Pseudohematuria due to red dragon fruit ingestion

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In this report, the author describes an interesting case of pseudohematuria without history of previous medication. A 57-years-old female presented to a physician with a complaint of passing “blood” during urination. Her urine appeared to be pinkly red. However, the urine test strip was negative for blood and there is no red blood cell in her urine sample. Other urine biochemical tests are within normal limits. Further history taking revealed that she had just eaten red dragon fruit about 6-8 hours before passing the abnormal urine. The possible cause of abnormality is ingestion of red dragon fruit ingestion.

Keywords: Pseudohematuria, Dragon fruit.

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ในรายงานนี้ผู้นิพนธ์ได้รายงานกรณีศึกษาของการเกิดภาวะเลือดออกในปัสสาวะเทียมที่ไม่เกี่ยวกับการรับประทานยา ผู้ป่วยหญิงอายุ 57 ปี ที่มาพบแพทย์เพื่อขอปรึกษาเรื่องปัสสาวะออกมามีสีเลือด.

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ผลการตรวจปัสสาวะทางชีวเคมีทั้งหมดอยู่ในเกณฑ์ปกติ แต่ปัสสาวะของผู้ป่วยมีสีแดงอมชมพู อย่างไรก็ตามจากการตรวจปัสสาวะไม่พบว่ามีเลือดหรือเม็ดเลือดในปัสสาวะเลยได้.

สาเหตุที่เป็นไปได้เกิดจาก การรับประทานแก้วมังกรแดง.

คำสำคัญ : ภาวะเลือดออกในปัสสาวะเทียม, แก้วมังกรแดง
Hematuria is common urological manifestation. Gross hematuria is a common complaint that often leads the patient to seek for urgent care. The diagnostic evaluation bases on specific patient history and physical examination. A verification by laboratory investigation is needed. Less than 3% of healthy persons, urinalysis shows more than three red cells per high-power field, which is about the limit of sensitivity of test strips for occult blood. The presentation of more than three red cells per high-power field is named as hematuria. Even minimal hematuria may herald serious problems and must be investigated. Its common causes include infection, urethritis, and urethrotrigonitis, stone, and tumor. Although hematuria may be caused by coagulopathy, patients with anticoagulant-induced hematuria must be examined for anatomic defects. When it is asymptomatic, hypercalciuria and mild forms of glomerulonephritis are common causes of gross hematuria. If the urine is pigmented but test strips are negative, or test strips are negative but no red cells are seen, pseudohematuria must then be considered. In this article, a case of pseudohematuria due to dragon fruit ingestion is reported.

**Case report**

A 57-years-old female presented to a physician with a complaint of passing “blood” during urination. She gave her history of illness that she had got an accidental fall 3 days earlier and she notified the grossly red urine on the visiting day. Her urine appeared to be pinky red. However, the urine test strip was negative for blood and there was no red blood cell in her urine sample. Her other urine biochemical tests were within normal limits.

Further history taking revealed that she had just eaten red dragon fruits (Hylocercus undatus Rose) about 6 - 8 hours before passing the abnormal urine. Overall, she passed the abnormal urine for only twice on that days (before visiting and on specimen collection for urinalysis). On the following up in the next morning, she had normal pale yellow urination and the urinalysis was still within normal limit. The case was diagnosed pseudohematuria due to dragon fruit ingestion. Since there was no abnormality from any urine examination and the patient had no other complaint, a radiolographical investigation was no performed. There is no additional following up on this complaint. Therefore, it cannot tell whether the patient repeated ingested the dragon fruit and if so whether she experience the episode of pseudohematuria again.

**Discussion**

Basically, urinalysis comprises a step to determine red blood cells within a urine sample by a clinical microscopy examination of a urine sediment and urine strip test for hemoglobin. Hematuria can be confirmed by a standard urinalysis. Although most causes of hematuria are benign, urinary tract bleeding may signal a life-threatening disease. Gross and microscopic hematuria share a common differential diagnosis, including urinary tract infection, urolithiasis and bladder cancer. Clinical evaluation may be guided by the patient’s age, sex, medical history and physical examination.

Gross hematuria is a complaint that can be reported by the patient since passing of red urine can be an awful experience to the general population. Indeed, the development of asymptomatic gross or microscopic hematuria is relatively common in
children. To evaluate the clinical importance of hematuria in children and the necessity for such an evaluation using a defined diagnostic protocol. Before classifying hematuria as asymptomatic, the physician should be sure that there are no symptoms pointing to an underlying disease. The laboratory workup includes urinalysis, clinical chemistry and renal function tests, and hematological studies.

Sometimes, aberrant red urine sample can be seen. Pseudohematuria is the common etiology. Several causes of pseudohematuria are reported, especially in cases of drug uses. Examples of drugs that cause pseudohematuria are, namely: phenolphthalein laxatives, phenothiazines, rifampicin, pyridium and phenytoin. However, rare causes due to specific foods should also be noted. The described plants in the literature include beets, blackberries, and rhubarb; however, these plants are not common in Thailand. In this report, the author describes an interesting case of pseudohematuria without a history of previous medication. The cause of abnormality is believed to be caused by ingestion of red dragon fruits.

Red dragon fruit is a tropical fruit which has never been reported as a cause of pseudohematuria in Thailand. The dragon fruit is produced by a plant that belongs to the cactus family. The plant may grow out of, and over the ground or climb onto trees using aerial roots. It grows best in a dry, tropical or subtropical climate where the annual rainfall ranges from 20-50" per year. In wet, tropical zone, the plant may also grow well. The natural habitat of this plant is Southeast Asia, Vietnam. An anthocyanin pigment layer appears between the flesh and skin of the dragon fruit is believed to be the cause of hematuria.

This pigment has no effect on human body and is excreted via urination. The urinary levels of anthocyanins reach a maximum between 3 and 6 h after ingestion, and the recovery of total anthocyanins in the urine over 24 h was estimated to be 5.0 % of the amount consumed. Indeed, anthocyanin is the same pigment found in beetroots that causes pseudohematuria. Since dragon fruits are newly introduced for the Thais, the physician should aware for pseudohematuria caused by dragon fruit ingestion.

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