A diagnostic dilemma!! Is it Rabies??

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Clinical history:

- 12 yrs old female child,

- 3 days H/O progressive difficulty in walking & weakness of both lower limbs, backache and leg pain.

- Weakness progressed to upper limbs in 2 days after admission.

- No history of Fever/ Diarrhoea / Recent respiratory tract infection.

- No H/O bladder & bowel involvement.
PAST HISTORY

- About 3 months prior to admission, h/o dog bite + in leg, she received 3 doses of ARV. Rabies Ig was not given.

- Birth and developmental history – normal
GENERAL EXAMINATION

- O/E: conscious, afebrile
  anxious,
  not dyspnoeic,
  no hydrophobia / aerophobia
  no drooling of saliva

- vitals: Pulse 90/min, B.P - 110/70
  R.R 20/min.
CNS EXAMINATION

- Higher functions & cranial nerves - Normal

- Fundus – normal.

- Motor system examination:
  - L.L (both): grade 2/5 power & hypotonic with absent DTR.
  - U.L (both): grade 4/5 power, with distal hypotonia and diminished reflexes.

  B/L plantar – no response.
- Sensory system: Normal
- Cerebellum: Normal
- No autonomic involvement
- Spine and cranium: Normal
- Other system examination – normal.
INITIAL DIAGNOSIS

- Guillain Barre Syndrome
INVESTIGATIONS

- CBC, RFT & Electrolytes – normal

- CSF examination – acellular
  CSF protein 1476 mg/dl & sugar 79mg/dl.
  (albuminocytologic dissociation)

- Nerve conduction studies - axonal & demyelinating neuropathy: s/o GBS.

- MRI brain with whole spine screening: Normal study.
CORNEAL SMEAR: POSITIVE FOR RABIES VIRAL NUCLEOPROTIEN BY DIRECT FAT.

SALIVA : POSITIVE FOR NUCLEOPROTEIN GENE BY RT-PCR.

From
Dr. A. Palanisammi, Ph.D.,
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Madras Veterinary College,
Chennai- 600 007.

To
The Chief
Dept. of Paediatrics (Unit III),
Stanley Medical College,
Chennai – 600 001.

F. No.510 /ABT/Rabies lab/2013 Dated: 20.03.14

Sir,

Sub: MVC-ABT- Rabies testing –result communication-reg.

Ref: Your sample received on 18.03.14

~00~

I am herewith sending the result of rabies testing from our rabies laboratory for your information and further action.

Name of the Patient : Kousalya
Age and Sex : 12, F
Case No : 12754; Unit III
Type of sample : Corneal impression smear and saliva
Result : Positive for rabies viral nucleoprotein by direct FAT with corneal impression smear and positive for nucleoprotein gene by RT- PCR method with saliva sample.
- Whether to give I.V Ig or not ??
CSF : NEGATIVE FOR RABIES VIRAL NUCLEOPROTIEN GENE BY RT- PCR

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Chennai – 600 001.

F. No. /ABT/Rabies lab/2013 Dated: 21.03.14

Sir,

Sub: MVC-ABT- Rabies testing - result communication-reg.

Ref: Your sample received on 19.03.14

~oOo~

I am herewith sending the result of rabies testing from our rabies laboratory for your information and further action.

Name of the Patient : Kousalya
Age and Sex : 12, F
Case No : 12754, Unit III
Type of sample : Cerebrospinal fluid
Result : Negative for rabies viral nucleoprotein gene by RT- PCR method.
OUTCOME:

- Treated with i.v immunoglobulin for 5 days with complete recovery in about 3 wks.
- Came for follow up after 1 month of discharge.
**Antemortem Diagnosis of Human Rabies**

Ref: Juan Carlos Garcia-Monco (Text Book of Clinical Approach to CNS Infections)

<table>
<thead>
<tr>
<th>Tests</th>
<th>Specimens</th>
<th>Specificity %</th>
<th>Sensitivity %</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>DFA on corneal smear (antigen)</td>
<td>Corneal smear</td>
<td>90</td>
<td>30</td>
<td>Not very sensitive</td>
</tr>
<tr>
<td>DFA on skin biopsy (antigen)</td>
<td>Nuchal skin</td>
<td>100</td>
<td>50-70</td>
<td>More sensitive than corneal test</td>
</tr>
<tr>
<td>RT-PCR saliva</td>
<td>Saliva</td>
<td>100</td>
<td>50-70</td>
<td>Moderate sensitive</td>
</tr>
<tr>
<td>Real time PCR for saliva</td>
<td>Saliva</td>
<td>100</td>
<td>70-80</td>
<td>Higher sensitivity</td>
</tr>
<tr>
<td>Virus isolation from saliva by RTCIT</td>
<td>Saliva</td>
<td>100</td>
<td>70-80</td>
<td>Time consuming</td>
</tr>
<tr>
<td>Antibody detection in serum/CSF by RFFIT</td>
<td>Serum and CSF</td>
<td>100</td>
<td>70</td>
<td>Time consuming</td>
</tr>
</tbody>
</table>
Two forms of Rabies

Encephalitic (80%) (furious rabies) \[ \leftrightarrow \] Paralytic (20%) (dumb rabies)
Difficult to differentiate the Paralytic rabies from:

- vaccine induced GBS
- post vaccination myelitis
- acute disseminated encephalomyelitis
PARALYTIC RABIES

- Resembles Guillain Barre Syndrome.

- Progressive flaccid paralysis without an initial furious phase.

- 20 – 30% of rabies victims may present like this.

- More common after –
  - incomplete post exposure vaccination
  - rabid vampire bite.

- Vaccine induced GBS:
  - more common with Nervous tissue vaccine.
  - Use of Cell culture vaccine are encouraged.
**PARALYTIC RABIES**

- Mean incubation period: 49 days
- Fever at onset of disease.
- Sphincter disturbances and sensory symptoms.
- Absence of albumin-cytological dissociation.
- In NCS: severe axonopathy or neuronopathy is most consistent.

**VACCINE INDUCED GBS**

- Is 14 days.
- Absence of fever at the onset of weakness.
- Not seen.
- Present.
- In NCS: demyelinating features is more consistent.
**Paralytic Rabies**

- Progresses rapidly with early respiratory paralysis & death ensues within 7 - 11 days of symptom onset in all cases.

- **MRI brain:**
  
  exclusive involvement of grey matter including basal ganglia, thalami, pons & midbrain nuclei.

**Vaccine Induced GBS**

- Better outcome with immunotherapy.
- Mortality < 10%.

- **MRI brain:**
  
  usually normal.
**TAKE HOME MESSAGE**

- Patients who received the rabies vaccine after a dog bite, but anyway develop the rabies disease, are more likely to have a GBS like presentation.

- In all cases of GBS, we should enquire about h/o dog bite and ARV.

- If there is a diagnostic dilemma (whether Paralytic Rabies / or Vaccine induced GBS), for the benefit of the patient we can start immunotherapy as in a case of GBS.
THANK YOU...