INFANT WITH EOSINOPHILIC MENINGITIS

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HISTORY:

- 1 year old male infant
- Normal perinatal period and Normal development
- Came with IRRITABILITY & BULGING ANTERIOR FONTANALLE
- No fever/vomiting/seizures/drug ingestion
- VEGETARIAN DIET.
CSF EOSINOPHILS
EXAMINATION –
- Irritable, bulging AF, pulsatile, Head Circumference – 47 cm
- No squint/sunset sign
- CNS – otherwise normal
- Other systems – normal
- Fundus - normal

EVALUATION AT ADMISSION -
- CBC – leucocytosis with eosinophilia, AEC – 6612 cells/cumm
- MRI Brain – s/o meningoencephalitis
- CSF analysis – low sugar (36mg /dl), elevated protein (95 mg/dl), pleocytosis (750 cells/cumm) with high percentage of eosinophils (20 %)
- Treated with – Ceftriaxone & Acyclovir
- Blood, urine and CSF cultures – STERILE
- Latex agglutination for strep pneumoniae, H influenza and meningococcus – NEGATIVE
- CSF HSV PCR - negative
Issues...

- Persistent and increased irritability
- AF – bulging and pulsatile
- Increasing Head circumference – 0.5 cm in 1 week
- REPEAT EVALUATION -
- REPEAT MRI BRAIN – same as the previous MRI
- CSF ANALYSIS- persistent pleocytosis with eosinophil predominance (17%)
- Ophthalmological examination – Normal
- Stool – negative for parasites
- Immunoglobulin profile – elevated IgE (809), rest normal
**EOSINOPHILIC MENINGOENCEPHALITIS**

- Persisting symptoms, sterile CSF, persisting eosinophils in CSF
- Started on IV Dexamethasone – 3 days
- Followed by oral steroids
- IMPROVEMENT with above treatment within 48 hours
- Irritability decreased, AF was at level
On Follow up...

- Doing well
- No irritability
- AF at level
- Improving CSF picture
- Steroids – tapered and stopped
<table>
<thead>
<tr>
<th>BLOOD</th>
<th>AT ADMISSION</th>
<th>1 WEEK LATER</th>
<th>2 WEEKS LATER</th>
<th>AT FOLLOWUP</th>
</tr>
</thead>
<tbody>
<tr>
<td>TC</td>
<td>22,800</td>
<td>15,500</td>
<td>18,900</td>
<td>14,300</td>
</tr>
<tr>
<td>% N</td>
<td>28</td>
<td>32</td>
<td>13</td>
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</tr>
<tr>
<td>% L</td>
<td>40</td>
<td>40</td>
<td>82</td>
<td></td>
</tr>
<tr>
<td>% E</td>
<td>29</td>
<td>27</td>
<td>18</td>
<td>5</td>
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<table>
<thead>
<tr>
<th>CSF</th>
<th>AT ADMISSION</th>
<th>2 WEEKS LATER</th>
<th>AT FOLLOWUP</th>
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<tbody>
<tr>
<td>TC</td>
<td>750</td>
<td>1000</td>
<td>50</td>
</tr>
<tr>
<td>% N</td>
<td>20</td>
<td>5</td>
<td>8</td>
</tr>
<tr>
<td>% L</td>
<td>60</td>
<td>80</td>
<td>85</td>
</tr>
<tr>
<td>% E</td>
<td>20</td>
<td>15</td>
<td>7</td>
</tr>
<tr>
<td>RBC</td>
<td>300</td>
<td>NIL</td>
<td>2</td>
</tr>
<tr>
<td>SUGAR</td>
<td>36</td>
<td>36/109</td>
<td>36/107</td>
</tr>
<tr>
<td>PROTEIN</td>
<td>95</td>
<td>53</td>
<td>47</td>
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STEROIDS

STEROIDS
Eosinophilic meningitis is defined as the presence of more than 10 eosinophils/mm³ in the cerebrospinal fluid (CSF), and/or eosinophils accounting for more than 10 percent of CSF leukocytes.

The presence of eosinophils in the CSF should always be considered an abnormal finding.
WHY SHOULD WE KNOW ABOUT IT?

- Rare disease; true incidence not known and very few case reports of pediatric patients

- Distinctive identification of eosinophils in CSF is a necessary component

- May be missed as unless examined with appropriate stains (Giemsa or Wright)

- Steroids and repeated LP are important components of the treatment; unlike bacterial / viral meningoencephalitis.
<table>
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<tr>
<th>PARASITIC INFECTIONS</th>
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<tr>
<td>Angiostrongylus cantonensis, gnathostoma spinigerum (dog and cat roundworm), Bayliscaris procyonis (raccoon roundworm), ascaris lumbricoides, Trichinella spiralis, Taenia solium</td>
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<tr>
<th>NON – PARASATIC INFECTIOUS CAUSES</th>
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<td>Unusual manifestation of more common viral, bacterial or fungal infections of the CNS</td>
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<th>NON INFECTIOUS CAUSES</th>
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<td>Multiple sclerosis, malignancy, hypereosinophilic syndrome, as a reaction to medications or a VP shunt</td>
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How to diagnose?

- The diagnosis is based upon –

- presence of CSF eosinophilia (>10% of TC)

- epidemiologic history of exposure to infective larvae, underlying predisposing condition or history of drug ingestion.
Controversies in Treatment

- Supportive – analgesics

- CSF removal or shunting – relieves hydrocephalus and CSF pressure

- Steroids – relieve vasogenic edema and inflammation

- Anti helminthic agents and Antimicrobials
Learning Points

- Rare disease – pediatrician’s perspective
- Diagnosis – exclusively depends on detecting eosinophils in CSF
- Difficult to establish etiological diagnosis
- Management is controversial
THANK YOU