Acute kidney injury in patient with djenkolism: a case report

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ABSTRACT

Background: Djenkolic poisoning or djenkolism is one of the causes of acute kidney failure common in Southeast Asia. Djenkol bean or jering (Archidendron pauciflorum) is one of the foods commonly found in Southeast Asia. These seed plants are usually processed by boiling or frying, but often they are also consumed raw. Djenkolism sometimes occurs, albeit infrequently after ingesting djenkol beans. The clinical presentation of djenkolism is varied but generally presents as a spasmodic loin to groin pain and acute kidney injury (AKI), with evidence of urinary obstruction.

Case description: We report a previously healthy 40-year-old male developed AKI after consuming a large amount of uncooked djenkol beans, which was resolved with rehydration with normal saline and conservative therapy.

Conclusion: We highlight the importance of healthcare practitioners, especially in the Southeast Asian region to consider this rare cause of acute kidney injury to provide early diagnosis and prompt treatments.

Keywords: djenkolism, acute kidney injury.


INTRODUCTION

Djenkolic poisoning or djenkolism is one of the causes of acute kidney failure in Southeast Asia, including Indonesia. Djenkol bean or jering (Archidendron pauciflorum) is one of the foods commonly found in Southeast Asia, including Indonesia, Thailand, Malaysia, and Myanmar. Djenkol beans are a food that is extremely popular with Indonesians, especially in Java and Sumatra. These seed plants are usually processed by boiling or frying, but often they are also consumed raw. Djenkolism sometimes occurs, albeit infrequently after ingesting djenkol beans.

The clinical presentation of djenkolism is varied but generally presents as a spasmodic loin to groin pain and acute kidney injury (AKI), with evidence of urinary obstruction. The onset of AKI appears to be independent of the method of preparation or the number and age. The purpose here is to report this rare case of djenkolism; a man previously healthy developed AKI after consuming djenkol beans, resolved with rehydration with normal saline and conservative therapy. This case report aims to enhance clinical awareness to recognize djenkolism.

CASE REPORT

An 40-year-old Sumatran presented to the emergency ward with 4 hours of severe bilateral flank pain. The patient experienced acute, bilateral, severe, and spasmodic flank pain, which radiated to the groin. He had trouble with urination for 9 hours prior. He also had a sulfurous odor on his breath. A family member later revealed that the patient had consumed about 1000 grams of djenkol beans three days before his pain started.

The physical examination revealed tenderness in the suprapubic and bilateral costovertebral regions. The vital signs were blood pressure 130/80 mmHg, heart rate 110 bpm, and afibrile. A laboratory investigation revealed an elevated white cell count of 14.7x10^9/L, a hemoglobin count of 16.2 g/dL, a platelet count of 186x10^9/L, Blood Urea Nitrogen (BUN) level of 12.5 mg/dL (8-23 mg/dL), and elevated creatinine level of 2.49 mg/dL (0.5-0.9 mg/dL). An abdominal radiograph (KUB) did not show any urological stones or free air. He was admitted to the urology service for suspected renal stones and consulted to nephrology. Urgent abdominal ultrasonography (USG) was taken of the patient's abdomen; it revealed mild ascites and bilateral hydronephrosis. He was managed conservatively with rehydration using normal saline 1 ml/kg body weight over 24 hours. A urinary catheter was inserted for continuous bladder drainage. Paracetamol 1000 mg three times a day was given for analgesia, and he was also encouraged to take oral fluids. After five days, the patient's symptoms resolved.

DISCUSSION

Djenkolism is a condition characterized by acute kidney injury following ingestion of djenkol beans. It is not commonly encountered but is an essential etiology of AKI amongst natives of Southeast Asia. Djenkol beans are eaten raw at mealtimes to purify the blood. It is also a local snack in Southeast Asia, sold all year round.
Djenkol is a tropical tree species native to Southeast Asia. The primary toxin responsible for acute kidney injury (AKI) caused by djenkol consumption is djenkolic acid, a sulfur-containing non-protein amino acid. The current hypothesis is that ATN secondary to obstruction in the renal tubules due to djenkolic acid crystals. However, this has been difficult to prove due to: 1) acid crystals were not found in all animal models (histologic preparation may dissolve the crystals), and 2) renal biopsies are rarely performed on patients with acute djenkolism (one case report of human renal biopsy demonstrated findings of ATN). In our case, the most probable cause of AKI would be associated with the recent history of ingestion of djenkol beans. The symptoms are also supportive of djenkolism. Imaging studies in our patient supported an obstructive pathology.

The two primary clinical syndromes of djenkolism are characterized as follows: a) mild presentation of suprapubic pain and hematuria resulting from transient ureteral obstruction due to djenkolic acid crystal; and b) severe presentation in which pain and hematuria are accompanied by hypertension, oliguria, and azotemia. The pain stems from ureteric colic from crystal precipitation and stones. However, as in our case, the pain severity can exceed that seen with ureteric colic; the pain may be a more severe form of ureteric colic. The syndrome is likely determined by the amount of djenkolic acid consumed. Regardless, early recognition is of the utmost importance. Therefore, awareness of the potential consequences of djenkol bean ingestion is critical in clinical practice.

The mainstay of djenkolism treatment is aggressive hydration and alkalization of the urine to clear the crystal and relieve pain. In severe cases, renal replacement therapy may be required. This case presented classical findings associated with djenkolic acid toxicity. Diagnosis of acute kidney injury in this patient was based on persistent anuria (24 hours) following the bean's ingestion. The diagnosis is made based on clinical presentation and laboratory data. It is reported that most cases resolve within three days with supportive care. Mild djenkolism requires no specific treatment except pain control and hydration. Our patient recovered within five days of hydration and conservative therapy. However, there are also reports of surgical interventions being used to relieve obstruction caused by the crystal, sludge, or calculi.2,5

CONCLUSION

There are few reports of djenkolism in the medical literature, but as healthcare practitioners, we must be aware of this condition as it remains a significant cause of AKI in Southeast Asia. Knowledge of its clinical presentation, pathophysiology, and therapy principles is relevant, especially for healthcare professionals in the Southeast Asian region, to make swift and early recognition and prevent any misdiagnosis and mistreatment.

ETHICAL CONSIDERATION

The patient had received information and given consent regarding data publication before any data collection.

DISCLOSURE

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AUTHOR CONTRIBUTION

All authors equally contributed in preparing the manuscript.

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