This is a challenging & complex case of severe, life-threatening leg cellulitis resulting in leg amputation

A 45y old male presented with severe cellulitis of his right leg after returning from visiting family in rural Sri Lanka

He had suspected arachnid or snake bite while asleep on the ground 5 days prior to admission after heavy alcohol intoxication

Methods

- Patient visited local Dr with blistering, pain & swelling in the leg
- Flew to the UK where he presented to Hospital with severely oedematous & painful leg extending to his groin.
- Puncture wounds were clearly visible on the lower leg
- Blood markers on admission showed marked inflammation, low Albumin and deranged clotting

<table>
<thead>
<tr>
<th>WCC</th>
<th>15.5</th>
</tr>
</thead>
<tbody>
<tr>
<td>CRP</td>
<td>342</td>
</tr>
<tr>
<td>Albumin</td>
<td>28</td>
</tr>
<tr>
<td>Creatinine</td>
<td>72</td>
</tr>
<tr>
<td>INR</td>
<td>1.6</td>
</tr>
</tbody>
</table>

- He was started on broad-spectrum antibiotics
- Consultation was sought from the surgeons; they ruled out necrotising fasciitis & recommended to treat as severe cellulitis with antibiotics & strict leg elevation
- An opinion was obtained from the Snakebite Emergency Response System (SERS), Liverpool. Advice given: if this was snake bite, it was too late for anti-toxin

Results

- Wound swabs grew *Streptococcus pyogenes*. Because of this and the aspect of the puncture wounds, as well as the rapid clinical deterioration, the patient was treated with anti-toxin on advice of PHE, while awaiting for the toxigenicity results

This represented a high risk since use of diphtheria anti-toxin is associated with 1/10 cases of anaphylaxis, hence the patient was transferred to the intensive care unit (ICU) for its administration

It later emerged that this strain was non-toxigenic

Within the next 48h the patient deteriorated:

- Biochemical markers worsened: He developed chest pain & Troponin T raised
- ECHO showed impaired systolic function with hypokinesis. Mild pericardial effusion

- He also had acute respiratory deterioration with increased oxygen requirements, & the abdominal wall became swollen
A computerised tomography chest/abdomen/pelvis (CT CAP) showed upper lobe ground glass consolidation & bilateral small pleural effusions
There was extensive subcutaneous oedema around the pelvis, extending into the legs particularly on the right. There was hepatomegaly

- At this stage, the differential diagnosis was wide. The case was discussed with the National Fever Service who provided a wide differential diagnosis

  - Disseminated *S. aureus*
  - *Tularaemia*
  - *Yersinia pestis*
  - Anthrax

- He clinically deteriorated further requiring inotrope support
- Surgeons re-assessed him and explored his leg in theatre
- A life-saving above knee amputation (AKA) was made since “purulent fasciitis extending from ankle to knee” was seen & an incision of the medial thigh released large amount of purulent fluid

- Surgical specimens grew *Streptococcus pyogenes*, & Panton Valentine Leukocidine (PVL)-producer *Methicillin Resistant Staphylococcus aureus* (MRSA)

- Antibiotics were rationalised & after several surgical interventions and wash outs by plastics, the patient had a dramatic clinical improvement, & the inflammatory markers settled rapidly

Discussion and Conclusions

- We present a complex and challenging case with several false leads that delayed rapid diagnosis & treatment of necrotising fasciitis
- This case emphasises difficulties in diagnosing certain infections, particularly originating in the tropics, when there may be distracting factors
- Presentation of a patient who sleeps outdoors and is bitten by an animal, which may be poisonous or carries transmissible pathogens, is usual in this context
- Advice from the SERS was sought twice; the puncture wounds in the patient’s leg were very suggestive of a snake bite. However, if this was the case, time lapse between the bite and presentation was too long for anti-toxin to be indicated, since the venom would already have been metabolised and excreted

  - *C. diphtheriae* is common in Sri Lanka. We identified 6 cases of cutaneous diphtheria since 2014 in patients returning from Sri Lanka. However, these isolates were non-toxigenic

- The use of anti-toxin was extensively discussed with PHE. Decision to administer was based on: history, wound characteristics, presence of *C. diphtheriae* in the wounds, and severe systemic compromise. This was carefully balanced with the 10% risk of anti-toxin-related anaphylaxis, as well as the scarcity of its availability

- The case complexity was highlighted by the need to involve the National Fever Service forum. This complexity, together with all the false leads mentioned, sadly delayed prompt treatment of a life threatening necrotising fasciitis

Verbal consent was obtained from the patient