# Young male with Acute febrile illness with Hepatitis, AKI, Anemia and Thrombocytopenia

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# Case discussion

- 31 years old male patient
- Residing at Jaipur, Rajasthan
- Working as an engineer at private firm, at jaipur
- Previously healthy
- No significant past medical history

# Chief Complains

- Presented with c/o :
- High grade fever and severe bodyache for 6 days
- Abdominal discomfort, nausea and yellow discolouration of urine and sclera for 4 days
- Decreased urine output for 2 days

# History of presenting illness

- Patient was absolutely alright before 6 days
- Illness started with fever which was
- High grade (Spikes up to 103 F) with chills & Rigors
- Associated with mild headache and severe bodyache, malaise and prostration
- No night sweats
- No diurnal variation

- Also had abdominal discomfort which was generalized but more in right hypochondrium and epigastric region.
- It was associated with anorexia, nausea and yellow discolouration of urine and sclera
- Also revealed that he had decreased urine output for 1 day without any bleeding or burning in urination.
- He also had one episode of spontaneous epistaxis- small amount while he was in Udaipur

# Negative history

- No h/o bleeding from any other sites
- No h/o altered sensorium, LOC or convulsion
- No h/o red eyes, skin lesions
- No h/o burning micturition, diarhhoea, BLN or weight loss
- No h/o close contacts with animals or consumption of unpasteurized milk
- No h/o any recent travel or drug consumption

# On examination

- Temp- 103 F
- Pulse- 122/min
- RR-20/min
- BP- 110/70 mm Hg
- SPO2- 100 % on air

# General examination

- Pallor +
- Icterus +
- b/l pitting pedal oedema +
- No skin rash/ Eschar
- No clubbing, cyanosis, lymphadenopathy or petechie

# Systemic Examination

- RS- AEBE, Clear, no foreign sounds
- CVS- S1+, S2+, no murmur
- P/A- liver palpable two fingers below the right costal margin, tender and non pulsatile
- Tenderness present over epigastric region
- Spleen just palpable 1 finger below the left costal margin, non tender
- No ascites clinically
- CNS- NAD, no meningeal signs

# Lab reports done outside

- TC- 3200/cumm
- DC- 72/25/2/1/0
- HB- 9 gm%
- PC- 15000
- SGPT- 88.4 U/L(upto 35)
- SGOT- 94.8 U/L(upto 41)
- Bilirubin- T- 9, D- 7, I-2 mg/dl

# Outside reports

- S. Protein- T- 5.42 gm/dl
- Albumin-2.58  gm/dl
- Globulin-1.84 gm/dl
- A/G-1.94 gm/dl
- ESR- 5mm/hr
- Urea-62.9 mg/dl
- Creat- 2.23 mg/dl
- MP by QBC- positive for P. Falciparum
- PT/INR 1.7, APTT 45

- Previously healthy young male from Rajasthan,presented with acute febrile illness with constituitional features, jaundice, and oliguria without any recent travel history, diarrhea, BLN or altered sensorium
- On examination he had fever, tachycardia,icterus, pallor, b/l pitting pedal edema, hepatosplenomegaly with normal sensorium without skin rash, lymphadenopathy, cardiac or lung involvement.
- Laboratory parameters were suggestive of Anemia, Thrombocytopenia, hepatitis, AKI, deranged coagulation profile with MP by QBC positive for P. Falciparum.
- Hepatosplenomegaly and mild ascites on USG.

# Differential diagnosis

- Complicated P. Falciparum Malaria
- Viral Hemorrhagic fever
- Leptospirosis
- Scrub typhys
- HUS/TTP
- Sepsis with MODS
- Salmonella Infection
- ? Brucella infection
- Autoimmune??- less likely

# Differential Diagnosis

- **1. Complicated P. Falciparum Malaria**
- Points favoring-
- Fever with rigors
- Anemia
- Thrombocytopenia
- AKI
- Hepatitis
- Deranged coagulation profile
- Hepatosplenomegaly
- MP positive by QBC for P. Falciparum

# 2. Viral hemorrhagic fever

- Following are included according to places:

- Ebola virus- Africa
- Crimean Congo hemorrhagic fever- Eastern Europe, Africa
- Dengue hemorrhagic virus infection- Asia, Africa
- Hanta virus hemorrhagic virus infection- Asia, Europe, worldwide.(Old world and New world- described later)

- Rift Valley fever virus- Africa, Saudi Arebia
- Yellow fever virus- Africa, tropical Americas
- Omsk H’gic fever virus- Central Asia
- Kyasanur Forest fever virus- India
- Marburg virus- Africa
- Lassa fever virus- West Africa
- New world Arrena viridae South America- Argentian/ Bolivian Hemorrhagic fever virus infection

- All these VHF share following features with little difference with each virus infection
- Fever plus bleeding diathesis with malaise and severe prostartion
- Hemorrhage, thrombocytopenia, hypotension and shock
- All are candidates for bioterrorism
- High mortality

- Diagnosis of VHF is usually made by risk factors, clinical features, travel to endemic areas, contact with cases
- Prevention is very vital

# 3. Leptospirosis

- **Points favoring**
- Fever
- Malaise
- Hepatosplenomegaly
- Thrombocytopenia
- Liver and Kidney dysfunction

**Points against**

normal sensorium

no conjuctival suffusion

Lepto IgM- negative

# 4. Scrub Typhys

- **Points favoring**
- Fever
- Thrombocytopenia
- Liver and kidney dysfunction
- Area- Rajasthan

**Points against**

No CNS or lung involvement

No eschar

Scrub IgM- neg

# 5. HUS/ TTP

- **Points favoring**
- Anemia
- Jaundice
- Splenomegaly
- Fever
- Renal failure
- Thrombocytopenia

**Points against**

no diarrhea

normal CNS

LDH normal

No schistocytes

Direct hyperbili

# Our reports

- TC- 5100/cumm
- DC- 58/27/1/4/0
- HB- 8.5%
- HCT- 27.5 %(40-54%)
- PC- 32000
- SGPT-  82 U/L(21-72)
- Bilirubin- T- 8, D- 6, I-2 mg/dl
- ALP-222 U/L

- S. Protein- T- 4.7 gm/dl
- Albumin-2.19  gm/dl
- Globulin-2.51 gm/dl
- A/G-0.83 gm/dl
- Urea-43 mg/dl
- Creat- 1.9 mg/dl
- Malarial parasites not seen
- Urine R/M- NAD

- CRP- 6 mg/dl(<1)
- Uric acid- 4.57(3.5-8.5)
- Na- 137 mmol/L
- K- 3.67 mmol/L

- PT- 17.1 sec, Control 13.5, INR 1.7
- APTT- 40seconds(control 29)
- Chest X Ray – NAD
- RBS- 75 mg/dl

# USG abdomen

- Liver mildly enlarged and normal echotexture
- Gall bladder normally distended with marked wall edema
- Spleen mildly enlarged (13 cm)with normal echotexture
- Minimal perinephritic fluid on right side
- Both kidneys are normal in size with increased cortical echogenicity and preserved CM differentiation.
- Mild free fluid in peritoneal cavity

- Patient was discharged in stable hemodynamic condition with improved liver, kidney function and recovering platelet counts
- Patient came for follow up after 10 days with all reports within normal range and patient being absolutely asymptomatic

- Scrub typhus IgM negative
- Leptospira IgM- negative

- Hanta virus IgM was Positive
- Unit 3.84 (Ratio)
- Negative - <0.8
- Equivocal – 0.8 to 1.1
- Positive- >1.1

# Hantavirus

# What is Hantavirus?

- Hantaviruses belong to the *bunyaviridae* family of viruses.

- Hantavirus leads to diseases such as HPS (Hantavirus Pulmonary Syndrome) and HFRS (Hemorrhagic Fever and Renal Syndrome)

# Rodent Transmission

Infected rodent

Biting, fighting, sexual behavior.

Virions in excretion (urine, feces, saliva).

Naive rodent

# Stages of Hemorrhagic Fever with Renal Syndrome (HFRS)

After an incubation period of 1 or 2 weeks (4-40 days)…

1) Febrile Phase
2) Hypotensive Phase
3) Oliguric Phase
4) Diuretic Phase
5) Convalescent Phase

# Stages of Hantavirus Pulmonary Syndrome (HPS)

After asymptomatic incubation of 4-30 days…

1) Febrile Phase
2) Cardiopulmonary Phase
3) Diuretic Phase
4) Convalescent Phase

# Etiological Diagnosis

Serologic- ELISA

IHC

RT PCR

# Treatment:

Aggressive supportive care

- Fluid management
- Hemodynamic monitoring
- Ventilatory support
- Peritoneal dialysis
- Pressor agents (blood pressure support)
- Inotropic agents (cardiac support)
  - Increases cardiac muscle contractility

- Broad spectrum antibiotic therapy until HPS is proven (to cover for differential diagnoses)
  - Intravenous ceftriaxone or aminoglycoside
  - Doxycycline