

中文題目：接種 COVID-19 疫苗後造成血栓及血小板低下：一個案報告

英文題目：Thrombosis and thrombocytopenia after COVID-19 vaccination—a case report

作者：洪冬哲<sup>1</sup>、張家榮<sup>2</sup>、李明陽<sup>3</sup>

服務單位：嘉義基督教醫院<sup>1</sup>內科部感染科，<sup>2</sup>重症內科，<sup>3</sup>內科部

## Introduction

In Taiwan, domestic cases of COVID-19 rouse since May 2021, and large-scale of COVID-19 vaccination programs started after burst of pandemic. By July 18<sup>th</sup>, five million doses of COVID-19 vaccine were injected. Among them, 2.6 million doses are mRNA-1273 vaccine, while another 2.4 million doses are ChAdOx1 adenovirus viral vector vaccine.<sup>1</sup> Thrombotic thrombocytopenia has been well described as a rare adverse effect after ChAdOx1 vaccine, with strong clinical relevance to anti-PF4 antibody.<sup>2,3</sup>

## Case Presentation

A 73-year-old female presented with thrombocytopenia for 3 days. She had been diagnosed with diabetes, chronic renal failure under regular hemodialysis three times a week for 10 years. She received her first dose of ChAdOx1 on June 16<sup>th</sup>, 2021. Later at her hemodialysis courses, her nephrologist noticed that her platelet counts lowered to 1000/uL and referred her to our hospital on July 12<sup>th</sup>. By visiting our emergency department, she had no symptoms of headache, dizziness or nausea. Physical examination revealed much patchy ecchymosis on trunks and extremities. Neurological examinations were normal with no focal neurological signs. Primary investigation at emergency department were shown in table 1. She stayed in intensive care unit after admission due to possible risk of spontaneous ICH, and we arranged brain MRI, later revealed no cerebral venous thrombosis. After admission, we started giving methylprednisolone 40mg every 6 hours, along with intravenous immunoglobulin (IVIG) 1g/kg. We checked her anti-PF4 antibody, the results were strong positive (21.4 ng/mL). After methylprednisolone and IVIG treatment, her platelet count recovered to 80K /uL, and she discharged after 5 days of admission, with resolve of ecchymosis.

## Discussion

According to Taiwan CDC surveillance system (V-watch), most common adverse effect of ChAdOx1 COVID-19 vaccine is injection site pain, general malaise, and muscle pain.<sup>4</sup> The incidence of vaccine-induced thrombotic thrombocytopenia (VITT) after ChAdOx1 is 1 in 26,000 doses, and mostly occurred on female.<sup>5</sup>

The symptoms of VITT usually onsets within 2 weeks after vaccination, symptoms including thrombocytopenia and thrombosis (either venous or arterial). Most common described adverse effect is cerebral thrombosis<sup>2</sup>. Anti-PF4 ELISA can strongly confirmed in this disease.

VITT is potentially life-threatening disorder, and pharmaceutical management including direct oral anticoagulation. It is unknown whether heparin is safe because heparin-induced thrombosis is resembled VITT. High dose intravenous immunoglobulin (IVIG) is recommended along with anticoagulation except contraindicated. Platelet transfusion should be reserved only on severe bleeding.

### Conclusion

In patients presenting with severe thrombosis and thrombocytopenia, vaccine history should be taken to keep VITT as a differential diagnosis. The management of VITT including anticoagulation with direct oral anticoagulant, and IVIG. Platelet transfusion should be minimized only on life-threatening bleeding or surgery.

Table 1 Laboratory results

	Arrival at emergency department	One day after IVIG treatment
Platelet counts, K/uL	2	70
Fibrinogen, ng/mL	335.2	206.5
D-dimer, ug/mL	596	971
FDP, ug/mL	<2.5	NA
IgG, mg/dL	NA	1730

NA, not applicable

### Reference

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