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Case Report

A rare cause of pulmonary embolism: panax☆,☆☆

Abstract

Introduction: The aim of this case report is to present a patient with pulmonary embolism during a high-dose course of panax.

Case: A 41-year-old woman was admitted to the emergency department with sudden complaints of shortness of breath, sweating, weakness, and loss of conscious after panax pills intake. At pulmonary computed tomography angiography, hypodense filling defect compatible with pulmonary emboli was seen at the bifurcation level of right and left distal pulmonary arteries and at each of pulmonary lobary arteries. The patient was treated with pulmonary artery selective thrombolysis. Conclusion: Herbal products, which are used all over the world to support health, should not be taken indiscriminately because their ingredients' amounts and what kind of adverse effects may come up whether used alone or in combination cannot be known.

Panax quinquefolium L. is widely cultivated in North America and has been used as a health supplement in eastern medicine extensively. As in the world, panax is commonly used in our country and it contains *Tribulus terrestris* (*TT*), *Avena sativa* (*AS*), and *Panax ginseng* (*PG*). Ginseng is used for its potential effects like reinforcing the immune system, preventing cancer-related fatigue and hyperglisemia, reducing stress, and chemoprotection. Although serious adverse effects of this agent have not studied yet, comprehensive and randomized controlled trials about this agent are lacking [1].

In this article, we would like to present our case of pulmonary embolism during a high-dose course of panax.

A 41-year-old woman was admitted to the emergency department with sudden complaints of shortness of breath, sweating, weakness, and loss of conscious. Without any significant chronic medical history, she has been taking panax pills twice a day for weakness and fatigue complaints. Also, we learned that she took 15 panax pills (*TT* 6000 mg, *AS* 3000 mg, and *PG* 2250 mg) after a quarrel with her husband before 8 or 10 hours to admission. Her first vital signs were as follows: blood pressure, 80/40 mm Hg; pulse, 124 beats/min; temperature, 36.9°C; and oxygen saturation, 94%. Positive physical examination findings were tachypnea, tachycardia, and mild unconsciousness. In electrocardiogram, ST and T segments were normal and there was a sinusal tachycardia. The patient's arterial blood gas showed hypoxia and hypocarbia (PaO2 64.4 mm Hg, PaCO2 32.9 mm Hg, and SPO2 97.8%). D-Dimer was 5.35 mg/dL (0–0.5). Bedside echocardiography showed dilatation of right spaces and high pulmonary arterial pressure, and there was no intracardiac thrombus.

Pulmonary computed tomography angiography was done for an initial diagnosis of pulmonary emboli, and hypodense filling defect compatible with pulmonary emboli was seen at the bifurcation level of the right and left distal pulmonary arteries and at each of pulmonary lobary arteries (Figure). Pulmonary artery–selective thrombolytic agent was started within the catheters into the right and left pulmonary arteries of pulmonary emboli–diagnosed patient in the intensive care unit. After her hemodynamic status was stabilized and symptoms were improved, etiologic studies were started. In the patient's medical history, there were no any previous surgery, oral contraceptive usage, cigarette smoking, immobilization, cancer, or familial risk factors. Electrocardiogram showed sinusal rhythm (no atrial fibrillation). No thrombus was detected in exhaustive echocardiography. Lower extremity venous color Doppler ultrasonography findings were incompatible with deep vein thrombosis. Laboratory findings were negative for any other thrombotic diseases (Table). With the patient's symptoms at that time, only etiological factor that explains pulmonary emboli was panax and high-dose taking of it before admission. Treatment had been started with warfarin and enoxaparin, and after having an elevated international normalized ratio of 2 to 3, enoxaparin was stopped and the patient was discharged with only warfarin.

Our case is important because of it being the first to report on patient who was treated with a diagnosis of pulmonary emboli after a high-dose intake of panax without any risk factors other than the use of it.

Panax contains *TT*, *AS*, and *PG*. Various animal experiments with ginseng showed antisclerotic effects, positive changes in lipid metabolism, and reduction of thrombocyte adhesion [2,3]. It was also reported that it regulates blood sugar and increases physical performance. Either hypotensive or hypertensive effects were shown [4]. Therefore, it is used in many cerebrovascular and cardiovascular diseases with a reliable adverse effect profile. However, combination therapies can show serious adverse effects [1]. Moreover, drug interaction was reported between warfarin and phenelzine or alcohol [5].

TT, like ginseng, is a sponin-containing plant, and hypochlostromic, anti-inflammatory, antimicrobial, and anticancerogenic effects in animal experiments were reported [4]. It was reported that it elevates hepatic low-density lipoprotein, and this is an undesirable effect [4]. In a study that Lee and colleagues [5] made with healthy volunteers, no death or serious adverse effects were reported due to use of panax. Dyspepsia, insomnia, hot flash, and constipation were mostly reported.

☆ Prior publication: This article has not been published or submitted for publication elsewhere, in whole or in part, before submission to the *American Journal of Emergency Medicine*.

☆☆ Conflict of interest: We declared that we have no commercial, financial, and other relationships in any way related to the subject of this article all that might create any potential conflict of interest.

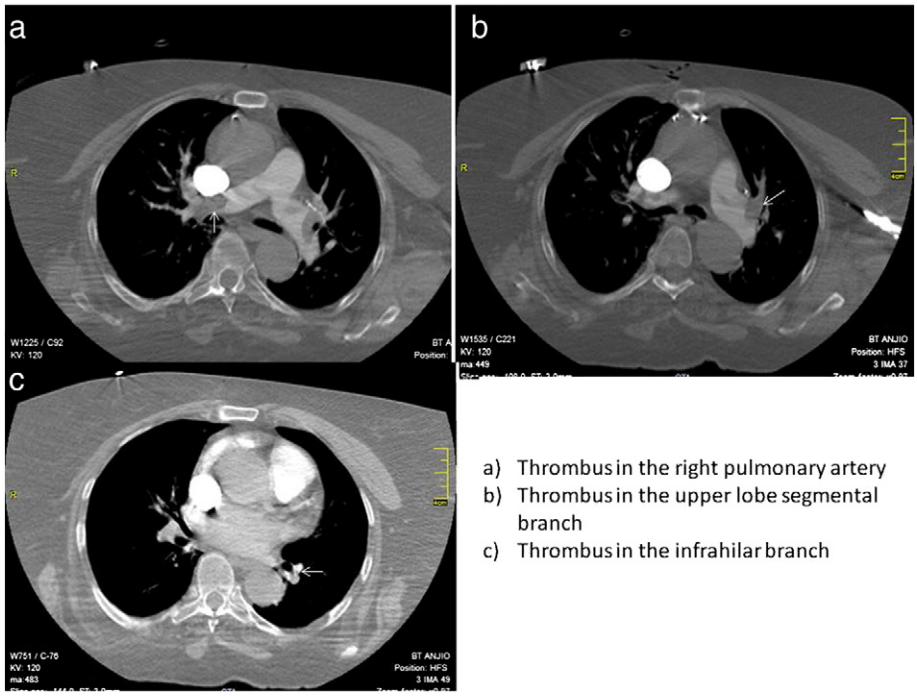

Figure. Pulmonary CT-angiography of patient.

Table
Laboratory test results of patients

Variables	Value	Reference range
White blood cells	7.37	3.8-10 × 10^3/mL
Hemoglobin	11.1	11.3-15.3 g/dL
Platelet	308	150-400 × 10^3/mL
D-Dimer	5.35	0-0.5 μg/mL
Activated protein C	81	70%-140%
Activated protein S	124	60%-130%
Factor V Leiden (R506Q, G1691A) mutation	Normal/Normal	Normal/Normal
Factor II (protrombin; G20210A) mutation	Normal	Normal

In the literature, other adverse effects reported were mastalgia, Stevens-Johnson syndrome, cerebral arteritis, psychiatric disorders, agranulocytosis, hypertension, and hypoglycemia [5]. Panax-related acute coroner syndrome, accelerated atherosclerosis, stent thrombosis, cardiogenic shock, and pulmonary emboli after drug withdrawal were reported in published case reports [1,6–8]. In our case, pulmonary emboli emerged after high-dose drug intake without any risk factors. Therefore, it differs from the pulmonary emboli case and other thrombosis cases because of high-dose intake. However, pathophysiological mechanism responsible for pulmonary emboli has not been demonstrated yet.

Herbal products that are used all over the world to support health should not be taken indiscriminately because their ingredients' amounts and what kind of adverse effects may come up whether used alone or in combination cannot be known. It should be kept in mind that these products can cause fatal side effects, and the society should be informed about it.

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