Case Of Acute Onset Paraparesis in Young Male

Dept. Of General Medicine

CASE

A 24-year-old male presented to emergency department with complaints of

- Fever since, 4 days
- Tingling, numbness and weakness of lower limbs 2 days
- Band like sensation at the level of nipple
- Urinary retention since 1 day
- No history of LOC, seizure, backpain, chest pain, palpitations, diarrhoea
- No relevant past history.

On examination

- Temperature – 101 degree F.
- Pulse - 96bpm
- BP 110/80 mmhg
- RR 18cpm, Single breath count normal.
- SPO2 98% on room air.

- Neurological examination: Patient was conscious, oriented to time, place, person. Higher mental functions were normal.
- Cranial nerves Examination and Fundus examination: Normal
- Motor examination:
  - Tone of upper limbs normal. However, reduced in both the lower limbs.
  - Power in both wrists was 2/5, at shoulder and elbow joint 5/5.
  - Power was 2/5 on both sides at hip, knee and ankle.
  - Supinator, Knee, Ankle Jerks & Abdominal reflex : absent bilaterally.
  - Bilateral Plantars were mute.

- Sensory examination:

  Pinprick sensation, crude and fine touch was decreased from T8 below by 70%.

  Vibration and joint position were normal.

- Cerebellum examination could not be assessed
- Gait, Romberg's sign could not be tested.
- No involuntary movements.
- Rest systemic examinations were within normal limits.

DIAGNOSIS

ACUTE ONSET FLACCID PARAPARESIS WITH A SENSORY LEVEL AT T8 , WITH BLADDER INVOLVEMENT SUGGESTIVE OF TRANSVERSE MYELITIS.

- ECG- Normal
- Chest X-Ray-Normal
- 2 D Echo-Normal
- USG abdomen and pelvis - Normal

Laboratory Investigations:

Haemoglobin /TLC /Platelet count	**15.6 /4800 /112000**
Liver and Renal function test, Electrolytes, Urine RM	Normal
Dengue IgM (5 fold rise)	Positive
Dengue IgG, NS1 Chikungunya, Rapid malaria test, Widal	Negative

CSF studies	
CSF proteins	54mg/dl
CSF glucose	54mg/dl
TLC	70
Neutrophils Lymphocyte Monocyte	10 90 -
ADA	1.31
CSF Culture/Sensitivity	Negative
CSF CBNAAT	Negative
CSF Malignancy	Negative
Serum NMO MOG, Oligoclonal bands	Negative
Serum ANA blot and IF	Negative
CSF PCR for Dengue	Positive

230176500624955

[redacted]

Reference: DR.SELF .

Sample Collected At:
Apsc-Ra-Ishwar Bapurao Thombare
S. No. 169 To 173, Mhada Constructed And Alloted Gala No. 540 / 3088, Sant Tukaram Nagar, Near Y.C.M. Hospital, Pimpri, Pune - 411018
Processing Location:- Metropolis Healthcare Ltd,Unit No409-416,4th Floor,Commercial Building-1,Kohinoor

VID: 230176500624955

Registered On:
10/10/2023 08:36 AM
Collected On:
10/10/2023 8:31AM
Reported On:
11/10/2023 05:14 PM

Dengue RNA detection by Real time PCR

Test Principle	:	Real Time PCR
Equipment	:	Rotor Gene Q from Corbett Research, Australia
Sensitivity	:	70 copies/ml
Specimen	:	CSF

Result :

Dengue RNA Detection (Qualitative)	**POSITIVE**

Result Interpretation:

- A "Positive" result indicates the presence of DENGUE virus infection in the specimen.
- A "Not Detectable" result indicates the absence of DENGUE virus infection or viral copies below 70 copies/ml in the specimen.
- Considering labile nature of virus(RNA), all negative results should be interpreted with caution in context of appropriate specimen collection, storage and transportation.

Clinical Background :

- Dengue is a flu-like viral disease spread by the bite of Aedes infected mosquitoes. Dengue fever symptoms includes high fever, rash, severe headache, pain behind the eyes, Nausea, vomiting, loss of appetite and muscle and joint pain. The severity of the joint pain has given dengue the name "Breakbone fever".
- This test is designed to diagnose all four serotypes of Dengue Virus

Limitation of Assay:

PCR is a highly sensitive technique; common reasons for paradoxical results are contamination during specimen collection, selection of inappropriate specimen and inherent PCR inhibitors in the sample.

Note:

- Negative result could occur due to very low viral load or clearance of Dengue Virus.
- All the results should always be correlated by clinical status and history of the patients.

Reference:

- Karoli R et al J Infect Dev Ctries. 2012 Jul 23;6(7):551-4.
- Dengue Bulletin, 2002 , vol 26, p. 125 - 130

Herlekar

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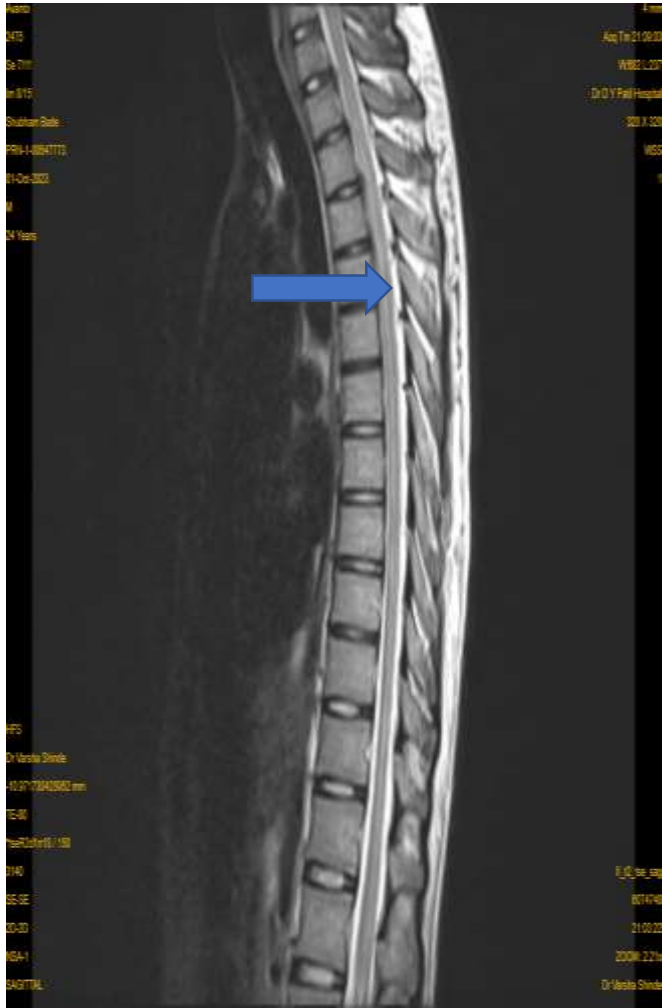
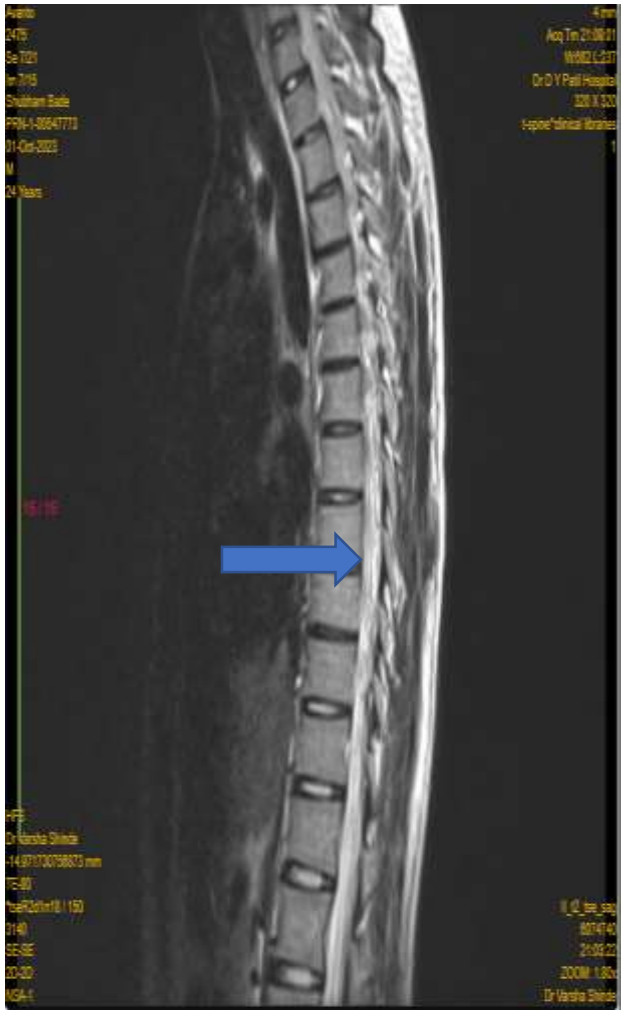
- MRI Brain plain plus contrast: No Neuro-parenchymal abnormality.

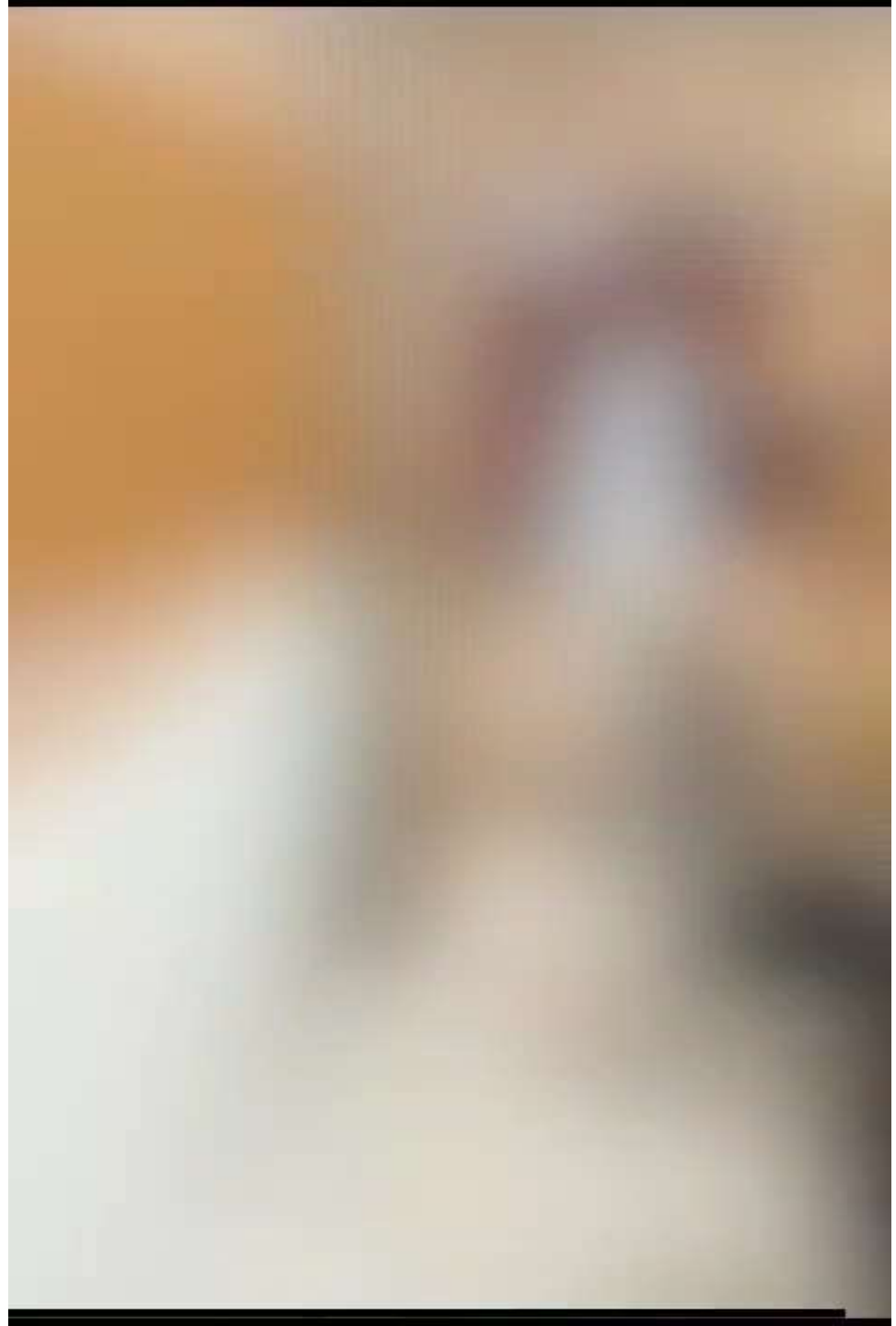
- MRI whole spine with contrast: T2/STIR long segment Ill-defined hyperintense signal noted in the cord **extending from C2 vertebral body to upper half of L2 vertebral body- possibility of transverse myelitis.**





Treatment given:

- Patient was immediately catheterised.
- **Injection Methylprednisolone 1gm IV** in 100 ml NS OD for 5 days followed by Tablet Prednisolone 40mg OD which was tapered every 7 days and **Physiotherapy** was given.
- Power improved to 3/5 in both lower limbs on day 3 and 5/5 by day 9 but no improvement in bladder was seen.
- **IV Immunoglobulin** given over 5 days, and injection enoxaparin 0.4 cc for 5 days. Bladder sensation improved partially post IVIG.
- After 1 month foley's catheter was removed, Patient is on regular follow-up now.



DISCUSSION

- Longitudinally extensive transverse myelitis (LETM) is characterized by immune-mediated inflammatory lesion of the spinal cord contiguously extending more than 3 vertebral segments.

- Differentials Of Long Tract Lesions in Spinal Cord:
    1. Multiple sclerosis (very common cause)
    2. Myelin Oligodendrocyte glycoprotein antibody disorders (MOGAD)
    3. Acute Disseminated Encephalomyelitis (ADEM)
    4. Glial Fibrillary Acidic Protein Astrocytopathy (GFAP)
    5. Para infectious myelopathy
    6. Systemic lupus erythematous
    7. Sjogren’s Syndrome
    8. Neuro-Behcet disease

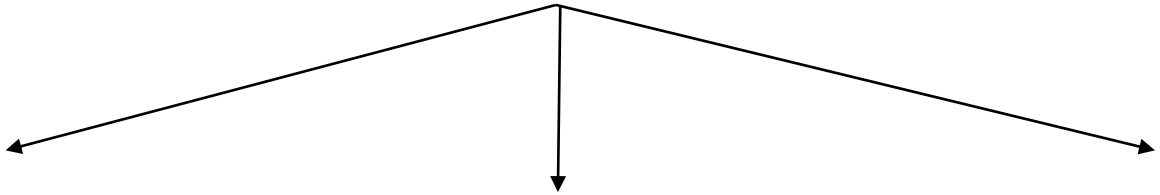
Pathogenesis of Dengue Myelitis

- Two mechanisms have been postulated

a) Direct invasion of the spinal cord by the dengue virus.
b) Active replication within the spinal cord (postinfectious immune injury).

- LETM being a rare complication in post dengue viral infection phase, about only 10 cases have been reported till date.
- Amongst 4 serotypes, DENV 2 has been reported to present with transverse myelitis.
- The duration between the onset of infection and the development of acute transverse myelitis ranges between 2 to 16 days in few cases.

Neurological features of Dengue



Features Related to Neurotrophic effect of virus

- Encephalitis
- Meningitis
- Rhabdomyolysis
- Myositis

Related Systemic complications of virus

- Encephalopathy
- Stroke (Haemorrhagic/ Ischemic)
- Hypokalaemia paralysis

Post-Infectious

- ADEM
- Neuromyelitis Optica
- Guillain-Barre syndrome
- Miller Fischer Syndrome

Mechanism of IV Ig in Dengue LETM

- One of the proposed mechanism is that intravenous immunoglobulins interact with IgG Fc gamma receptors, thereby suppressing the dengue-virus-induced cytokine cascade
- It also induces the production of anti-inflammatory cytokine IL-1 receptor antagonist.
- Thus, the immune-modulatory actions of IVIg may have beneficial effects in altering the disordered immunity in patients presenting with neurological complications secondary to severe dengue.
- The immuno-resuscitative role of intravenous immunoglobulins in refractory cases of dengue myelitis is not fully explored.

Take Home Message

- Patients diagnosed with LETM should be investigated for dengue infection especially when there is a travel history to dengue endemic areas or patient with history of fever or in cases where the cause of LETM could not be easily explained.

- Early neurological rehabilitation may improve the patient outcome even in complicated presentation.

REFERENCES:

1. Pearce JM. Neuromyelitis Optica. Spinal Cord 2005;43:631–4.

2. Wingerchuk DM, Lennon VA, Lucchinetti CF, et al. The spectrum of neuromyelitis Optica. Lancet Neurol 2007;6:805–15.

3. Weinshenker BG, Wingerchuk DM, Vukusic S, et al. Neuromyelitis Optica IgG predicts relapse after longitudinally extensive transverse myelitis. Ann Neurol 2006;59:566–9.

4. Bizzoco E, Lolli F, Repice AM, et al. Prevalence of neuromyelitis Optica spectrum disorder and phenotype distribution. J Neurol 2009;256:1891–8.

5. Nandhagopal R, Al-Asmi A, Gujjar AR. Neuromyelitis Optica: an overview. Postgrad Med J2010;86:153–9.

6. Pandit L. Transverse myelitis spectrum disorders. Neurol India 2009;57:126–33.

7. Wingerchuk DM, Lennon VA, Pittock SJ, et al. Revised diagnostic criteria for neuromyelitis Optica. Neurology 2006;66:1485–9.

THANK YOU