



## “Self-Harming the Tubules” – A Rare Case of Renal Tubular Acidosis

Dear Editor,

Renal toxicity due to consumption of herbal preparations results from organic acids, alkaloids, lactones, toxic proteins, glycosides, and saponins.<sup>1</sup> We present a case of poisoning with *Cleisanthus collinus*, complicated by transient distal renal tubular acidosis (dRTA).

A 65-year-old lady consumed *C. collinus* leaves mixed with *Abrus precatorius* seeds 2 days back to commit suicide and presented with multiple episodes of vomiting and severe fatigue. On examination, she was conscious, oriented, and had stable vitals. She was found to have motor weakness (power grade 3–4). Intravenous normal saline, proton pump inhibitors, and antiemetics were started. Blood reports showed severe hypokalemia (serum K- 2.1 meq/l). Possibility of metabolic alkalosis secondary to vomiting was considered. She was started on potassium chloride supplementation. Surprisingly, arterial blood gas analysis showed metabolic acidosis with normal anion gap. Subsequent investigation showed a positive urine anion gap. At this time, dRTA as a complication of *C. collinus* poisoning was considered. Sodium bicarbonate was added to her treatment regimen. She

gradually improved symptomatically. Repeat tests showed improvement in hypokalemia and metabolic acidosis. Follow-up reports after discharge showed normal K and arterial blood gas analysis [Table 1].

*C. collinus* poisoning is associated with 40% mortality.<sup>2</sup> This toxic shrub belongs to the family Euphorbiaceae. It is known by regional names like Garari, Vadisaaku, Oduvanthalai, Odakku, and so on [Figure 1]. The toxicity has been primarily attributed to the lactones cleisanthin A and B.<sup>3</sup>

In rat models, the toxins produced severe metabolic acidosis, hypokalemia, and persistent alkaline urine.<sup>4</sup> The inhibition of vacuolar H<sup>+</sup>-ATPase in the renal tubular brush boarder can explain the mechanism of dRTA.<sup>5</sup> Rarely, proximal tubular or generalized tubular dysfunction and reduced glomerular filtration rate (GFR) have been reported.<sup>2</sup> Other manifestations of this plant poisoning include neuromuscular blockade, type 2 respiratory failure, acute respiratory distress syndrome, and cardiac arrhythmias.<sup>2</sup>

### Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms.

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DOI: 10.4103/ijn.ijn\_128\_23



Received: 06-04-2023

Accepted: 24-05-2023

Online First: 14-08-2023

Published: 30-03-2024

**Table 1: Lab reports at admission and follow-up**

Arterial blood gas on admission	At discharge	1 month after discharge	3 months after discharge
pH- 7.12	Serum K- 3.5 meq/l	Serum K- 4.1 meq/l	Serum K- 3.9 meq/l
pCO <sub>2</sub> -25 mmHg	Blood pH- 7.36	Blood pH- 7.39	Blood pH- 7.42
HCO <sub>3</sub> <sup>-</sup> -11.5 mmol/dl	pCO <sub>2</sub> -38 mmHg	pCO <sub>2</sub> -41 mmHg	pCO <sub>2</sub> -37 mmHg
pO <sub>2</sub> -150 mmHg	HCO <sub>3</sub> <sup>-</sup> -23 mmol/dl	HCO <sub>3</sub> <sup>-</sup> -25.6 mmol/dl	HCO <sub>3</sub> <sup>-</sup> -24.3 mmol/dl
Chloride- 119 mmol/dl	pO <sub>2</sub> -135 mmHg	pO <sub>2</sub> -180 mmHg	pO <sub>2</sub> -123 mmHg
sO <sub>2</sub> -99%	Chloride- 101 mmol/dl	Chloride- 97 mmol/dl	Chloride-103 mmol/dl
Anion gap- 9.5			
Urine anion gap- positive			

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**How to cite this article:** Anandan AK, Sasikumar S. “Self-Harming the Tubules” – A Rare Case of Renal Tubular Acidosis. Indian J Nephrol 2024;34:96-7. doi: 10.4103/ijn.ijn\_128\_23



Figure 1: *Cleistanthus collinus* plant.

### Financial support and sponsorship

Nil.

### Conflicts of interest

There are no conflicts of interest.

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