A 45 years-old female had traveled from Amsterdam to Taiwan for a vacation. On the 4th day after arrival in Taiwan, she had visited Taroko Mountain. She and her husband had to remain inside the hotel due to persistent raining for three days. Due to bad weather, she was almost entirely inactive in those three days. Afterwards, they travelled by train to Kaohsiung city for further holidays. Unfortunately, she developed leg swelling and shortness of breath on the 1st day arriving in Kaohsiung city. She was sent to our Emergency Department (ED) for further management on October 16, 2017.

After admission, the vital signs were temperature: 37.6°C, heart rate: 102bpm, respiratory rate: 22/min, and blood pressure: 115/70mmHg. Body height: 174cm, body weight: 90Kg. Consciousness was alert. Other physical examinations were non-contributory except mild edema over both lower legs. The oxygenation with nasal cannula 3L/min, intravenous normal saline 1000mL daily and low molecular heparin (Clexane 6000unit scq12h) were administered. We have assessed Protein C, Protein S and Antithrombin III for detection the possibility of inherited cause of pulmonary embolism. The data of these three proteins were within normal limit (Protein-C=96.1%, Protein-S=85.9%, antithrombin III=81.9%). The echocardiogram revealed normal cardiac size and wall motion. The estimated LVEF=72%. The abdominal sonography was performed to study the possibility of malignancy, which did not find any abnormality.

On October 18, rivaroxaben 15mg twice daily was prescribed after one dose enoxaparin (clexane) overlapping. Since the tachypnea and tachycardia improved after our treatment, she was transferred to CV ward on October 18. The radionuclide venography revealed partial deep vein obstruction in bilateral tibial veins and left popliteal vein with collaterals, which was consistent with DVT (Figure 2). We considered that the possible causes of DVT and PE may be long distance flying and inadequate exercise. She also informed that she was taking birth control pills, which might be another possible factor.
for venous thrombosis. After our treatment, except mild swelling of both lower legs, her general condition improved gradually. She was discharged on October 21, 2017. We recommended her to take rivaroxaban 15mg twice daily for 21 days, and then switch to 20mg daily for 6 months. Two weeks after discharge, she came back to our OPD. She asked whether she could fly back to the Netherlands. At that time, there were no data or recommendations regarding how long after acute PE a patient can safely fly on an airplane, especially for a long-haul flight. Besides, she still had mild legs swelling. Owing to the concerning of recurrent DVT and PE for long distance fly, she received 4 weeks rivaroxaban therapy before flying. Eventually, she flew back safely and received similar treatment for six months. Afterwards, there was no more leg edema and she felt quite well. It had been uneventfully until another PE attack developed in September 2019. After a blood test showed an increased d-dimer score, she was asked to go to the ED of a nearby hospital, where she received a series of examinations including a chest CT scan. After a couple of hours, she was seen by an ED doctor and acute PE was confirmed. Since the edoxaban and dabigatran can only be initiated after parenteral anticoagulation for five days, which is considered relatively inconvenient. Apixaban has been approved for treatment of PE in Taiwan was in 2017; we recommended her to take apixaban for treating the PE for this case.

In conclusion, since there is no recommendation currently from the European Society of Cardiology and American Society of Hematology guidelines regarding how long after deep vein thrombosis and PE attack can a patient fly again safely on an airplane, when his/her leg swelling had still not subsided, a 4-week anticoagulant therapy might be advisory before considering next flight. However, if there is no leg edema, short distance flight may be acceptable after adequate NOAC therapy for 2 days.

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