



Paraquat Poisoning with Multiorgan Injury: A Case Report Highlighting Comprehensive Nursing and Multidisciplinary Care

*Patnani Swathi ¹, Dr. Balakrishna ² and Ms. Anitha. O ³

¹ Nurse Educator, Apollo Hospitals, Health City, Visakhapatnam (Vizag), Andhra Pradesh, India.

² Medical Superintendent, Apollo Hospitals, Health City, Visakhapatnam, Andhra Pradesh, India.

³ Manager Nursing, Apollo Hospitals, Health City, Visakhapatnam, Andhra Pradesh, India.

DOI: [10.5281/zenodo.23358286](https://doi.org/10.5281/zenodo.23358286)

Submission Date: 30 Aug. 2026 | Published Date: 14 Oct. 2026

*Corresponding Author: **Patnani Swathi**

Nurse Educator, Apollo Hospitals, Health City, Visakhapatnam (Vizag), Andhra Pradesh, India.

Abstract

Background

Paraquat is a highly toxic herbicide capable of producing multisystem organ injury following ingestion. Clinical manifestations may initially involve the gastrointestinal tract and subsequently progress to renal, hepatic, and pulmonary complications. There is no specific antidote, and management primarily involves early supportive care, organ support, and selected extracorporeal and antioxidant therapies.

Case Presentation

A 21-year-old male presented following an alleged ingestion of approximately 10 mL of paraquat dichloride at his residence on 02 June 2025. He developed approximately seven episodes of vomiting, throat irritation, and abdominal distension and was transferred to Apollo Hospitals, Health City, Visakhapatnam. Serum creatinine increased from 2.4 mg/dL on 03 June to 4.2 mg/dL on 04 June and declined to 1.4 mg/dL by 09 June. Liver enzymes were also elevated.

Interventions

The patient was managed in critical care with intravenous N-acetylcysteine and supportive therapy. Nephrology and Gastroenterology consultations were obtained, and two cycles of hemoadsorption were performed. Upper gastrointestinal endoscopy for hiccups and throat ulcers demonstrated gastric erosions.

Outcome

The patient demonstrated biochemical improvement in renal function, with creatinine decreasing from 4.2 mg/dL on 04 June to 1.4 mg/dL by 09 June and remaining 1.4 mg/dL on 10 June. AST decreased to 28 U/L and total bilirubin to 0.8 mg/dL by 10 June; ALT and GGT remained elevated.

The patient was discharged on 10 June 2025. Follow-up was advised on Days 3, 10 and 17 with ICU, Nephrology, Gastroenterology/General Physicians, with CBC, LFT, INR, RPII and chest X-ray.

No subsequent outpatient results are available in the supplied record; therefore, long-term renal, hepatic and pulmonary outcomes cannot be reported.

Conclusion

This case highlights the importance of early recognition, serial biochemical monitoring, multidisciplinary management, and vigilant nursing care in paraquat poisoning complicated by acute kidney and liver injury.

Keywords: Paraquat poisoning; acute kidney injury; acute liver injury; hemoadsorption; N-acetylcysteine; critical care nursing; toxicology.

1. Introduction

Paraquat is a highly toxic herbicide associated with severe systemic toxicity following significant exposure. Following ingestion, paraquat can produce gastrointestinal injury and subsequently affect multiple organs, particularly the kidneys, liver, and lungs.

Acute kidney injury is a recognized complication of paraquat poisoning and may develop early during the clinical course. Management remains challenging because there is no universally accepted specific antidote.

Contemporary approaches include supportive care, antioxidant therapy, organ support, and selected extracorporeal techniques, although evidence remains heterogeneous.

Nursing care is particularly important because of the need for continuous clinical assessment, fluid and electrolyte monitoring, extracorporeal therapy surveillance, medication safety, infection prevention, gastrointestinal care, and early identification of deterioration.

2. Case Presentation

A 21-year-old male from Jagapooram, Vizianagaram, Andhra Pradesh, was admitted to the Critical Care Department of Apollo Hospitals, Health City, Visakhapatnam, on 03 June 2025 following an alleged ingestion of approximately 10 mL of paraquat dichloride at approximately 8:00 PM on 02 June 2025. The discharge summary documents vomiting, throat irritation, and abdominal distension following ingestion. The documented diagnosis was paraquat poisoning with acute kidney injury and acute liver injury.

3. Clinical Examination

At admission, temperature was 96.1°F and respiratory rate was 20/min. The discharge summary documents no pallor, cyanosis, clubbing, pedal oedema, or lymphadenopathy.

Bedside chest radiography documented clear visualized lung fields and a right central venous catheter with its tip at the SVC. Whole-abdomen ultrasonography reported a tiny gallbladder polyp and no significant abdominal abnormality.

4. Investigations and Clinical Course

Serum creatinine was 2.4 mg/dL on 03 June, increased to 4.2 mg/dL on 04 June, and subsequently declined to 1.4 mg/dL by 09 June, remaining 1.4 mg/dL on 10 June.

ALT increased from 18 U/L on 03 June to 267 U/L on 09 June and was 224 U/L on 10 June. AST was 84 U/L on 07 June, 41 U/L on 09 June and 28 U/L on 10 June. GGT increased from 28 U/L on 03 June to 462 U/L on 07 June and remained elevated through discharge. Total bilirubin peaked at 2.7 mg/dL on 07 June and decreased to 0.8 mg/dL by 10 June.

INR improved from 1.35 on 03 June to 1.05 on 10 June.

Table 1. Selected serial laboratory findings.

Date	Creatinine	ALT	AST	GGT	Total bilirubin
03-Jun	2.4	18	—	28	1.1
04-Jun	4.2	—	—	—	0.8
05-Jun	2.9	30	—	—	0.7
06-Jun	3.5	—	—	—	—
07-Jun	3.2	256	84	462	2.7
08-Jun	2.2	—	—	—	—
09-Jun	1.4	267	41	452	0.9
10-Jun	1.4	224	28	447	0.8

5. Management and Clinical Course

The patient was admitted to the ICU and treated with intravenous N-acetylcysteine and supportive therapy. Nephrology consultation was obtained in view of acute kidney injury, and two cycles of hemadsorption were performed. Gastroenterology consultation was obtained for hiccups and throat ulcers; upper GI endoscopy demonstrated gastric erosions.

During hospitalization, renal indices improved substantially. The supplied record documents progressive creatinine reduction to 1.4 mg/dL by discharge. Liver biochemistry also showed improvement in AST and bilirubin, although ALT and GGT remained elevated.

6. Clinical Timeline

Date / Period	Clinical Event
02-Jun-2025 ~8 PM	Alleged ingestion of approximately 10 mL paraquat dichloride
After ingestion	Vomiting, throat irritation and abdominal distension
03-Jun-2025	Local-hospital treatment followed by transfer to Apollo Hospitals
03-Jun-2025	Critical Care admission; creatinine 2.4 mg/dL
04-Jun-2025	Creatinine increased to 4.2 mg/dL
Early course	IV N-acetylcysteine; Nephrology consultation; two hemoadsorption cycles
During admission	Gastroenterology evaluation; upper GI endoscopy showed gastric erosions
07-Jun-2025	Creatinine 3.2 mg/dL; ALT 256; AST 84; GGT 462; bilirubin 2.7
09-Jun-2025	Creatinine 1.4 mg/dL; AST 41; bilirubin 0.9
10-Jun-2025	Creatinine 1.4 mg/dL; AST 28; bilirubin 0.8; INR 1.05; discharge

7. Additional Medication and Follow-Up Documentation

Medication / Item	Dose	Route	Frequency / Duration
Evion	400 mg	PO	BD
IV fluid – Plasma-Lyte	500 mL	IV	Frequency not clearly legible in photograph
Pirfenidone	200 mg	PO	OD; chart indicates 10 days
Sucral-O syrup	10 mL	PO	QID
Ursodeoxycholic acid (Ursocol)	300 mg	PO	BD
Lexonil	10 mg	PO	BD
Limcee	1 tablet	PO	OD
Pantop	Dose not clearly legible in photograph	PO	OD
Lexonax Plus	1 unit/tablet (handwritten entry)	PO	TID
Bevon syrup	10 mL	PO	OD

8. Nursing Management

Nursing care was integral throughout hospitalization, with priorities including continuous monitoring, early identification of deterioration, safe medication administration, extracorporeal therapy surveillance, gastrointestinal care, fluid balance, infection prevention, patient safety, and patient-family education.

Nursing Domain	Intervention
Clinical monitoring	Continuous monitoring of vital signs, respiratory status, neurological status and overall clinical condition.
Renal monitoring	Strict intake-output monitoring, urine output assessment and serial renal-function review.
Hemoadsorption care	Monitoring vascular access, extracorporeal circuit and treatment-related complications.
Medication safety	Safe administration and monitoring of IV N-acetylcysteine and prescribed supportive medications.
Gastrointestinal care	Assessment of vomiting, throat discomfort, abdominal symptoms and tolerance of intake.
Procedure support	Pre- and post-procedure monitoring for upper GI endoscopy.
Fluid/electrolyte monitoring	Accurate fluid balance and monitoring for dehydration, overload and laboratory abnormalities.
Infection prevention	Hand hygiene, aseptic technique and invasive-line site surveillance.
Family/discharge education	Warning signs, medication instructions and scheduled follow-up.

9. Multidisciplinary Management

The documented multidisciplinary team included Critical Care, Nephrology, Gastroenterology, General Medicine and Nursing. Referral consultants listed in the discharge summary included Nephrology, Gastroenterology and General Medicine.

Follow-up was advised with ICU, Nephrology, Gastroenterology/General Physicians, with CBC, LFT, INR, RPII and chest X-ray at review.

10. Outcome and Follow-Up

The patient demonstrated biochemical improvement in renal function, with creatinine decreasing from 4.2 mg/dL on 04 June to 1.4 mg/dL by 09 June and remaining 1.4 mg/dL on 10 June. AST decreased to 28 U/L and total bilirubin to 0.8 mg/dL by 10 June; ALT and GGT remained elevated.

The patient was discharged on 10 June 2025. Follow-up was advised on Days 3, 10 and 17 with ICU, Nephrology, Gastroenterology/General Physicians, with CBC, LFT, INR, RPII and chest X-ray.

No subsequent outpatient results are available in the supplied record; therefore, long-term renal, hepatic and pulmonary outcomes cannot be reported.

11. Laboratory Trend Figures

Figure 1. Serial serum creatinine during hospitalization

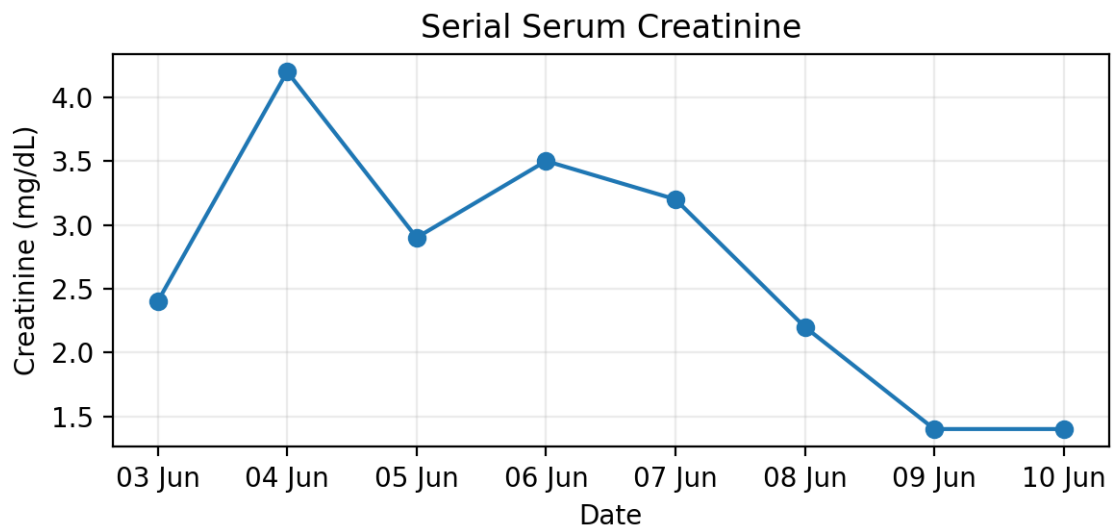
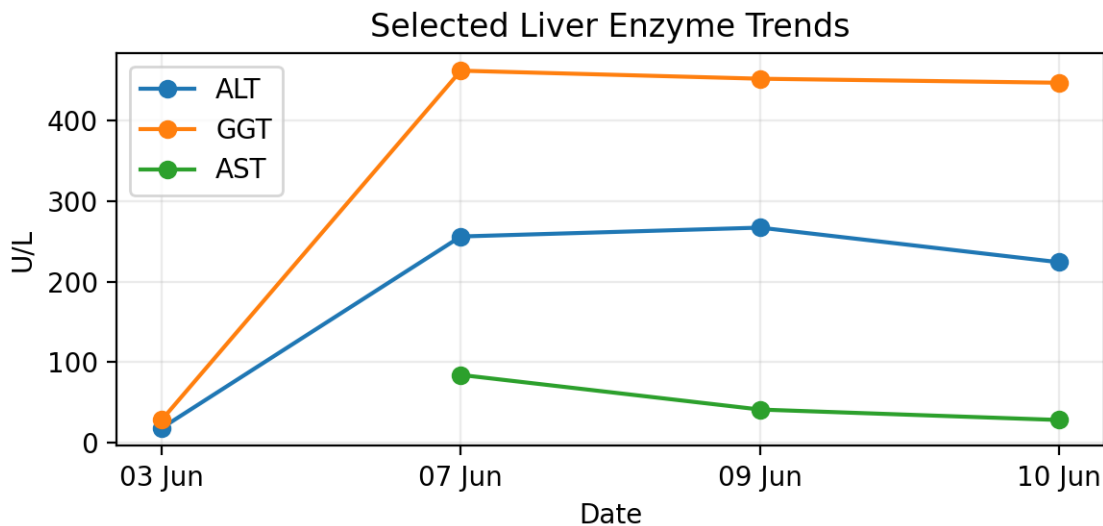


Figure 2. Selected liver enzyme trends during hospitalization



12. Discussion

Paraquat poisoning remains a major toxicological challenge because of its potential to cause progressive multisystem injury and the absence of a universally effective antidote.

The renal course in this case is notable for an early increase in creatinine from 2.4 to 4.2 mg/dL followed by progressive improvement to 1.4 mg/dL by discharge, supporting the value of serial renal-function assessment.

The liver profile showed transient aminotransferase elevation and marked GGT elevation. AST and bilirubin improved by discharge, whereas ALT and GGT remained elevated.

The patient received IV N-acetylcysteine, supportive therapy and two cycles of hemoadsorption. Because the supplied record does not provide a comparator or detailed toxin-clearance assessment, the independent contribution of hemoadsorption cannot be determined from this case.

Persistent gastrointestinal manifestations prompted specialist assessment and endoscopy, which identified gastric erosions. This illustrates the importance of symptom-directed multidisciplinary evaluation.

From a nursing perspective, continuous assessment, accurate fluid balance, medication safety, extracorporeal therapy surveillance, infection prevention and patient-family education are central components of care.

Follow-up remains important because delayed complications may occur; the discharge plan included specialist review and chest X-ray monitoring.

13. Conclusion

Paraquat poisoning can produce significant gastrointestinal, renal, hepatic and pulmonary complications and requires early recognition and close multidisciplinary management. In this case, a 21-year-old male developed acute kidney and liver injury following alleged paraquat ingestion and was managed with ICU care, intravenous N-acetylcysteine, supportive treatment, specialist consultations and two cycles of hemoadsorption. Renal function and selected hepatic parameters improved during hospitalization, and the patient was discharged in a hemodynamically stable condition.

The case emphasizes vigilant critical care nursing, serial laboratory monitoring, safe treatment administration, extracorporeal therapy surveillance, early recognition of complications and comprehensive patient-family education.

14. References

1. Evans, L., Rhodes, A., Alhazzani, W., et al. (2021). Surviving Sepsis Campaign: International guidelines for management of sepsis and septic shock 2021. *Intensive Care Medicine*, 47, 1181–1247. doi:10.1007/s00134-021-06506-y.
2. Grasselli, G., Scaravilli, V., Di Bella, S., Grieco, D. L., & Fanelli, V. (2021). Extracorporeal membrane oxygenation for acute respiratory distress syndrome: A narrative review. *Anaesthesia*, 76(Suppl. 1), 86–100. doi:10.1111/anae.15265.
3. Zhang, Y., et al. (2023). Construction of a clinical nursing pathway for acute paraquat poisoning: Evidence-based research.
4. Ahmed, A., Prasad, A., & Bhattacharjee, A. (2024). Management of paraquat poisoning—The way forward. *Indian Journal of Critical Care Medicine*, 28(8), 722–723. doi:10.5005/jp-journals-10071-24781.
5. Acute Disease Quality Initiative Workgroup. (2024). Hemoadsorption: Consensus report of the 30th Acute Disease Quality Initiative workgroup. *Nephrology Dialysis Transplantation*. doi:10.1093/ndt/gfae089.
6. Barma, A., Poudel, A., Rawal, G., et al. (2025). Fatal paraquat poisoning: A case report and literature review on rapid deterioration and therapeutic challenges. *Annals of Medicine and Surgery*.
7. Havaladar, A. A. (2025). Successful management of paraquat poisoning: A case report. *Journal of Medical Case Reports*, 19, Article 479. doi:10.1186/s13256-025-05546-y.
8. Karn, V., Shrestha, B., Shrestha, R., et al. (2025). Management of paraquat poisoning in an adolescent with progressive acute kidney injury: A case report.
9. Gautam, P. L., Takkellapati, L. R., Bhalla, A., Peter, J. V., Mahajan, R. K., Krishna, M. R., et al. (2026). Indian Society of Critical Care Medicine position statement on the management of paraquat poisoning. *Indian Journal of Critical Care Medicine*, 30(8), 632–649.

CITATION

Patnani Swathi, Balakrishna, & Anitha. O. (2026). Paraquat Poisoning with Multiorgan Injury: A Case Report Highlighting Comprehensive Nursing and Multidisciplinary Care. *Global Journal of Research in Medical Sciences*, 6(5), 32–36. <https://doi.org/10.5281/zenodo.23358286>