

# A CASE OF QUADRIPARESIS

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# Clinical History

□ A 27 yr male, shopkeeper by occupation presented with chief complaints of

- High grade fever with chills - 3 days
- Weakness of all 4 limbs - 1 day
- Bodyache - 1 day

No h/o burning micturition, cough, headache, altered behaviour, trauma, diarrhoea, rigorous exercise.

No addictions.

Mixed diet

Past/Personal/Family History - Not Significant

# General examination on admission

- Temperature 100°F
- Blood Pressure – 130/70mm of Hg
- Pulse rate – 110/min
- Blanching rash present all over the body
- Single breath count of 50
- SPO2 97% on room air

## Systemic examination

Higher mental functions, speech & cranial nerves	Normal
Tone	Reduced in all 4 limbs
Power	3/5 at all joints in all ranges of motion Hand grip reduced by 60% in both hands
Deep tendon reflexes	Biceps, Triceps, Supinator, Knee jerk - absent Ankle reflex present bilaterally
Plantars	Both flexors
Sensory system	Normal
Signs of cerebellar involvement	None
CVS, RS, P/A	All normal

# Differentials on admission

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- **Guillain Barre syndrome**
  - **Electrolyte imbalance induced quadriplegia (Hypokalemic paralysis)**
- **Acute transverse myelitis**

# Investigations

## Day 1

INVESTIGATIONS	DAY 1
Hb	13.9 gm%
TLC	2600/cumm
DLC	Polymorphonuclear cells 60 Lymphocytes 40% Eosinophils 5% Monocytes 5%
PLATELET COUNT	37,000/cumm
Peripheral blood smear	Normocytic normochromic, no parasites seen

INVESTIGATIONS	DAY 1
SODIUM	135meq/L
POTASSIUM	2.2meq/L
CALCIUM	9.9g/L
S.Bil	WNL
AST	523U/L
ALT	346U/L
ALP	137U/L
RFT	WNL
ABG	WNL

# Other investigations

- Dengue Ns1 Ag & IgM Ab - Positive
- Chikungunya - Negative
- HIV/HBsAg - negative
- Thyroid Function Test - WNL
- CPK total - 533 IU/L (15-190)
- Urine for haemoglobin and myoglobin - negative
- Urine routine microscopy - WNL
- Urinary potassium was - WNL
- Stool routine microscopy - WNL
- Nerve Conduction Study - WNL
- ECG, Chest X-ray, USG of abdomen/pelvis - WNL

# Treatment and course of hospital stay

## **Treatment given**

- 40 meq KCl was given in 500 ml N.S. over 6hrs on the first day which resulted in spontaneous improvement in the muscle weakness within 6 hours.
- Symp. Potassium chloride 2tsf three times daily.
- 1.5 litres of i.v. fluids per day
- Tab. Paracetamol 500mg TID

## **Response to treatment**

- S. Pottasium had risen to 5.0 meq/l after 24 hours
- Platelet count increased progressively to above 1lakh/cumm over 9 days.



# Final Diagnosis




**Dengue fever with  
hypokalemic  
paralysis**

# Discussion

- Hypokalemia is a well documented electrolyte imbalance in dengue fever (prevalence -14% to 28%)
- Majority of the patients have mild hypokalemia (not below 3 meq/L)<sup>[1]</sup> but hypokalemic paralysis is uncommon
- In a 4 year study done on 489 dengue patients in King George Medical college, Lucknow, the incidence of dengue associated hypokalemic paralysis (DHP) was found to be around 3.7% <sup>[2]</sup>

# Possible Mechanisms of DHP

- Redistribution of potassium into the cells
- Transient renal tubular abnormalities leading to increased urinary potassium loss
- Increased catecholamine levels in response to stress of the infection

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- GBS was unlikely because the patient was
    - Febrile at admission
    - Had greater disability
    - Had significant myalgia
    - Normal NCS
    - Extremely low S. Potassium
    - Elevated S. CPK levels

- Hypokalemic periodic paralysis (HPP) was unlikely because
  - This was the first episode presenting at age of 27 years without any significant past history
  - Was not precipitated by increased exercise or heavy meals rich in carbohydrates.
  - There was also no positive family history suggestive of HPP.

# NEUROLOGICAL COMPLICATIONS OF DENGUE

<u>Related to neurotropic effect of the virus</u>	<u>Related to the systemic complications of dengue infection</u>	<u>Post-infection</u>
Encephalitis	Encephalopathy	Acute disseminating encephalomyelitis
Meningitis	Stroke( both hemorrhagic and ischemic)	Encephalomyelitis
Myositis	Hypokalemic paralysis	Myelitis
Rhabdomyolysis	Papilledema	Neuromyelitis optica
Myelitis		Optic neuritis
		Guillain Barre syndrome
		Phrenic neuropathy
		Long thoracic

# References

1. Widodo D, Setiawan B, Chen K, Nainggolan L, Santoso WD. The prevalence of hypokalemia in hospitalized patients with infectious diseases problem at Cipto Mangunkusumo Hospital, Jakarta. *Acta Med Indones.* 2006;38:202-5.
2. Rajesh B, Tushar BP, Rakesh L. Hypokalemic paralysis associated with dengue fever: Study from a tertiary centre in North India. *Neurology Asia* 2016; 21(1) : 23 - 32
3. Mount DB. Fluid and electrolyte disturbances. In: Longo DL, Fauci AS, Kasper DL, Hauser SL, Longo DL, Jameson JL, et al., editors. *Harrison's Principles of Internal Medicine*. 18th ed. New York: McGraw-Hill Companies; 2012. pp. 341-59.

Thank You