

ACUTE FEBRILE ILLNESS WITH ASSOCIATED MULTIORGAN DYSFUNCTION

PRESENTED BY-

UNIT 3

DEPT. OF GENERAL MEDICINE

UNDER GUIDANCE OF – DR VIKRAM VIKHE(HOU)

- A 22-year-old Indian male presented with chief complaints of-

1. Fever x 4days

2. Headache x 4 days

3. Generalized body ache x 3days

4. Yellowish discoloration of eyes x 2days

- Fever was acute onset , high grade in nature , associated with chills , rigor and generalized body ache, relieved intermittently on medication

- Headache was generalized, mild to moderate in intensity, associated with retroorbital pain

- Yellowish discoloration of sclera since 2 days

- No history of abdominal pain, diarrhea, vomiting, giddiness, neck stiffness, photophobia and altered sensorium.

PAST HISTORY

- No history of Diabetes, Hypertension, Tuberculosis, or Malignancy.
- No history of trauma
- No Past surgical history.
- No significant personal or family history

GENERAL EXAMINATION

- Conscious, well-oriented to time, place, person
- Febrile with a body temperature of 101 °F
- Pulse: 94 bpm , regular, all peripheral pulses palpable
- BP: 120/80mmhg in the right arm, supine position
- Respiratory rate 16 bm
- Spo2: 99% on room air
- BSL Random: 130mg/dl
- Icterus present
- No Pallor , cyanosis, clubbing, lymphadenopathy, oedema, rash
- Reduction in skin turgor and dryness of tongue was noted

SYSTEMIC EXAMINATION

CVS : S1S2 heard, no murmur.

RS: Bilateral air entry equal, vesicular breath sounds heard

CNS: Conscious, oriented. No obvious neurological deficit.

PA: Scaphoid shaped. No Dilated Veins, Scar marks, discolouration.

Umbilicus centrally placed, inverted.

Mild Tenderness in Right Hypochondriac region, Liver palpable (span 16cm)

No splenomegaly

Tympanic note all over abdomen.

Normal bowel sounds heard.

DIFFERENTIAL DIAGNOSIS

1. Dengue fever
2. Malaria
3. Chikungunya
4. Rickettsial infection
5. Viral hepatitis
6. Leptospirosis

INVESTIGATIONS on Day 1

TEST	RESULT	TEST	RESULT
INR	1.2	RMT	-VE
Sr. ALBUMIN	4.2	WIDAL	-VE
AMMONIA	48	H/H/H	-VE
CRP	97	PROCAL	0.09
ESR	30		
ECG	NSR	CXR	WNL

FOLLOWING INVESTIGATIONS WERE SENT FOR FURTHER EVALUATION

Dengue (IgG, IgM, Nslag)

Chikungunya

Weil Felix

Leptospira (IgM, urine)

Blood and Urine C/S

Hep A and Hep E

Parameters (normal limit)	Day1
Haemoglobin (13.0-16.6 gm/dl)	13
Total leucocyte count (4,000-10,000 / μ L)	3300
Platelets (1,50,000-4,10,000 / μ L)	46,000
Serum urea (17-49 mg/dL)	28
Serum creatinine (0.6-1.35 mg/dL)	0.77
Serum bilirubin (0.2-1.2 mg/dL)/Direct	4.03/3
SGOT (8-48 IU/L)	980
SGPT (7-55 IU/L)	870
Random blood sugar level (up to 140mg/dl)	166

Treatment

- Started on supportive management with intravenous fluid resuscitation
- Inj N Acetyl Cystiene

Dose- 150mg/kg stat → 50mg/kg over 4 hr → 100mg/kg over 6hr

- Tab Ursodeoxycholic acid 300mg bd.

On the early morning of DAY 3

Patient had an episode of generalized tonic-clonic seizure associated with involuntary micturition,

which was terminated by a stat dose of intravenous (iv) 4mg lorazepam.

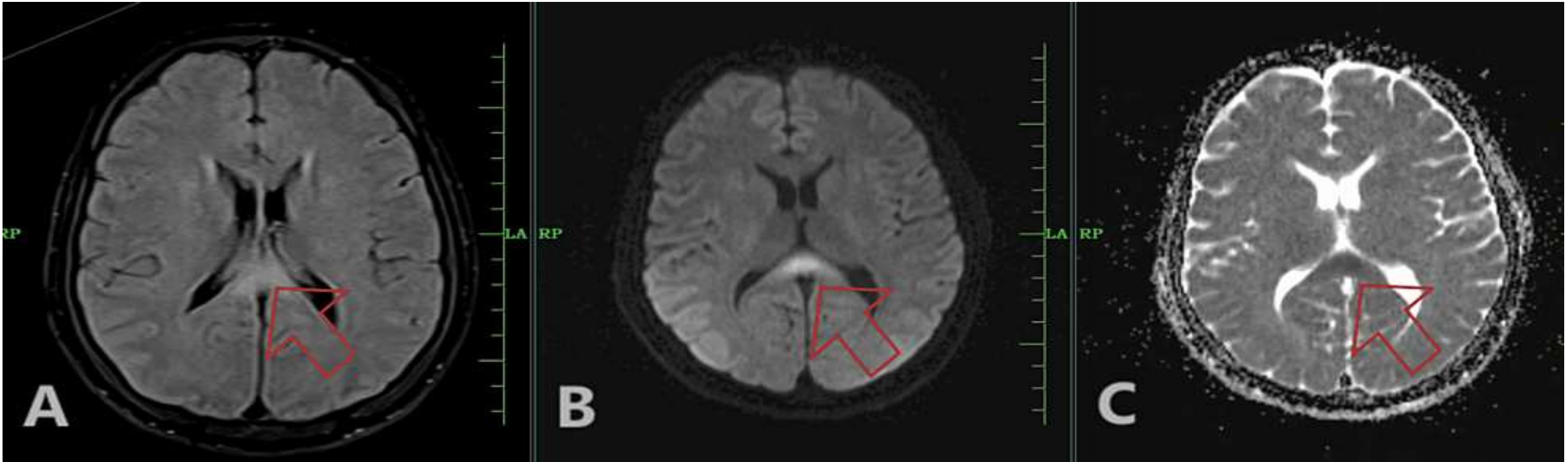
Postictal confusion was present.

- Pt was shifted to MICU for further monitoring and management.

Day 3 labs

Test	Result
Dengue	Igm+ , IgG-, Ns1ag -ve RTPCR DENV2 +
chikungunya	Igm+ve , IgG -ve
Leptospira	-ve
Urine for leptospira	-ve
Weil Felix	-ve
MRI Brain	
CSF	

Parameters (normal limit)	D3
Haemoglobin (13.0-16.6 gm/dl)	12.2
Total leucocyte count (4,000-10,000 / μ L)	2200
Platelets (1,50,000-4,10,000 / μ L)	18,000 ↓
Serum urea (17-49 mg/dL)	30
Serum creatinine (0.6-1.35 mg/dL)	0.90
Serum bilirubin (0.2-1.2 mg/dL)	4.02
SGOT (8-48 IU/L)	654
SGPT (7-55 IU/L)	554
Random blood sugar level (up to 140mg/dl)	116



MRI BRAIN OF THE PATIENT SHOWING ENCEPHALITIS CHANGES

(A) An area of altered signal intensity noted in the splenium of the corpus callosum (shown by red arrow), (B) Appearing hyperintense on T2-weighted image sequence, showing diffusion restriction on diffusion-weighted imaging sequence with corresponding low apparent diffusion coefficient value (C)

CSF ANALYSIS

	OBSERVED VALUE	REFERENCE RANGE WITH UNITS
QUANTITIY	2	ml
APPEARANCE	CLEAR	-
COBWEB	ABSENT	Absent
PROTIENS	67.40	15-45 mg/dL
GLUCOSE	63(BSL -122)	40-80 mg/dL
RBCs	ABSENT	Absent
TLC	6	0-5
NEUTROPHILS	0	%
LYMPHOCYTES	100	%
MESOTHELIAL CELLS/ PLEOMORPHIC CELLS	0	%

TREATMENT

- 2 SDP and 4 FFP transfusions given
- Inj. Meropenem 1gm TDS
- Inj. Acyclovir 500 mg IV 1-1-1
- Inj. Methylprednisolone 1g IV 1-0-0
- Inj. Levetiracetam 500 mg IV 1-0-1

DAY 4

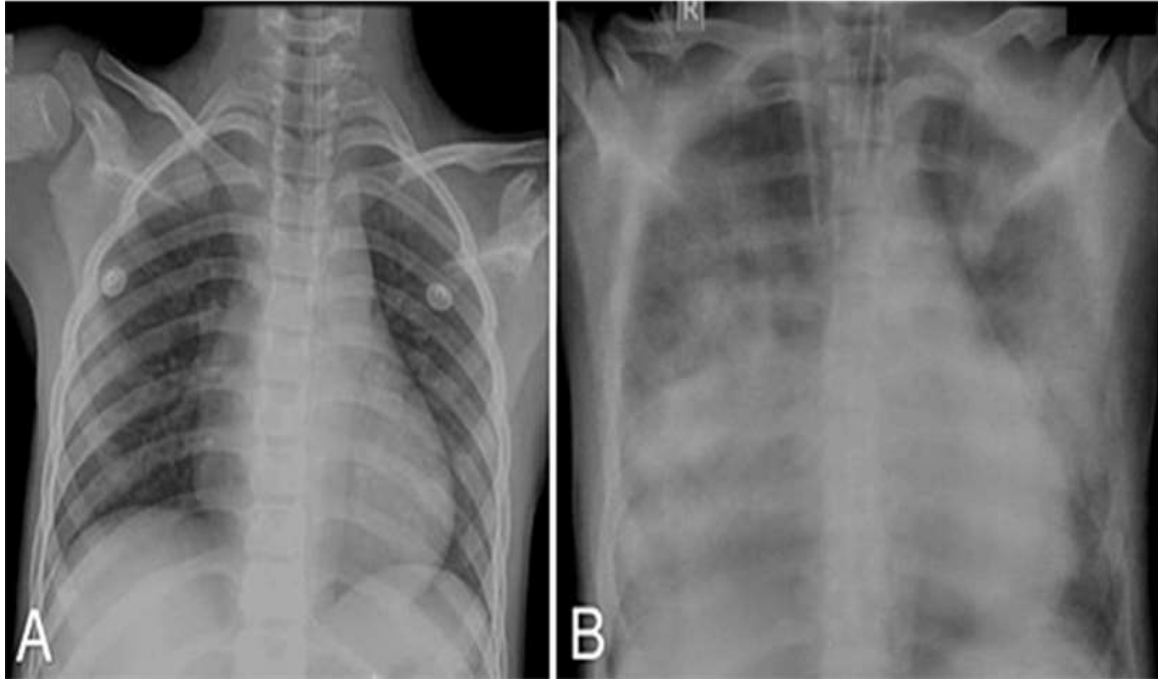
- The patient had an episode of hemoptysis of approximately 10 mL along with a fall in saturation. Multiple petechiae developed over the trunk and all limbs
- Immediate endotracheal intubation was performed, and mechanical ventilator support was commenced.
- Multiple new bilateral ground-glass opacities on the patient's chest x-ray raised suspicion of Diffuse Alveolar Hemorrhage.



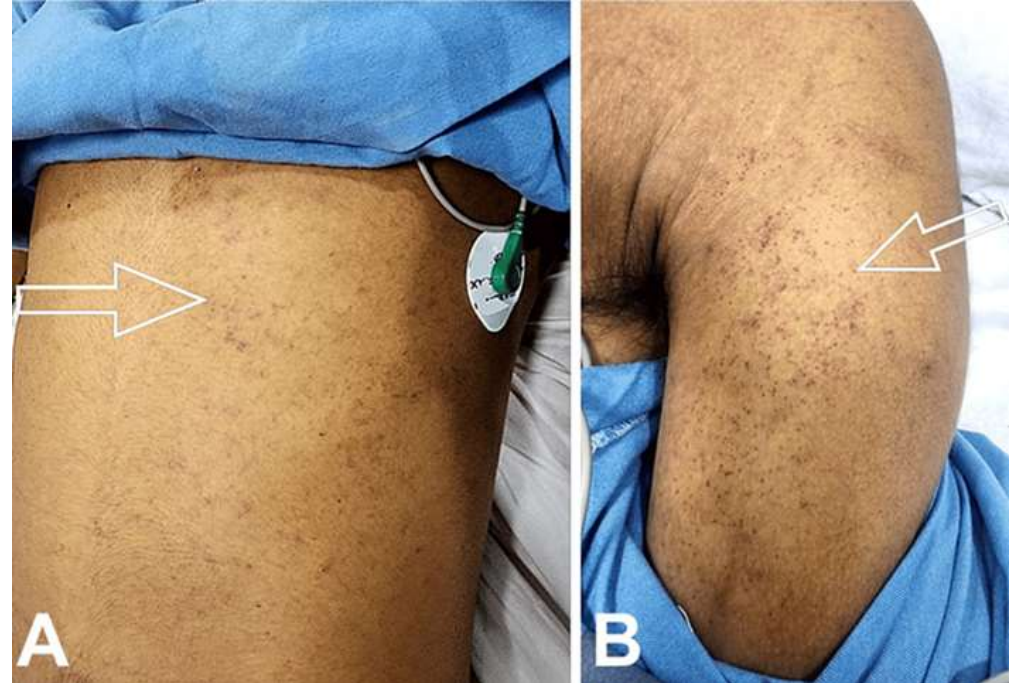
Suction collection tube of the patient containing blood-tinged secretions

Day 4 ABG

ABG	D4
pH (7.350–7.450)	7.23
pO ₂ (83.0–108 mmHg)	53
pCO ₂ (35.0–45.0 mmHg)	40
sHCO ₃ - (18–24 mmol/L)	18
O ₂ Saturation	90%
FiO ₂	0.60
PO ₂ /FiO ₂	88



(A) Day 1: No obvious abnormality;
(B) Day 4: Multiple new bilateral opacities



Petechiae can be seen on the patient's trunk (A) and left arm (B) shown by white arrow

Treatment

- Inj Methyl prednisolone 1gm iv pulse therapy was given
- Patient was kept on Mechanical Ventilation with high PEEP and low tidal volume
- 2 SDP 4 FFP

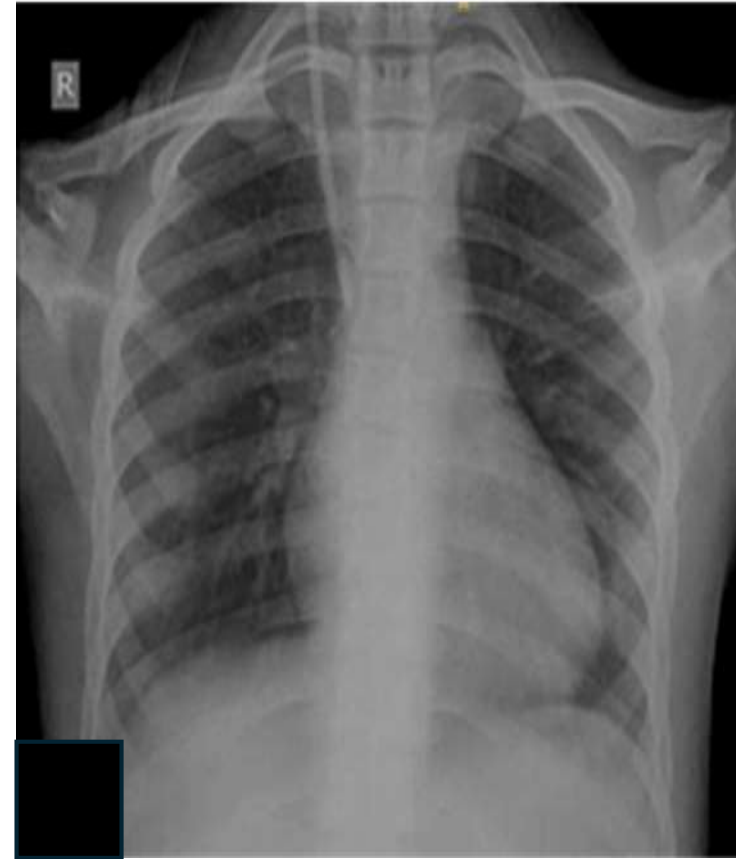
ABG

ABG	D4	D5	D6	D7	D8	D9	D10
pH (7.350–7.450)	7.23	7.34	7.48	7.42	7.45	7.40	7.40
pO ₂ (83.0–108 mmHg)	53	90	115	130	118	90	85
pCO ₂ (35.0–45.0 mmHg)	40	40	50	48	46	40	40
sHCO ₃ - (18–24 mmol/L)	18	24	29	26	24	23	23
SpO ₂ Saturation	90%	92%	100%	100%	100%	100%	99%
FiO ₂	0.60	1	1	0.80	0.60	0.30	Room air (0.21)
PO ₂ /FiO ₂	88	90	115	162	196	300	404

Parameters (normal limit)	D5	D7	D9	D10	D11
Haemoglobin (13.0-16.6 gm/dl)	10.2	11.2	12.00	12.8	12.80
Total leucocyte count (4,000-10,000 / μ L)	2800	3400	3800	4200	4600
Platelets (1,50,000-4,10,000 / μ L)	13,000	55,000	99,000	1.45L	2.24L
Serum urea (17–49 mg/dL)	55	40	33	30	30
Serum creatinine (0.6–1.35 mg/dL)	0.92	0.90	0.80	0.78	0.78
Serum bilirubin (0.2–1.2 mg/dL)	3.80	3.80	2.80	1.2	1.1
SGOT (8–48 IU/L)	223	133	99	47	47
SGPT (7–55 IU/L)	221	123	88	53	52
Random blood sugar level (up to 140mg/dl)	183	163	140	110	108



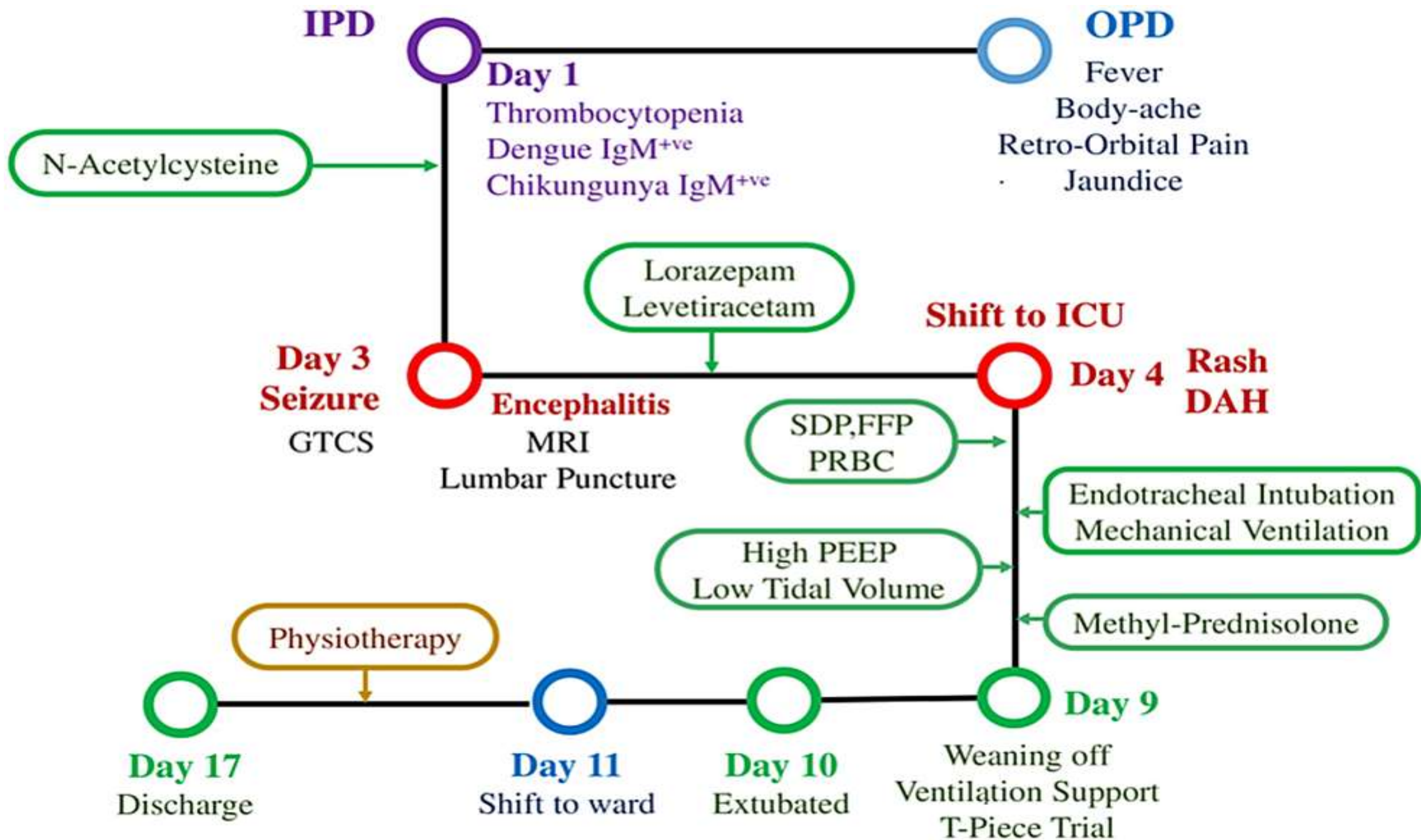
Day 6: Bilateral opacities resolving



Day 10: Resolution of opacities

Patient was weaned off from ventilatory support and extubated on day 10 and shifted to ward on day 11.

Total number of icu stay is 6 days.



DIAGNOSIS

CO INFECTION OF DENGUE AND CHIKUNGUNYA
WITH MULTIORGAN DYSFUNCTION SYNDROME

Patient was very well managed with good ventilatory support, dynamic monitoring, nursing care and blood component therapy in form of SDP,RDP, FFP and patient eventually got better and discharged in good clinical condition

Follow up- Uneventful



DISCUSSION

- Coinfection of DENV and CHIKV are associated with a worse outcome than mono-infection
- Both infections affect the liver, and the development of acute liver dysfunction in the early course of the disease has been implicated as a warning sign of severe disease.
- The pathogenesis of liver injury includes a direct viral or host-generated immune response and localized vascular leaks inside the liver.
- NAC exhibits potential for treating dengue-induced acute liver disease through multiple mechanisms. It has antioxidant ,anti-inflammatory hepatoprotective qualities and potential to enhance liver blood flow.

- The DENV serotypes DENV-2, DENV-3, and CHIKV are associated with several neurological complications such as encephalitis, Guillain-Barré syndrome, transverse myelitis, optic neuritis, and acute disseminated encephalomyelitis.
- Severe dengue virus infection symptoms are linked to cytokine storm, abnormal coagulation cascade, platelet dysfunction, impaired membrane permeability, and direct injury to the alveolar lining cells , ultimately causing DAH
- The management of DAH in intubated patients includes the use of high PEEP and low TV , along with the administration of pulse methylprednisolone (1g IV OD) u

Dengue and Chikungunya co-infection associated with more severe clinical disease than mono-infection

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A study was done in BJ Medical college(pune) in 2015 on 360 patients with Dengue and Chikungunya which concluded that co-infection has more severe condition than monoinfection.

TAKE HOME MESSAGE

- Physicians must exercise heightened vigilance for complications when dealing with dengue and chikungunya, especially in instances of coinfection. Early recognition and proactive monitoring are crucial for preventing severe outcomes in these patients

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