

CASE REPORT

An Infrequent Complication Associated With *Dokong* Fruit "*Lansium Domesticum*": A Case Report of a Potentially Fatal Hyperkalaemia

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ABSTRACT

Hyperkalaemia, an excessive level of potassium in the blood, can arise from increased intake, reduced renal clearance, or a combination of both. Severe hyperkalaemia is a medical emergency with life-threatening implications, particularly when diagnosis and treatment are delayed. Numerous factors can contribute to hyperkalaemia, and although it is relatively rare, consuming dokong fruit in the presence of impaired kidney function may be a contributing factor. This article presents a case study involving a woman who experienced a life-threatening episode of hyperkalaemia following the consumption of a substantial amount of dokong fruit. The incident was accompanied by a hypertensive crisis, leading to acute pulmonary oedema, and occurred in the context of underlying Chronic Kidney Disease (CKD). The patient received successful treatment and was discharged in good condition. This case highlights an unusual but important dietary trigger of life-threatening hyperkalaemia, emphasizing the need for early recognition, prompt management, dietary counseling, and timely planning for dialysis in patients with advanced CKD.

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Keywords: *Lansium domesticum* Correa, Hyperkalaemia, Chronic kidney disease, Dietary potassium, Pulmonary oedema, Haemodialysis

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INTRODUCTION

Thailand, Malaysia, Indonesia, and the Philippines are among the countries in Southeast Asia where the tropical fruit *dokong* (*Lansium domesticum*) is primarily found. The Meliaceae family, which contains over 560 species and 50 genera, is widely distributed in tropical and subtropical climates and includes the genus *Lansium* (1). *L. domesticum* Correa is a complex species that encompasses various plant types. The four most common varieties are duku, langsung, *dokong*, and *duku-langsang*. *Dokong* is native to southern Thailand and has been cultivated in Peninsular Malaysia for more than a decade (1).

In 100g of *dokong*, there is a potassium content of 275 mg (2). Consequently, individuals with impaired renal

function who consume substantial quantities of *dokong* face an elevated risk of developing hyperkalaemia. Hyperkalaemia, a common electrolyte disturbance, may result from reduced excretion, increased intake, or both. Severe hyperkalaemia poses a critical medical emergency, associated with the potential for sudden cardiac death.

This article presents a case involving a life-threatening episode of hyperkalaemia in a patient with stage 5 chronic kidney disease (CKD) resulting from *dokong* fruit consumption. To the best of our knowledge, this is the first documented case of life-threatening hyperkalaemia specifically attributed to *dokong* fruit consumption in a patient with CKD stage 5.

CASE REPORT

A 61-year-old Malay woman with underlying Type 2 diabetes mellitus (T2DM), hypertension, and CKD stage 5 presented with sudden onset of shortness of breath. She denied other associated symptoms. She reported

consuming 0.5–1 kg of *dokong* fruit prior to presentation. Her medication history included oral felodipine 10 mg twice daily, metoprolol 50 mg twice daily, frusemide 80 mg three times daily, and Cardiprin 100 mg daily. She had missed several clinic follow-ups.

At the emergency department, her blood pressure was elevated at 180/78 mmHg, with a pulse rate of 98 beats per minute. Examination revealed bibasal fine crepitations; other systemic findings were unremarkable. Electrocardiogram (ECG) showed tall, tented T waves with premature ventricular contractions (PVCs) (Figure 1), consistent with hyperkalaemia. Serum potassium was 6.5 mmol/L, urea 20.7 mmol/L, and creatinine 595 μ mol/L. Her baseline renal function tests had previously shown urea of 7.2 mmol/L, creatinine of 165 μ mol/L, and potassium of 4.3 mmol/L. Arterial blood gas analysis indicated metabolic acidosis.

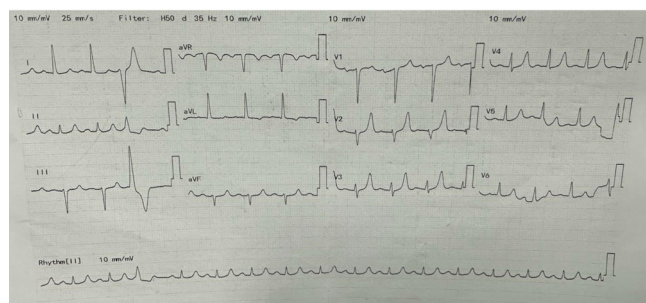


Figure 1: Electrocardiogram (ECG) showed tall, tented T waves with premature ventricular contractions (PVCs)

Management of severe hyperkalaemia was initiated, including 10 mL of 10% calcium gluconate, 10 units of actrapid insulin with 50 mL of 50% dextrose, and oral sodium polystyrene sulfonate. Despite these measures, serial renal function tests showed persistent hyperkalaemia (Table I). Due to continued metabolic acidosis and elevated potassium levels, she underwent urgent haemodialysis, which normalized both her potassium levels and acid-base balance. She was subsequently discharged in good condition and scheduled for follow-up in the CKD clinic for long-term renal replacement therapy (RRT) planning.

Table I: Serial renal function tests showed persistent hyperkalaemia

	17/9/ 2023	17/9/ 2023	17/9/ 2023	18/9/ 2023	19/9/ 2023
*BUN(mmol/L)	20	21	22	22	12
Creatinine(u- mol/L)	595	605	647	613	424
Potassium(m- mol/L)	6.5	6.3	6.6	6.5	4.9(Post **HD)

DISCUSSION

Dokong, a seasonal fruit from Southeast Asia, is popular in Malaysia due to its sweet and sour taste and pleasant aroma. Although precise data on the incidence and prevalence of hyperkalaemia are limited, estimates range from 1% to 10% among hospitalized patients, and 2–3% in the general population (3). The risk is 2 to 3 times higher among individuals with CKD, heart failure, diabetes mellitus, and those on renin-angiotensin-aldosterone system inhibitors (RAASi) (4).

Drug-induced hyperkalaemia is a well-recognized cause of elevated serum potassium. Additionally, the consumption of potassium-rich foods adds to this risk(5). *Dokong* fruit contains 275 mg of potassium per 100 g (4). While this is less than the potassium content in durians, bananas, or jackfruit, excessive consumption may still raise potassium levels in individuals with CKD due to impaired excretion. Thus, people with CKD are at elevated risk when consuming large amounts of *dokong* or other high-potassium foods.

Dietary potassium intake plays a crucial role in managing CKD-related hyperkalaemia. The KDOQI 2020 guidelines recommend that patients with CKD stages 3–5 (non-dialysis) at risk of hyperkalaemia receive individualized dietary potassium advice, typically limiting intake to 2,000–3,000 mg/day, based on serum potassium levels and dietary evaluation [KDOQI 2020]. The UK Kidney Association also recommends potassium restriction in hyperkalaemia-prone CKD patients, particularly when intake exceeds renal clearance capacity.

To our knowledge, this is the first case report documenting a severe hyperkalaemic episode associated with dokong fruit consumption in a CKD stage 5 patient. In this case, persistent hyperkalaemia was observed. Other potential causes of hyperkalaemia were excluded. Fortunately, the patient received prompt, aggressive treatment, including dialysis, which effectively lowered potassium levels and corrected the metabolic acidosis.

While the temporal link between *dokong* consumption and the hyperkalaemic episode suggests a strong association, causality cannot be definitively established from a single case. Contributing factors may have included progressive renal deterioration, missed clinic follow-ups, nonadherence to treatment, and metabolic acidosis. Therefore, dokong should be considered a contributing factor rather than the sole cause.

Hyperkalaemia often presents with vague, nonspecific symptoms such as fatigue, palpitations, and muscle

weakness. In severe cases, particularly when potassium levels exceed 8 mmol/L, it becomes a medical emergency due to its potential to induce cardiac arrhythmias and arrest. ECG changes associated with hyperkalaemia include tall, peaked T waves, shortened QT intervals, flattened P waves, prolonged PR intervals, widened QRS complexes, a sine-wave pattern, and eventually, asystole (4).

Management of life-threatening hyperkalaemia includes immediate stabilization of cardiac membranes (e.g., calcium gluconate), shifting potassium into cells (e.g., insulin with glucose, sodium bicarbonate), and enhancing potassium elimination (e.g., diuretics, dialysis). Beta-2 agonists may also help reduce potassium release from cells. Continuous monitoring and multidisciplinary care are vital in these critical cases.

This case emphasizes the importance of culturally tailored dietary counseling for CKD patients, especially in regions where seasonal potassium-rich fruits are commonly consumed. It also highlights the need for early recognition of CKD progression and proactive planning for renal replacement therapy.

CONCLUSION

In summary, excessive consumption of dokong fruit in the context of CKD stage 5 may lead to life-threatening hyperkalaemia. Prompt identification and timely intervention are critical to preventing cardiac arrest and preserving life. This case further underscores the importance of early dietary counseling and structured planning for renal replacement therapy in patients with progressive kidney disease.

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