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*·Letters to the Editor·*

# Hemoptysis developing soon after use of sildenafil: an observation on two cases

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Dear Sir,

Our group from Pamukkale University Hospital would like to present an observation on hemoptysis that was probably associated with sildenafil usage in two patients. Since hemoptysis occurred immediately the drug was taken and has not recurred following the discontinuation of the drug. We think that after eliminating other risk factors, sildenafil might be a probable cause of transient hemoptysis.

*Case 1*

A 70-year-old male patient presented to the Chest Diseases Department at the Pamukkale University School of Medicine with a complaint of a bloody cough for 2 days. There were no other symptoms. He had no chronic bronchitis or any other accompanying diseases except benign prostatic hyperplasia. He had been a heavy smoker, and had a 50-pack/year hisory. His physical examination and routine laboratory evaluation, including chest X-ray, pulmonary function tests and bleeding tests, were normal. Although he denied having taken any drugs at that period, his daughter stated that she incidentally observed that he used sildenafil blister. Because no relationship between hemoptysis and sildenafil usage has been reported previously, the patient was treated with antitussive and antifibrinolytic (tranexamic acid, perorally, 250 mg t.i.d) for 1 week. The hemoptysis was cleared up. One month after the first admission, the patient represented to the chest clinic with a recurrence of hemoptysis. No abnormality was detected in a comprehensive systemic evaluation or during the physical examination. The routine laboratory analysis and bleeding tests were still within normal ranges. Microbiological analysis of sputum showed normal upper airway flora and negative acid-fast bacillus staining. The sputum cytology was benign. Because of the patient's previous history, sildenafil usage was questioned and a recent intake at the same day of hemoptysis was determined. Thorax computed tomography (CT) revealed ground glass attenuation in left upper zone, and control CT imaging on the seventh day after the first CT scan showed complete clearance of that diagnosis. The patient has refused to have a bronchoscopy and has been treated with the same medications as previously. He was warned about the possible side-effects of sildenafil. During the 24-month follow-up, the patient was fine, with no recurrence of hemoptysis or pulmonary complaints, and he declared that he did not use sildenafil any more during that period.

*Case 2*

Another male patient aged 55 years has presented to Thoracic Surgery Department at the Pamukkale University School of Medicine with a minimum blood-staining of sputum. During detailed questioning, it was revealed that the patient had recently used 50 mg sildenafil along with alcohol on the same day as hemoptysis occurred. The hemoptysis had occurred just after sexual intercourse.

There were no accompanying diseases, including chronic bronchitis. Although the patient was a smoker, his detailed smoking history was not taken. No abnormality was detected in the comprehensive systemic evaluation and physical examination. The pulmonary function tests, routine laboratory analysis and bleeding tests were in normal ranges. The sputum cytology was benign and acid-fast bacille staining of sputum was negative. There were no radiological abnormalities in either chest X-ray or thorax CT. The patient was warn about the possible side-effects of sildenafil usage and recovered spontaneously. During the 16-month follow-up, the patient was fine, with no recurrence of hemoptysis or pulmonary complaints, and he declared that he did not use any more sildenafil during the follow-up period.

The introduction of sildenafil citrate, the first effective and safe oral agent for erectile dysfunction (ED), has led to major changes in ED management and thus widespread use of this medication worldwide [1]. When patients voluntarily use sildenafil citrate but deny that they have used the drug, the management of medical problems becomes complicated, particularly if the association of symptoms of the drug use has not been observed before. To our knowledge, we present the first two cases of hemoptysis observed just after sildenafil usage in patients with no other risk factors.

According to Son *et al.* [2] approximately 50% of those treated with PDE5 inhibitors discontinued their treatment. The reasons for discontinuing sildenafil medication after successful treatment were primarily emotional or relationship-oriented, which indicates that simple recovery of a rigid erection is insufficient to restore sexual activity [3]. Although treatment-related adverse events for all doses occurred more frequently in sildenafil-treated patients than in placebo-treated patients, only a few cases have been described of serious adverse cardiovascular events leading discontinuation [4, 5]. According to clinical trial reports for specific adverse events, flushing (12% of patients), headache (11% of patients), dyspepsia (5% of patients) and visual disturbances (3% of patients) occurred, and the incidence of these events all increased with doses [4, 5]. Hemoptysis is not an adverse effect that has been previously reported with sildenafil treatment.

The etiology of hemoptysis could not be explained with a pulmonary disorder in our patients. The most frequent causes of hemoptysis are malignancies, bronchiectasis and tuberculosis. Each patient underwent rigorous historical questioning, comprehensive physical examination and systemic workup to rule out those known causes of hemoptysis and to determine contributing factors. No risk factors were found. Smoking might lead to hemoptysis, but hemoptysis developed in both patients soon after use of sildenafil and has not recurred again following the discontinuation of the drug. Two similar occasions after sildenafil usage in our first case might be considered as support of our hypothesis. Moreover, neither of the cases experienced hemoptysis after ceasing to use sildenafil and neither had specific pulmonary diagnosis on follow up. Therefore, we hypothesize that sildenafil might have induced hemoptysis in our patients. Sildenafil selectively inhibits PDE5, which is abundant in pulmonary and penile tissue. This results in increasing nitric oxide at tissue level, leading to pulmonary dilatation [6]. Increased vasodilatation of the pulmonary vascular system, including pulmonary capillaries, might be the cause of hemoptysis. Although there is no exact cause or effect relationship, our observations could alert physicians to question patients about the use of sildenafil in cases of idiopathic hemoptysis.

More than 20 million patients have been treated with sildenafil citrate for ED. Therefore, sildenafil is one of the most widely studied drugs effective in ED and generally well tolerated [1]. However, we would like to emphasize that sildenafil treatment might be a probable cause of transient hemoptysis after eliminating other risk factors.

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