Journal of Neonatal Surgery
ISSN(Online): 2226-0439
Vol. 14, Issue 25s (2025)
https://www.jneonatalsurg.com

OPEN ACCESS

A Case Report: Pancytopenia Secondary to Urosepsis and Acute Kidney Injury in a 23-Year-Old Female with Intellectual Disability

Dr. Karthikeya T M*[1], Pranav Theja[2], Dr N N Anand[3], Dr Balaji N[4], Dr Gopalagari VinodKrishna[5]

[1*]Assistant Professor,Department of general medicine, Sree Balaji Medical College and hospital, chromepet, Tamil Nadu, India.

Email ID: tmkarthikeya@gmail.com

[2]Junior resident, Department of general medicine, Sree Balaji Medical College and Hospital, Chromepet, Tamil Nadu,

Email ID: India.theja102@gmail.com

[3]Professor & HOD, Department of general medicine, Sree Balaji Medical College and Hospital, Chromepet, Tamil Nadu, India.

Email ID: drnaganand1971@gmail.com

[4]Junior resident, Department of general medicine, Sree Balaji Medical College and Hospital, Chromepet, Tamil Nadu, India

Email ID: balajib595@gmail.com

[5]Junior resident, Department of general medicine, Sree Balaji Medical College and Hospital, Chromepet, Tamil Nadu, India.

Email ID: donivkrishna247@gmail.com

Corresponding Author:

Dr Karthikeya T M:

Assistant Professor,Department of general medicine, Sree Balaji Medical College and hospital, chromepet, Tamil Nadu, India.

Email ID: tmkarthikaeya@gmail.com

Cite this paper as: Dr. Karthikeya T M, Pranav Theja, Dr N N Anand, Dr Balaji N, Dr Gopalagari VinodKrishna, (2025) A Case Report: Pancytopenia Secondary to Urosepsis and Acute Kidney Injury in a 23-Year-Old Female with Intellectual Disability *Journal of Neonatal Surgery*, 14 (25s), 38-43

ABSTRACT

A 23-year-old female with a history of intellectual disability presented with fever, altered mental status, and reduced urine output. Laboratory investigations revealed pancytopenia and acute kidney injury (AKI). Urine culture was positive for Escherichia coli, confirming urosepsis as the underlying etiology. The patient was managed with broad-spectrum antibiotics, intravenous fluids, and supportive care, leading to resolution of AKI and pancytopenia. This case highlights the importance of early recognition and management of urosepsis in patients with neurodevelopmental disorders, who may have atypical presentations.

Keywords: *Intellectual disability, pancytopenia, urosepsis, acute kidney injury, sepsis-induced bone marrow suppression..*

1. INTRODUCTION

Pancytopenia is a hematological condition characterized by a reduction in all three blood cell lineages (red blood cells, white blood cells, and platelets). While commonly associated with bone marrow disorders, pancytopenia in the setting of sepsis is often due to transient bone marrow suppression. Acute kidney injury (AKI) frequently complicates sepsis and may further exacerbate hematologic abnormalities. This case describes a young female with intellectual disability who developed pancytopenia secondary to urosepsis and AKI, with full recovery following prompt intervention

Case Report

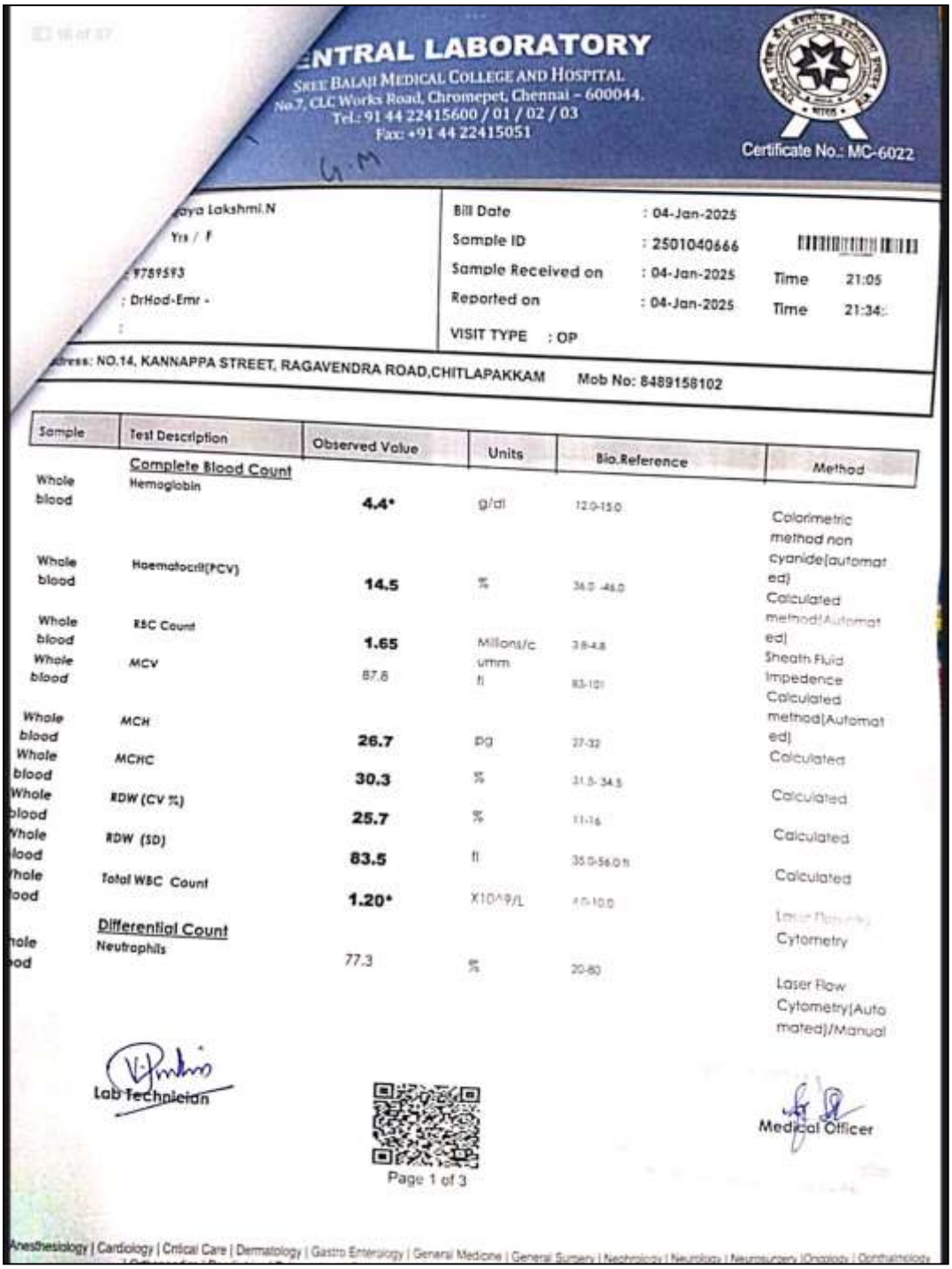
Presentation and Initial Assessment

A 23-year-old female with a history of intellectual disability and no known hematological disorders was brought to the emergency department with fever, lethargy, and decreased oral intake for three days. Caregivers reported reduced urine output. There was no history of bleeding, drug exposure, or recent infections.

On examination:

- **Vitals:** Temperature: 38.6°C, Heart rate: 110 bpm, BP: 90/60 mmHg, RR: 22/min
- **General:** Pale, no icterus, no lymphadenopathy, no petechiae or purpura
- **Systemic Examination:**
  - Abdominal: Suprapubic tenderness, no organomegaly
  - Neurological: Altered mental status, no focal deficits
  - Cardiovascular and respiratory: Unremarkable

Investigations



ENTRAL LABORATORY

SREE BALAJI MEDICAL COLLEGE AND HOSPITAL
No.7, CLC Works Road, Chromepet, Chennai - 600044.
Tel.: 91 44 22415600 / 01 / 02 / 03
Fax: +91 44 22415051

Certificate No.: MC-6022

aya Lakshmi.N
Yrs / F
: 9789593
: DrHod-Emr -

Bill Date : 04-Jan-2025
Sample ID : 2501040666
Sample Received on : 04-Jan-2025 Time 21:05
Reported on : 04-Jan-2025 Time 21:34:
VISIT TYPE : OP

ress: NO.14, KANNAPPA STREET, RAGAVENDRA ROAD,CHITLAPAKKAM Mob No: 8489158102

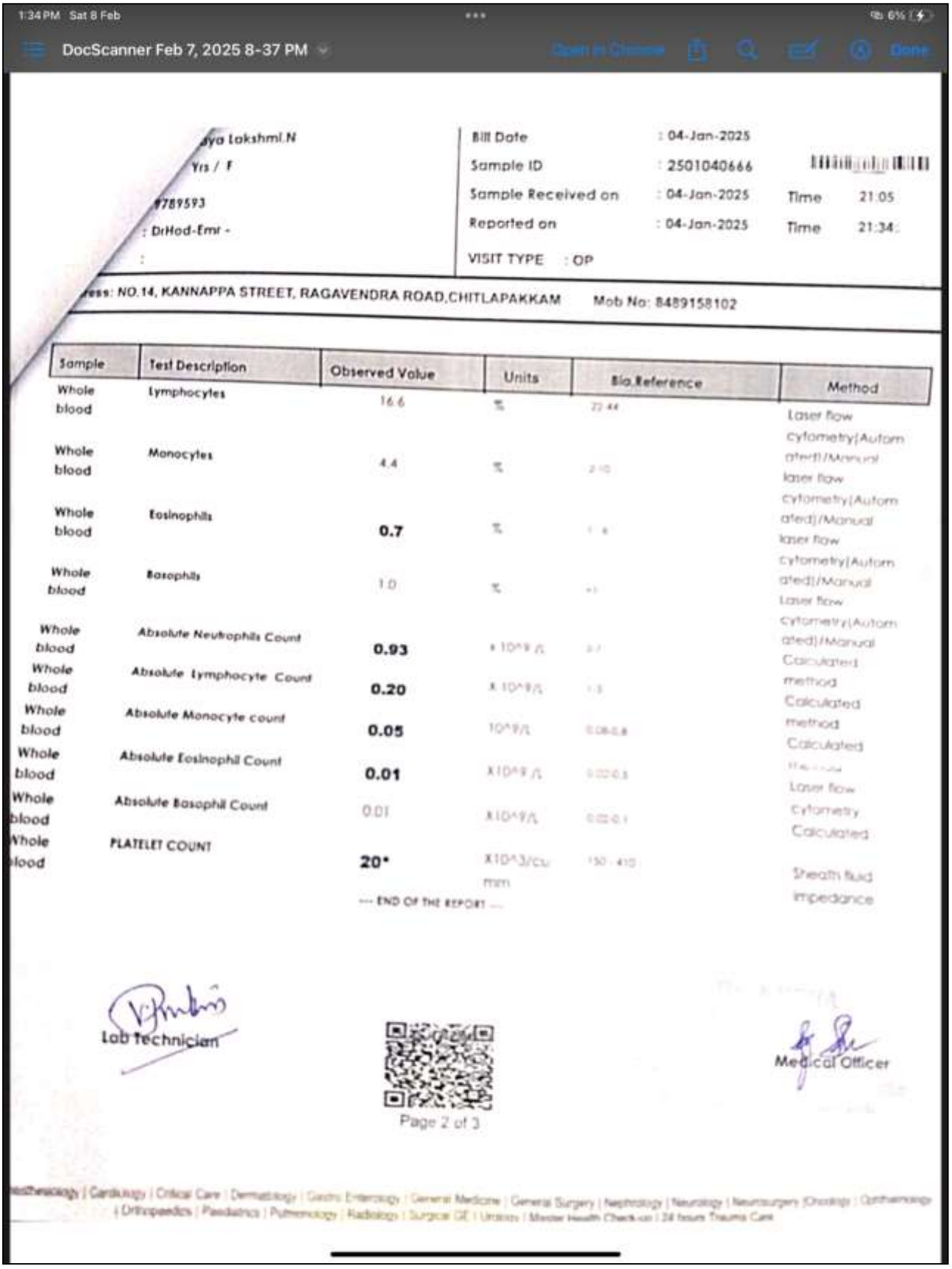
Sample	Test Description	Observed Value	Units	Bio.Reference	Method
	Complete Blood Count				
Whole blood	Hemaglobin	4.4*	g/dl	12.0-15.0	Colorimetric method non cyanide(automated)
Whole blood	Haematocrit(PCV)	14.5	%	36.0 -46.0	Calculated method(Automated)
Whole blood	RBC Count	1.65	Millions/cumm	3.8-4.8	Sheath Fluid Impedence
Whole blood	MCV	87.8	fl	83-101	Calculated method(Automated)
Whole blood	MCH	26.7	pg	27-32	Calculated
Whole blood	MCHC	30.3	%	31.5- 34.5	Calculated
Whole blood	RDW (CV %)	25.7	%	11-16	Calculated
Whole blood	RDW (SD)	83.5	fl	35.0-56.0 fl	Calculated
Whole blood	Total WBC Count	1.20*	X10^9/L	4.0-10.0	Cytometry
	Differential Count				
hole od	Neutrophils	77.3	%	20-80	Laser Flow Cytometry(Automated)/Manual

Lab Technician

Medical Officer

Page 1 of 3

Anesthesiology | Cardiology | Critical Care | Dermatology | Gastro Enterology | General Medicine | General Surgery | Nephrology | Neurology | Neurosurgery | Oncology | Ophthalmology



1:34 PM Sat 8 Feb

DocScanner Feb 7, 2025 8-37 PM

...ya Lakshmi.N
...rs / F
...789593
: DrHod-Emr -
:

Bill Date : 04-Jan-2025
Sample ID : 2501040666
Sample Received on : 04-Jan-2025 Time 21:05
Reported on : 04-Jan-2025 Time 21:34:
VISIT TYPE : OP

...ess: NO.14, KANNAPPA STREET, RAGAVENDRA ROAD,CHITLAPAKKAM Mob No: 8489158102

Sample	Test Description	Observed Value	Units	Bio.Reference	Method
Whole blood	Lymphocytes	16.6	%	22-44	Laser flow cytometry(Autom ated)/Manual
Whole blood	Monocytes	4.4	%	2-10	laser flow cytometry(Autom ated)/Manual
Whole blood	Eosinophils	**0.7**	%	1-6	laser flow cytometry(Autom ated)/Manual
Whole blood	Basophils	1.0	%	0-1	Laser flow cytometry(Autom ated)/Manual
Whole blood	Absolute Neutrophils Count	**0.93**	x 10^9 /L	2-7	Calculated method
Whole blood	Absolute Lymphocyte Count	**0.20**	X 10^9/L	1-3	Calculated method
Whole blood	Absolute Monocyte count	**0.05**	10^9/L	0.08-0.8	Calculated
Whole blood	Absolute Eosinophil Count	**0.01**	X10^9 /L	0.02-0.5	Laser flow cytometry
Whole blood	Absolute Basophil Count	0.01	X10^9/L	0.02-0.1	Calculated
Whole blood	PLATELET COUNT	**20***	X10^3/cu mm	150 - 410	Sheath fluid impedance

--- END OF THE REPORT ---

Lab Technician

Medical Officer

Page 2 of 3

...esiology | Cardiology | Critical Care | Dermatology | Gastro Enterology | General Medicine | General Surgery | Nephrology | Neurology | Neurosurgery |Oncology | Ophthalmology | Orthopaedics | Paediatrics | Pulmonology | Radiology | Surgical GE | Urology | Master Health Check-up | 24 hours Trauma Care

NAME : VIJAYALAKSHMI
OP/IP NUMBER: 1420261

AGE/SEX: 23/F
DATE: 05/01/2025

PERIPHERAL SMEAR REPORT

RBC's	: Microcytic hypochromic RBCs with severe anisopoikilocytosis showing tear drop cells, elliptical cells and pencil shaped cells. Few nucleated RBCs seen.
WBC's	: Reduced in number. Predominant cells are neutrophils.
PLATELETS	: Reduced in number.

No Haemoparasites seen.

IMPRESSION : **SEVERE MICROCYTIC HYPOCHROMIC ANEMIA WITH LEUKOPENIA AND SEVERE THROMBOCYTOPENIA - PANCYTOPENIA. KINDLY CORRELATE CLINICALLY.**

Dr. AJITHA
Reg. No. [illegible]
Assistant Professor
Department of Pathology
Sree Balaji Medical College & Hospital
Chromepet, Chennai-600 044

ASSOCIATE/ASSISTANT PROFESSOR
DEPARTMENT OF PATHOLOGY

Anesthesiology | Cardiology | Critical Care | Dermatology | Gastro Enterology | General Medicine | General Surgery | Nephrology | Neurology | Neurosurgery | Oncology | Ophthalmology | Orthopaedics | Paediatrics | Pulmonology | Radiology | Surgical GE | Urology | Master Health Check-up | 24 hours Trauma Care

Quality | Reliability | Affordability

Day	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Hb	4.4					5			6.9		9.1			
Total Count (Thousands)	1.2					2.5					3.6			
Platelet count (Lakhs)	0.20		0.34	0.28	0.20	0.29	0.53	0.69	1.22		1.3			1.36

Diagnosis

- **Pancytopenia secondary to sepsis-induced bone marrow suppression**
- **Urosepsis due to *E. coli***
- **Sepsis-associated acute kidney injury (AKI, KDIGO Stage 2)**

Clinical Course and Management

- **Empiric IV antibiotics:** Piperacillin-Tazobactam, later narrowed to Cefepime based on culture sensitivity
- **IV fluids** for hypotension

- **Packed RBC transfusion** for symptomatic anemia
- **Thrombocytopenia monitoring done.** (no active bleeding, platelet transfusion was done.)
- **Nephrology consultation** for AKI -advised for medical management
- **Supportive care:** Foley catheterization, nutritional optimization, and rehabilitation

Over the next 5 days, the patient's clinical status improved:

- Hb and platelets shows increasing trend from day 10
- Kidney function returned to baseline by day 10
- She was discharged with oral antibiotics and followed up for complete recovery

2. DISCUSSION

Pancytopenia in sepsis is multifactorial, often resulting from cytokine-induced bone marrow suppression, consumption due to disseminated intravascular coagulation (DIC), or direct toxic effects of inflammatory mediators. AKI in sepsis occurs due to hemodynamic instability, tubular injury, and inflammatory damage. Patients with intellectual disability may have atypical or delayed presentations, making early diagnosis critical.

This case emphasizes the need for:

1. **Early recognition of sepsis in vulnerable populations**
2. **Timely initiation of appropriate antibiotic therapy**
3. **Close monitoring of hematologic and renal parameters**
4. **Multidisciplinary care for optimal recovery**

3. CONCLUSION

Pancytopenia in sepsis is a transient but serious complication that resolves with appropriate treatment. In this case, aggressive management of urosepsis and AKI led to complete recovery. Clinicians should maintain a high index of suspicion for sepsis-related hematologic abnormalities in patients with altered mental status and underlying neurodevelopmental disorders

REFERENCES

[1] Hotchkiss RS, Karl IE. The pathophysiology and treatment of sepsis. N Engl J Med. 2003;348(2):138-150.

[2] Linden PK. Sepsis and the central nervous system: Basic mechanisms of neuronal injury. Intensive Care Med.2003;29(3):201-205.

[3] Singer M, Deutschman CS, Seymour CW, et al. The Third International Consensus Definitions for Sepsis and Septic Shock (Sepsis-3). JAMA. 2016;315(8):801-810.

[4] Peerapornratana S, Manrique-Caballero CL, Gómez H, Kellum JA. Acute kidney injury from sepsis: Current concepts, epidemiology, pathophysiology, and prevention. J Crit Care. 2019;52:34-40.

[5] Schattner A, Dubin I, Cohen J, Berrebi A. Bone marrow failure in sepsis: Transient or life-threatening? Am J Med Sci. 2003;326(2):85-92.

[6] Urabe A, Asano S, Matsuo T, et al. Granulocytopenia in infection: Sepsis-induced bone marrow suppression. Ann Intern Med. 1982;97(4):500-506..

.