中文題目：短腸症併發維生素K缺乏之凝血功能異常案例報告

英文題目：Short bowel syndrome related malnutrition complicated with Vitamin K deficiency related coagulopathy

作　　者：曾建豪[1]，王博章[2]

服務單位：嘉義長庚醫院內科部[1]，嘉義長庚醫院心臟內科[2]

Background: Acquired coagulopathy presents as unexplained bleeding was mentioned in many critically ill patients. The most common causes were Sepsis related DIC (Disseminated intravascular coagulation) or thrombocytopenia, renal or hepatic failure, HIT (Heparin induced thrombocytopenia), malignancy, acquired auto-antibodies to clotting factors, drugs (anticoagulants, antibiotics). We reported a case of GU and GI bleeding secondary to acquired Vitamin K deficiency.

Clinical Scenario: This 89-year-old female patient had short bowel syndrome after due to ischemic bowel episode. She received bowel resection and residual small bowel around 70cm and jejunostomy was created. After the surgery, she had chronic watery diarrhea. For pneumonia and urinary tract infection, Flomoxef was administrated to treat infection. Besides, the patient received dual antiplatelet for ischemic heart disease and myocardial infarction occurred 3 months ago. However, during this hospitalization, the patient had bloody stool and hematuria. Besides, massive hemoptysis was noticed. Lab exam showed PT and aPTT prolongation (PT > 100seconds and aPTT > 52.5 seconds) without thrombocytopenia. Further survey did not favor liver disease or renal disease progression. According to mixing PT and aPTT test, there was no evidence of autoantibody related coagulopathy. Abdominal revealed no obstruction of biliary tract or cirrhosis. Lab survey also did not favor new sepsis. For chronic diarrhea and malnutrition, therapeutic diagnosis of Vitamin K deficiency was suspected because PT was corrected after Vitamin K intra-muscular injection. Then, about 1 month later, the patient had recurrent PT prolongation episode and PT was also corrected after Vitamin K injection.

Conclusion and Discussion: Bleeding secondary to Vitamin K deficiency has been reported in newborn as Hemorrhagic disease and administering Vitamin K subcutaneously was a universal practice.

On the other hand, acquired vitamin K deficiency in adults presented as overt bleeding was rarely reported.

Vitamin K was a co-factor in Gama-carboxylation of factors II, VII, IX, X. Because factor VII had the shortest half- life, PT became prolongation first. Vitamin K deficiency will result in release of under-carboxylated Vitamin K dependent (VDK) proteins, (known as PVKAs, protein induced vitamin K absence) but the diagnosis of Vitamin K deficiency was usually by clinical exclusion.

Humans did not maintain large stores of vitamin K and the causes interrupted the Vitamin K supply from diet or gut bacteria will result in a deficiency. Study ever reported antibiotics changed gut flora was ever reported and some common antibiotics (like 2nd and 3rd generation cephalosporin) had a direct inhibitory effect on the synthesis of VKD clotting factors.

The specific Vitamin K concentrations and PVKA were not measured in our patient due to unavailability of the test in our hospital.

Several studies had posed the importance of early recognition of patients who are at risk of developing acute Vitamin K deficiency superimposed on a chronic deficiency status. We suggested that physicians need to be aware of acquired Vitamin K deficiency in critical ill patients, especially whose nutrition is inadequate and are being treated with antibiotics. Prophylactic Vitamin K supplement will avoid severe bleeding events.

	6/28	7/4	7/11	7/12	7/13	7/14	7/15	7/16	7/18
WBC	13.1K	9.9K	22.6K						
Hb	7.8	10.7	8.1			8.4	9.1		8.1
Plt	224K	299K	211K			129K			
PT INR	1.42		> 9.71	**2.77 (post FFP)**	6.49 Mix PT 5.59→1.24	1.41	1.35	1.31	1.33
aPTT	35.2				Mix aPTT 48.4→32.5				
D-dimer	1.85								
AST/ALT	37/17				38/22				
BilT/D	1.1/0.6				2.1/0.9				
ALK-P	110				95				
BUN	57.8	28.9			56.9				55
Cr	1.88	1.19			1.31				1.22
Tx			FFP 4U pRBC 2U	FFP 2U	FFP 4U Vit K 1pc	Vit K 1pc			