AN UNUSUAL CASE OF FATIGUE, EOSINOPHILIA AND MYALGIA

Presenter – Dr Tushar Vidhale
Moderator – Col R. K. Anadure, VSM, Sr Adv Med and Neurologist
47-year, gentleman

Serving officer (Air Force)

Resident of Lucknow, UP

Engineer by Profession

Informant – self & Reliable

Old case of

Hypertension x 8 yr (Telmisartan 40 mg OD)
CHIEF COMPLAINTS
(Feb 2018)

- Easy Fatigability x 3 months
- Fever x 1 month
- Body ache and muscle stiffness x 1 month
Easy fatigability x 3 months

- Reduced capacity to maintain daily activity
- Increased time for recovery after any exertion
- Initially able to run for 5 km daily, which gradually reduced to 1-2 km.

- Associated with constitutional symptoms
  - Anorexia
  - Night sweats
  - Weight loss (9 kg over 3 months)
HOPI

- Fever x 1 month
  - Intermittent (Range 99°F to 101°F)
  - Associated with chills but no rigors
  - Evening rise present
  - No history suggestive of localizing symptoms
  - No h/o recent travel or outdoor camping
Severe body ache x 1 month

Used to worsened with exertion

Associated with

- Muscle stiffness with early morning worsening
- Feeling of tightening of skin & muscles around arm, thigh and chest
- Painful nocturnal cramps
- No fasciculations noted
At the time of presentation.....

- Disabled due to progressive skin and muscle tightening leading to \textit{flexion contractures} at both elbow and knee joints

- Ambulating with \textit{one person support}

- Needed assistance to perform most \textit{activities of daily living}
HOPI

- No history of ..... 
- joint swelling / joint pain/ rash/ oral ulcers
- Raynaud's phenomenon
- Sensory disturbances
- Alternative medication usage
HISTORY

- **Past History**
  - He started **strenuous physical exercises** and long distance running (5-10 KM per day) 3 months prior to onset of illness
  - No h/o DM / Thyroid disorders / Tuberculosis / CKD
  - No h/o similar complaints in past

- **Personal History**
  - Mixed diet
  - No substance abuse / high risk behavior
  - Normal bowel and bladder habits
HISTORY

- **Family History**
  - No h/o similar complaints in family members.

- **Treatment history**
  - Managed initially at a private hospital as a case of **Enteric Fever (?) Basis**
    - Tab Cefixime 200mg BD x 10 days
    - Fever & malaise settled temporarily for 1 week
    - But worsened rapidly thereafter, when he was admitted to CHAF
CLINICAL EXAMINATION

- BMI – 21.39 kg/ m²
- **Pulse** – 98/min
- BP – 126/ 84 mm of Hg
- **Temp range** – 98.6 to 100⁰ F
- No pallor/ icterus/ cyanosis/ lymphadenopathy/ clubbing
- No rash
Fixed flexion deformity (10-30°) involving bilateral Elbow
Skin tightening with induration over the forearm with “Groove sign”
GROOVE SIGN ARM

Muscles tender to deep palpation
CLINICAL EXAMINATION

- **CNS**
  - HMF – normal
  - Speech/CN – Normal
  - Motor
    - Bulk – **Mild atrophy** of arm, forearm, thighs & calves, no fasciculations evident
    - Tone – *increased with stiff & woody feel* of the arm and thigh muscles which seemed adherent to the overlying skin
    - Power - **4 +/-5 all four limbs** (formal examination was not possible due to FFD and severe myalgia)
  - Reflexes
    |       | Biceps | Triceps | Supinator | knee | Ankle | planters |
    |-------|--------|---------|-----------|------|-------|----------|
    | Right | +++    | ++      | ++        | +++  | ++    | Flexor   |
    | Left  | +++    | ++      | ++        | +++  | ++    | Flexor   |
CLINICAL EXAM

- CVS – S1, S2 normal, No S3, S4 or Murmurs

- Chest – Normal vesicular breath sounds B/L
  No adventitious sounds

- P/Abd – Soft, No palpable organomegaly
  No free fluid evident, BS - normal
Autoimmune CTD
- Dermatomyositis (overlap with scleroderma)
- Localized forms of Systemic Sclerosis
- MCTD

Post infectious Polymyositis

Paraneoplastic manifestations
- Scleromyxedema
# INVESTIGATION

## CBC

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hb</td>
<td>11.9 gm%</td>
</tr>
<tr>
<td>RBC count</td>
<td>5.38 millions/ mm³</td>
</tr>
<tr>
<td>TLC</td>
<td>7,900/mm³</td>
</tr>
<tr>
<td>DLC</td>
<td>P 59%, L 26%, E 11%, M 04%</td>
</tr>
<tr>
<td>Plt</td>
<td>8,51,000/mm³</td>
</tr>
<tr>
<td>AEC</td>
<td>850 cells/microL</td>
</tr>
</tbody>
</table>

## BIOCHEMISTRY

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bil (T/D)</td>
<td>0.25/0.15 mg/dl</td>
</tr>
<tr>
<td>OT/PT/SAP</td>
<td>17/62/121 U/L</td>
</tr>
<tr>
<td>BUN / Cr</td>
<td>13/0.5mg/dl</td>
</tr>
<tr>
<td>BS Fasting/</td>
<td>83/94 mg/dl</td>
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<tr>
<td>Hba1c</td>
<td>6.1 %</td>
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## INVESTIGATIONS

<table>
<thead>
<tr>
<th>INFECTION RELATED WORKUP</th>
<th></th>
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<tbody>
<tr>
<td>Scrub typhus IgM</td>
<td>Negative</td>
</tr>
<tr>
<td>Brucella IgM and IgG</td>
<td>Negative</td>
</tr>
<tr>
<td>Leptospira IgM</td>
<td>Negative</td>
</tr>
<tr>
<td>Blood C &amp; S</td>
<td>No growth</td>
</tr>
<tr>
<td>Urine C &amp; S</td>
<td>No growth</td>
</tr>
<tr>
<td>HIV/ HBsAg / Anti HCV</td>
<td>Negative</td>
</tr>
</tbody>
</table>
# INVESTIGATIONS

<table>
<thead>
<tr>
<th>Hematological workup</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>LDH</td>
<td>301.31 U/L (0 - 250)</td>
</tr>
<tr>
<td>PBS</td>
<td>Microcytic Hypochromic anisocytosis with eosinophilia and thrombocytosis</td>
</tr>
<tr>
<td>Vit B12</td>
<td>2000 pg/ml (211 – 911 )</td>
</tr>
<tr>
<td>25 hydroxy cholecalciferol (Vit D)</td>
<td>53.38 ng/ml (&gt; 30)</td>
</tr>
<tr>
<td>TSH</td>
<td>0.69 μIU/ml (0.2 – 4.2)</td>
</tr>
<tr>
<td>Ferritin</td>
<td>200 ng/ml (24 - 336)</td>
</tr>
</tbody>
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<table>
<thead>
<tr>
<th><strong>IFLAMMATORY / AUTOIMMUNE</strong></th>
<th></th>
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<tbody>
<tr>
<td><strong>ESR</strong></td>
<td>14 mm at end of first hour</td>
</tr>
<tr>
<td><strong>CRP</strong></td>
<td><strong>99.8</strong> mg/L (0 - 5)</td>
</tr>
<tr>
<td><strong>IgM RF</strong></td>
<td><strong>26.4</strong> IU / ml (0 - 14)</td>
</tr>
<tr>
<td><strong>Anti CCP</strong></td>
<td>Negative (&lt; 7 U/ml)</td>
</tr>
<tr>
<td><strong>ANA by IF and ELISA</strong></td>
<td>Negative</td>
</tr>
<tr>
<td><strong>ANA Profile</strong></td>
<td>Negative</td>
</tr>
<tr>
<td><strong>NFC (Nail Fold Capillaroscopy)</strong></td>
<td>Normal</td>
</tr>
<tr>
<td><strong>CPK</strong></td>
<td>68 U/L (0 – 200)</td>
</tr>
<tr>
<td><strong>Myositis profile</strong></td>
<td>NEGATIVE</td>
</tr>
<tr>
<td>(Mi2,Ku,PM- SCL 100/75,Jo 1, SRP, PL -7 , PL – 12, EJ, OJ,RO 52)</td>
<td></td>
</tr>
<tr>
<td><strong>p ANCA / c ANCA</strong></td>
<td>Negative</td>
</tr>
</tbody>
</table>
STIR hyperintensities involving intermuscular planes and deep fascia of both thigh and arms involving all compartments.
Visualized muscles were normal in signal characteristics and no evidence of edema/ fatty infiltration.
INVESTIGATION

- **CXR/ USG Abdomen – NAD**

- **EMG –**
  - Normal insertional and spontaneous activity.
  - Low amplitude MUP with early and complete recruitment.
  - Suggestive of **myopathic pattern**
## INVESTIGATIONS

<table>
<thead>
<tr>
<th>Malignancy work up</th>
<th></th>
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</thead>
<tbody>
<tr>
<td>Sr PSA</td>
<td>2 ng/ml (&lt; 4) (Negative)</td>
</tr>
<tr>
<td>Sr AFP</td>
<td>3 ng/ml (&lt; 6) (Negative)</td>
</tr>
<tr>
<td>CA 19.9</td>
<td>4 ng/ml (&lt;37) (Negative)</td>
</tr>
<tr>
<td>CEA</td>
<td>1 microgram/L (&lt;2.5) (Negative)</td>
</tr>
<tr>
<td>PET CT WHOLE BODY</td>
<td>Mildly increased symmetrical uptake in all muscle groups of limbs. No evidence of occult malignancy.</td>
</tr>
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3/26/2019
DIAGNOSTIC TEST !!
Skin biopsy

Skin histology showing reactive changes in the epidermis and upper dermis.

Microphotograph showing perivascular inflammation (arrow) in the deep dermis.
Microphotograph showing inflammation (arrow) involving the adjacent fascia.

Microphotograph showing perivascular inflammation (arrow) in the fascia. The inflammatory cells include lymphocytes, plasma cells and a few histiocytes.
Microphotograph showing **focal perimyseal inflammation** (arrow)
FINAL DIAGNOSIS

- EOSINOPHILLIC FASCITIS WITH FOCAL MYOSITIS
  - Clinically
    - inflammatory features (Fatigue, early morning worsening, fever, weight loss )
    - Involvement of skin with tightening and induration
    - Muscle cramps with tightening, stiffness & Groove sign
    - FFD (Fixed Flexion Deformity)
  - Investigations
    - Increased inflammatory markers
    - Eosinophilia
    - Normal CPK & myositis profile
    - Imaging suggestive of diffuse skin and fascia involvement
    - EMG – Suggestive of myopathic pattern
    - Biopsy – Chronic Inflammation of Skin, Fascia & Perimyseal region
Management

- IVIG Pulse (2 gm/kg over 5 days)
- Tab Prednisolone 60 mg OD x 6 weeks (10 mg per week taper to a maintenance dose of 10 mg OD)
- Tab Azathioprine 50 mg BD
- Tab Shelcal 500 mg BD
- Vit D Sachet 60000 U monthly
- Multivitamins
- Tab Pregabalin 75 mg BG
- Tab Baclofen 10 mg TDS
Follow Up

- Showed **dramatic subjective improvement** in symptoms after IVIG (Fever, fatigue and cramps subsided in 1 week).

- Gradually showed **improvement in his range of movements** with physiotherapy & stretching exercises.

- Has residual **mild Flexion contractures** at both elbow.

- **Independent for all activities of daily living** and joined back duties 1 month after starting therapy.
DISCUSSION
EOSINOPHILIC FASCITIS (EF)

- Rare disease (92 cases in Literature so far)

- Also known as SHULMAN’S disease (1974).

- Mimics with scleroderma (skin changes)
  - but in EF on deep tissue biopsy - evidence of diffuse fasciitis.

- In 50% of patients preceding history of strenuous exercise.
Clinical Manifestations of EF (3 Stages)

- Occurs in **3 stages**:
  - The **first stage**
    - *Peau d’orange appearance and indurations of skin*
      - Due to pitting and edema of the affected skin
  - The **second stage**
    - *Groove sign* over affected sites.
      - Due to dermal and fascial involvement.
  - The **third stage**
    - *Flexion contractures* and functional disability
      - Due to periartricular involvement and atrophy of muscles
## Systemic sclerosis Vs EF

<table>
<thead>
<tr>
<th>Systemic Sclerosis</th>
<th>Eosinophilic fasciitis</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Raynaud’s Phenomenon</strong> (develops at or near the time of the earliest skin changes).</td>
<td>Absence of Raynaud’s Phenomenon</td>
</tr>
<tr>
<td><strong>Nailfold capillaries</strong> (dilated capillary loops and avascular areas)</td>
<td>NFC Normal</td>
</tr>
<tr>
<td>The <strong>fingers, feet, and face are affected since beginning.</strong></td>
<td>The fingers, feet, and face are spared.</td>
</tr>
<tr>
<td><strong>Internal organ involvement</strong></td>
<td>Absence of internal organ involvement</td>
</tr>
<tr>
<td><strong>Serum ANAs or SSc-specific autoantibodies.</strong></td>
<td>ANA - negative</td>
</tr>
</tbody>
</table>
Aim of Presentation

- Clinicians should recognize the atypical features of EF and differentiate it from SSc.

- The big clue is that the pathology is in the fascia below the skin in EF, which typically is spared in SSc.

- It is not a vasculopathy and hence, the absence of Raynaud's phenomenon.

- The physical examination findings of "Groove sign" and absence of internal organ involvement, clearly points away from scleroderma.

- This is critical, because EF, clinical course, prognosis, and response to therapy are completely different from SSc, with EF having better response and clinical outcomes.
THANK YOU