram displayed the S1Q3T3 pattern, which was observed unintentionally (10,11).

The lack of similar findings in our case complicates the diagnosis and adds valuable insight to the literature, emphasizing the importance of thorough exclusion of pulmonary thromboembolism (PTE) in cases involving sildenafil usage. Treatment approaches for patients with pulmonary thromboembolism (PTE) differ based on the patient's clinical stability. In cases of stable patients, the primary treatment strategy involves the administration of anticoagulants. For unstable patients, treatment may necessitate thrombolytic therapy for reperfusion or interventions such as surgical thrombectomy and extra corporeal membrane oxygenation. Additionally, preventive measures to avert embolism recurrence and identification of the embolics ource are crucial aspects of management (11,12). In our case, a method by these treatment strategies was followed and investigations were performed to identify the source of the embolism to prevent recurrence.

## Conclusion

In contrast to other cases, the individual under scrutiny was of advanced age and consumed sildenafil inadvertently, rather than intentionally for the treatment of erectile dysfunction. Additionally, unlike other instances, our subject presented with symptoms of syncope and mild chest pain, and their electrocardiogram did not display the S1Q3T3 pattern typically associated with pulmonary embolism.

The occurrence of PTE after sildenafil administration in this case, albeit rare, under scores the significance of meticulous evaluation of medications during patient history-taking. It also highlights that PTE may manifest with nonspecific symptoms and sometimes seemingly benign conditions. This under scores the importance of thorough efforts to rule out the diagnosis of PTE and to address even the slightest suspicion.

The case report has been composed with anonymized characteristics, ensuring that sensitive and detailed patient data have been omitted. However, these data remain accessible to editors and reviewers for evaluation and verification purposes. This practice is supported by the editorial and review process, there by maintaining the confidentiality of the patient while allowing for thorough scrutiny of the report.

There is noc onflict of interest between the authors.

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