INTERESTING CASE OF PLEURAL EFFUSION

DR.K.BALAGANESH
DR.SHUBA
DR.RAJAKUMAR
PICU TEAM, SRMC
1 year old developmentally normal girl 2\textsuperscript{nd} born to non-consanguineous parents presented with:

- Fever - 1 day
- 1 episode of vacant stare lasting for less than 5 min. Loss of consciousness - 2 min.

- Admitted in a private hospital
COURSE IN REFERRING HOSPITAL

- Clobazam prophylaxis and other supportive treatment
- Tc-3700 cells/cumm
- Plat: 1.9 lakhs/cumm
- SGOT-42; SGPT-36
- CHEST XRAY: left sided pleural effusion with lower segmental collapse
- USG ABDOMEN: mild hepatosplenomegaly, minimal ascites, left lower lobe consolidation with synpneumonic effusion, pericholecystic fluid collection
- Referred to SRMC as Dengue Fever with febrile seizure
IN SRMC

- **General examination**: Febrile, PR-136/min, RR-52/min, BP-90/60mmHg, Intercostal & Subcostal retractions present. CFT-2secs, all peripheral pulses well felt.

- **Systemic examination**: RS – decreased air entry over the left axillary, interscapular, infrascapular. P/A - liver palpable 4.5 cm below RCM. Liver Span-13.5CM. Other systems normal.
INVESTIGATIONS

- Hb 9.6
- PCV 28.6
- Platelets 1.05
- CRP < 0.6
- TC 6810
- peripheral smear-normocytic normochromic, neutrophilia
- platelet-1.5 lakhs/cumm
- mp/mf-negative
Thoughts at this point

- Dengue fever
- Left Pneumonia with Effusion
- Scrub typhus

- Started on Ceftriaxone + Cloxacillin and Fluid therapy as per Dengue protocol
<table>
<thead>
<tr>
<th>DAY</th>
<th>1</th>
<th>2</th>
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<tbody>
<tr>
<td>HB</td>
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<tr>
<td>PCV</td>
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<tr>
<td>CRP</td>
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<tr>
<td>TC</td>
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<table>
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<tr>
<th></th>
<th>5&lt;sup&gt;TH&lt;/sup&gt; DAY OF ILLNESS</th>
<th>7&lt;sup&gt;TH&lt;/sup&gt; DAY OF ILLNESS</th>
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<tr>
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<td>0.1</td>
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<tr>
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<tr>
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<tr>
<td>ALBUMIN</td>
<td><strong>2.1</strong></td>
<td><strong>1.6</strong></td>
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<tr>
<td>GLOBULIN</td>
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<tr>
<td>ALP</td>
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- Dengue serology-negative,
- scrub typhus-negative,
- H1N1-negative
- QBC MP/MF-negative
- WIDAL-negative
- Blood culture & urine culture sterile
- Urine alb – 1+
- Sr.Ferritin-186.8
- Mantoux - Negative
- Coagulation profile
  - PT-20.4(14.1) INR-1.55
  - PTT-46.7(29.5)
Treatment

- Isotonic fluids
- CEFTRIAXONE+CLOXACILLIN
- Persistent fever spike +
- Repeat blood C/S-ACINETOBACTER growth
- Antibiotics stepped up but child continued to have fever
• **6th day of illness** –
  child developed progressive abdominal distention and edema of hand and feet

• **7th day of illness** –
  Multiple hyperpigmented nodules appeared over shins and gluteal region; Derm Review - **Erythema nodosum**

• **10th day of illness** –
  Thrombocytosis - 4.8 lakhs, ESR – 77, CRP - 2.4

• Peripheral smear- normocytic normochromic neutrophilia
  platelet - 12 lakhs/cumm
  MP/MF - negative
Persistent left pleural effusion
In view of Persistent fever spikes progressive LT pleural effusion and erythema nodosum-? Tuberculosis ?SLE

- Diagnostic/therapeutic pleural tapping done
- Cell count
  - WBC-89 cell/mm3
  - RBC-3800 cells/mm3
  - RBC norm-60%
  - RBC crenated-40%
  - P-56, L-44, E-nil
- BIOCHEMISTRY:
  - Sugar-68mg/dl
  - Protein-4.7g/dl
- Pleural fluid AFB-negative, Cytology-no malignant cells, c/s-sterile
- ANA-NEGATIVE
14\textsuperscript{th} day of illness

- Periungual peeling of fingers and toes
<table>
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</table>
Thoughts at this point

Kawasaki disease
Features fitted in to Kawasaki

- Fever persisting >5 days
- Edema of hands and feet on day 6
- Periungual peeling of fingers and toes-14th day
- Raised ESR
- Thrombocytosis after 1 week
- Hypoalbuminemia

- However never had conjunctivitis, oral mucosal changes, lymphadenopathy
- ECHO Normal
Treatment

- Aspirin (100mg/kg)
- IVIG (2G/KG)
- Afebrile for 4 days
- 4 days after IVIG - again fever spikes
- Reduced oral intake, vomiting
- Aspirin induced gastritis suspected
- LFT - hepatitis
- Aspirin dose stepped down
<table>
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<tr>
<th>Test</th>
<th>Before Aspirin</th>
<th>After Aspirin</th>
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<tbody>
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<td>3</td>
<td>2.9</td>
</tr>
<tr>
<td>GLOBULIN</td>
<td>5.6</td>
<td>5.5</td>
</tr>
</tbody>
</table>
In view persistent fever spikes-IV IG non responder was considered
Planned for second dose IV IG but not affordable
Treated with Methyl Prednisolone (30MG/KG/dose) X 3days
Further no fever spikes
Discharged with low dose aspirin (5mg/kg)
Oral Prednisolone tapered and stopped
Follow up

- HB 12.4
- PCV 37.8
- ESR 26
- CRP 0.6
Discussion and literature review
CLASSIC (TYPICAL) CLINICAL CRITERIA

- There is no specific diagnostic assay for Kawasaki disease
- Diagnosis of Kawasaki disease is established on clinical grounds
Principal clinical features for diagnostic criteria of Kawasaki

Principal clinical features

1. *Fever persisting > 5 days*

2. Presence of 4 of the following principle features:

   a. Changes in extremities
      
      (1) **acute**: erythema of palms and soles; *edema of hands and feet*
      
      (2) **sub acute**: periungual peeling of fingers and toes in weeks 2&3

   b. polymorphous exanthema

   c. bilateral bulbar conjunctival injection without exudate

   d. changes in the lips and oral cavity: erythema, lip cracking, strawberry tongue

   e. cervical lymphadenopathy (>1.5cm in diameter) usually unilateral
# Diagnosis of Kawasaki

1. > 5 days fever + 4/5 principal clinical features

2. > 5 days fever + < 4/5 principal clinical features + coronary artery abnormalities
Laboratory findings in acute Kawasaki disease

- Leukocytosis with neutrophilia and immature forms
- Elevated ESR
- Elevated CRP
- Anemia
- Abnormal plasma lipids
- Hypoalbuminemia
- Hyponatremia
- Thrombocytosis after 1 week

- Sterile pyuria
- Elevated serum transaminases
- Elevated serum gamma glutamyl transpeptidase
- Pleocytosis of cerebrospinal fluid
- Leukocytosis in synovial fluid
Incomplete (atypical) Kawasaki disease

Incomplete Kawasaki disease refers to patients who do not fulfill the classic criteria of at least four of the five findings

It is more common in children younger than one year, in whom the rate of coronary artery aneurysms is paradoxically higher if not treated

Atypical manifestations

Cardiovascular findings
- Myocarditis
- Raynaud’s phenomenon
- Peripheral gangrene

Musculoskeletal system
- Arthritis, arthralgia

Gastrointestinal tract
- Diarrhea, vomiting, abdominal pain
- Hepatic dysfunction (Hypoproteinemia)
- Hydrops of gallbladder

CNS
- Extreme irritability
- Aseptic meningitis (CSF pleocytosis)
- Sensorineural hearing loss

Genitourinary system
- Sterile pyuria

Other findings
- Erythema, induration at BCG inoculation site
- Anterior uveitis (mild)
Evaluation of Suspected Incomplete Kawasaki Disease (KD)\textsuperscript{1}

1. Fever $\geq 5$ days and 2 or 3 clinical criteria\textsuperscript{2}

2. Assess Patient Characteristics\textsuperscript{3}
   - Consistent with KD
     - Assess Laboratory Tests
       - CRP $< 3.0$ mg/DL and ESR $< 40$ mm/hr
         - Follow Daily
           - Fever continues for 2 days
           - Fever resolves
             - No Peeling
               - No f/u
               - Echo\textsuperscript{6}
             - Typical Peeling\textsuperscript{8}
               - Echo\textsuperscript{6}
     - CRP $\geq 3.0$ mg/DL and/or ESR $\geq 40$ mm/hr
       - $< 3$ Supplemental Laboratory Criteria\textsuperscript{4}
         - Echo
           - Echo -
             - Fever persists
             - Fever abates
               - Treat\textsuperscript{7}
           - Echo +\textsuperscript{8}
             - Treat\textsuperscript{7}
       - $\geq 3$ Supplemental Laboratory Criteria\textsuperscript{4}
         - Treat and Echo\textsuperscript{9}

3. Inconsistent with KD
   - Persistent Fever
     - KD Unlikely

4. Persistent Fever
   - KD Unlikely
Chest x ray finding in Kawasaki disease

- Abnormal CxR -14.7%
- Reticulogranular pattern(89.5%), Peribronchial cuffing(21.1%),
- Pleural effusion(15.8%), Atelectasis(10.5%) and air trapping(5.3%)
- Pathological basis not clear -lack of HPE.
- Probably inflammation &/vasculitis/pulmonary edema-CCF

(Pediatr Radiol 1989)
Kawasaki Disease Presenting with Hemorrhagic Pleural Effusion

Susand’souza, rajup. Khubchandani

Atypical Relapsing Course of Kawasaki Disease with Hemorrhagic Serous Effusions and Hepatic Dysfunction

K.E. Elizabeth M. Zulfikar Ahamed, K.S. Praveen

- Unresolving Pneumonia as the main manifestation of atypical Kawasaki disease; *arch dis child* 2003:940-942.
Take home message

- Common presentation of Kawasaki disease is well known but when they present with unusual manifestation they pose diagnostic challenge.
THANK YOU