กรณีศึกษาการเสียชีวิตหลังจากการให้วัคซีน COVID-19 ขนานที่สองรายแรกในประเทศไทยที่เกี่ยวข้องกับเนื้อตายเน่าของแขนขา
Second Dose of A COVID-19 Vaccine Related Lower and Upper Limb Gangrene: The First Report of Death Case in Thailand

กรณีศึกษา

ตุลาการ นาคพันธ์[1]*, ปีร์ยามาศ นะพรรัมย์[2], พัชรียา ปุญสัณถาน[2] และ บรรณเสรณ์ เตชะจำเริญสุข[3]

[1] คณะเภสัชศาสตร์ มหาวิทยาลัยศรีนครินทรวิโรฒ องครักษ์ นครนายก 26120
[2] โรงพยาบาลท่าตูม ท่าตูม สุรินทร์ 32120
[3] คณะเภสัชศาสตร์ มหาวิทยาลัยหัวเฉียวเฉลิมพระเกียรติ บางพลี สมุทรปราการ 10540

* **Corresponding author:** tulakarn@g.swu.ac.th

วารสารไทยเภสัชศาสตร์และวิทยาการสุขภาพ2565;17(4):405-408.

Case report

Tulakarn Nakpun[1]*, Piyamas Napornram[2], Patchareeya Poonyasanthan[2] and Bunnasorn Techajumlernsuk[3]

[1] Faculty of Pharmaceutical Pharmacy, Srinakharinwirot University, Ongkharak, Nakhon Nayok, 26120 Thailand
[2] Thatoom Hospital,Thatoom, Surin, 32120 Thailand
[3] Faculty of Pharmacy, Huachiew Chalermprakiet University, Bang Phli, Samutprakarn,10540 Thailand

* **Corresponding author:** tulakarn@g.swu.ac.th

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บทคัดย่อ

ในขณะผู้ที่ได้รับวัคซีนมีจำนวนมากขึ้นสอดคล้องกับรายงานเหตุการณ์ไม่พึงประสงค์ประเภทรุนแรงก็มีจำนวนมากขึ้นเรื่อยๆ แต่ยังไม่มีรายงานการเกิดลิ่มเลือดที่เกี่ยวข้องกับเนื้อตายเน่าของแขนขาจากการให้วัคซีนขนานที่สอง กรณีศึกษานี้เป็นรายงานการขาดเลือดเฉียบพลันหลังจากการฉีดวัคซีน COVID-19 บริเวณแขนและขา ในหญิงอายุ 74 ปีที่มีความดันโลหิตสูงเรื้อรังและไขมันในเลือดสูง โดยอาการและอาการแสดงทางคลินิกที่เกี่ยวข้องกับการขาดเลือดของขาส่วนล่างเริ่มขึ้นสองสัปดาห์หลังจากได้รับวัคซีนโควิด-19 ขนานที่สอง

คำสำคัญ: เนื้อตายเน่า, ขนานที่สอง, วัคซีนโควิด-19, เสียชีวิต, กรณีศึกษา

Abstract

A growing number of vaccinated people are increasingly reporting severe adverse events. Thrombosis involving gangrene of limbs have not been reported for the second dose yet. Here we report a case of acute lower limb ischemia following COVID-19 vaccination in a 74-year-old female with chronic hypertension and hyperlipidemia. The clinical symptoms and signs related to lower limb ischemia started two weeks after the second dose of the different COVID-19 vaccine.

Keywords: gangrene, second dose, COVID-19 vaccine, death, case report

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Introduction

The pandemic of Corona virus disease 2019 (COVID-19) has spread for over two years with recently the latest wave from the Omicron strain[1]. Therefore, booster vaccination is still important to prevent the disease [2]. A growing number of vaccinated people have subsequently reported severe adverse events relating to death.[3]

Thrombosis involving gangrene is one of the latest severe adverse events which has been rarely reported.[4,5] However, death from thrombosis involving gangrene of upper and lower limbs from a second vaccine dose has not been reported yet.[6]

Case report

A 74-year-old female non-smoker with chronic hypertension for about 11 years (current treatment was amlodipine 10mg one tablet one time per day), hyperlipidemia for about 11 years (current treatment was simvastatin one tablet 20mg one tablet one time per day), herniated nucleus pulposus for 10 years, past history was illness of dyspepsia, and no known drug allergies. She presented with complaints of pain and numbness for five hours, and blood pressure was 154/84 mmHg. The patient gave a history of vaccination with first dose of Sinovac® (Lot.No.L2022107058) one month ago and second dose of CoronaVac® (Lot.No.A1068). After the first dose of vaccination, the patient had not found any adverse event. Since she had received the second dose vaccine (blood pressure before and after administration at 30 minutes was 128/67 mmHg and 130/75 mmHg respectively), she had had passively fever and took acetaminophen. One day prior visited Outpatients' Department (OPD) of a community hospital which is a primary care unit she had had numbness in right leg. Then, five hours prior visited OPD, she had had pain in the right leg. She was principally diagnosed with herniated nucleus pulposus, and prescribed acetaminophen 500 mg one tablet every 4-6 hours, vitamin B

complex one tablet two times per day, gabapentin 300 mg one tablet one time per day at bedtime, calcium carbonate 1,000 mg one tablet one time per day with meal, and lorazepam 0.5 mg one tablet one time per day at bedtime.

Three days later, she had come to OPD because her left foot toe turned to dark colour three days ago, then she was admitted to Inpatient Department (IPD) with principle diagnosis of gangrene and pre admission comorbidity of chronic arterial occlusion, cold in surgery, and normochromic anemia. Her blood pressure was 132/67mmHg, body temperature 36.2°C, white blood count $12x10^3$ cells/mm^3 and hematocrit 23%. On the first day she received acetaminophen 500 mg one tablet every 4-6 hours, cloxacillin 1,000mg intravenous every six hours, omeprazole 20 mg one tablet two times per day, tramadol 50mg one tablet three times per day and wound dressing. The second day, her left foot toe became darker, and her hand finger started to feel numb. On the third day, her symptoms got worse, her foot toe turned darker, and her hand finger started to feel pain with numbness. On the fourth day her hand finger turned dark. On the fifth day both left foot toe and hand finger turned black color without pain. Also, her left finger began to turn dark with pain. Patient was differentially diagnosed as acute occlusion with dry gangrene which was detected by Computer Tomography Angiography (CTA). The sixth day, the radiologist reported that there were right and left Baker's cysts measuring about 2.0x1.0 cm. and 2.4x1.0 cm. respectively. Diffuse mild atrophy of muscle of right leg was seen. There was non-contrast opacification to right mild to distal posterior tibial artery (PTA). Also, there was relatively early contrast filling in veins at medial aspect of right leg which suggested superficial venous varicosity especially at her medial aspect. She had high white blood cell count at 12.6 x 10^3 cells/mm^3 and low hematocrit 26.6%. Her hand finger was black color with severe pain. The seventh day, this case was referred to a tertiary care hospital.

The first day at IPD of the tertiary care hospital, Transthoracic Echo (TTE) of the left hand and right foot revealed acute arterial occlusion with digital gangrene. The second day, enoxaparin injection 60 mg was administered by intravenous route every 12 hours and amlodipine 10 mg one time per day. The patient still had severe pain without chest pain and palpitation. She got tramadol 50 mg one capsule every 8 hours and acetaminophen 500 mg one tablet every 4-6 hours. Four days later, her underlying diseases were secondary atrial septal defect (ASD), acute kidney injury (AKI), and anemia while acute occlusion with dry gangrene still progressed. She got the treatment from all underlying diseases. After two weeks, she had pain in her left finger and it turned dark. She got dexamethasone intravenous injection 4 mg every 8 hours for three days. Her finger biopsy revealed vasculitis and protein C was in normal range (1.819 mg/L). At the end of the fifth week, she was dead. Her toes and fingers are shown in Figures 1-4.

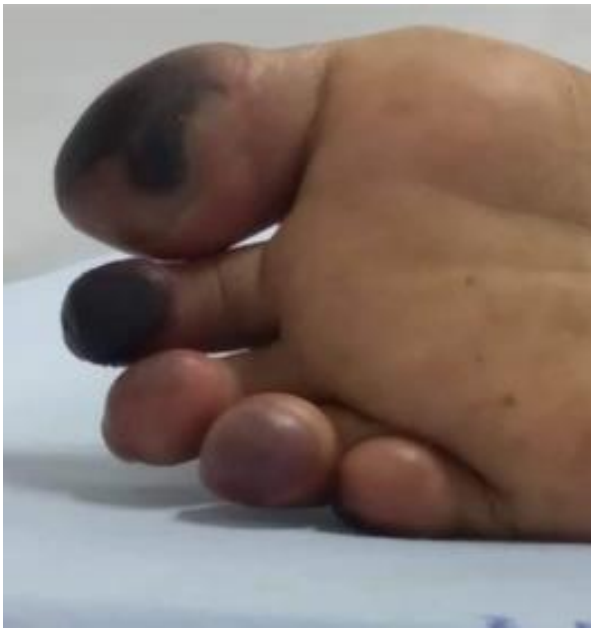

Figure 1 Left foot toe.

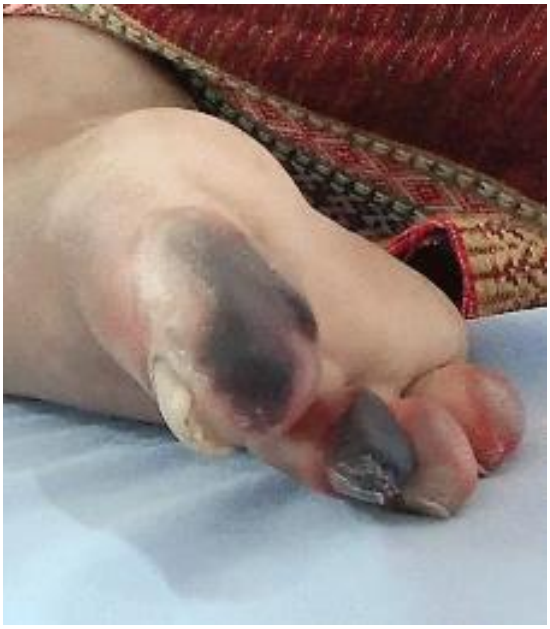

Figure 2 Right foot toe.

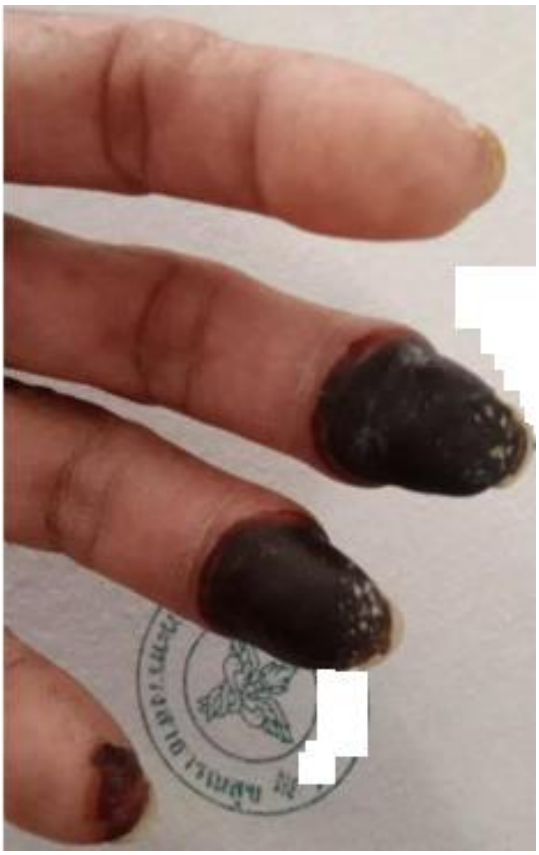

Figure 3 Left hand finger.

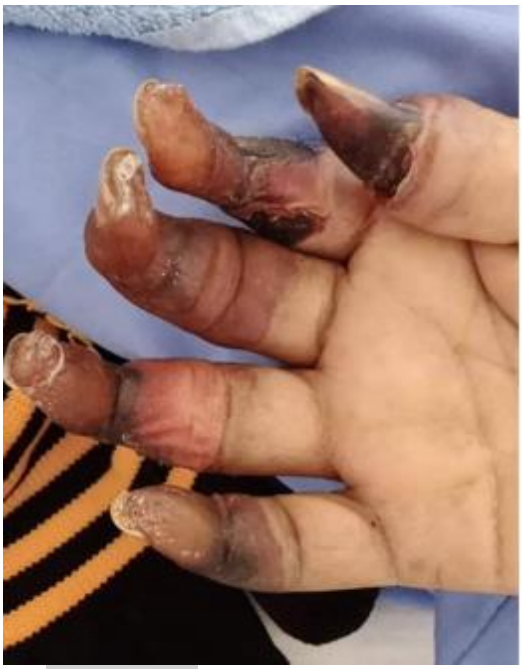

Figure 4 Left hand finger.

Discussion

Most adverse events of vaccine include pain, redness, urticaria, and swelling at the site of the injection 34.56% [7]. However, severe adverse events have reported low rates with data from randomised clinical trials and government-sponsored surveillance of vaccine safety [8]. According to immunogenicity data in Thailand of those who experienced adverse events (AEs) between the first dose of inactivated whole virus vaccine (CoronaVac) and the second dose of viral vector 145 vaccine (ChAdOx1 nCoV-19 vaccine), most adverse events were mild to moderate symptoms such as immunisation stress-related response (ISRR) (n=5, 16.67%), 408 injected site pain (n=3, 10%), maculopapular rash (n=2, 6.67%) and 410 severe AE included anaphylaxis (n=5, 16.67%), stroke (n=1, 3.33%) and 411 central venous sinus thrombosis (n=1, 3.33%), but that study did not study about factors associated with the adverse events [9]. For this case repost, the total score of Naranjo's Algorithm was 6 points, therefore this adverse event is probable related to the second dose vaccine.

Prevalence of arterial and venous thromboembolic event related to COVID-19 vaccinate is 1.15% [10]. Astra Zaneca vaccine has more frequent reporting of thromboembolic events [11]. Severe adverse event such gangrene has been a rare case report. The first gangrene of limbs in Thailand has been reported following COVID-19 vaccination of the first dose of Astra Zenaca vaccine, which our case was the second dose. Both of them were given vaccination 2 weeks before they came to the hospital and presented with pain and numbness. The different characteristics were co-morbidities. The first case was a 36-year-old male, while this case was a 74-year-old female with hypertension and hyperlipidemia. According to COVID-19 infection in patients, those with co-morbidities such as hyperlipidemia and hypertension can increase mortality rate and disease severity [12]. The data from Adverse Events Following Immunization (AFFI) of Thatoom hospital revealed that there were 12 people who received vaccine from the same vial and 1381 people received the same lot number of Astra Zeneca vaccine without severe adverse event. Also, at the same period of time, there was no severe adverse event report around this neighborhood.

Those data show that the patient was only one person who got severe adverse event related to vaccine. In addition, a nurse used auto-disable (AD) syringe and changed new gloves to administer vaccine to the patients. Furthermore, vaccines were kept in Internet of Thing (IoT) medical refrigerator to maintain temperature at 2- 8 °C. Therefore, method of administration and quality of vaccine were not considered related to adverse event. The adverse event of this case was probably related to vaccine. However, further

research is required to establish if there is any causation of gangrene from CoronaVac®.

Conclusion

To our knowledge, this case contributes to support reporting of complications following COVID-19 vaccination and highlights the adverse event in second dose of difference vaccine in a patient who has co-morbid diseases. Therefore, it is necessary to closely monitor patients with hyperlipidemia and hypertension after taking the COVID-19 vaccine. Further reporting is required to establish the incidence and prevalence of this complication to give a signal of severe adverse events related to COVID-19 vaccine to healthcare providers.

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