Melioidosis presenting as pyrexia of unknown origin and Sweet syndrome; a rare case

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Introduction

Melioidosis is an infection caused by the facultative intracellular gram-negative bacterium *Burkhoderia pseudomallei*. This disease is endemic in South East Asia and Northern Australia and increasing numbers of cases are being reported from Sri Lanka[1].

It has various presentations ranging from localized infection to overwhelming sepsis and death. Cutaneous manifestations of melioidosis vary greatly such as cutaneous abscesses, granulomas, cellulitis, purpura, pustules, urticarias. Infection is usually acquired via direct contact of abraded skin with contaminated soil or water[2].

Sweet syndrome is a neutrophilic dermatosis characterized by abrupt onset erythematous, tender, plaques preferably affecting head, neck and upper limbs, with fever and neutrophil leucocytosis. Aetiology remains unclear but numerous diseases such as infections, autoimmune diseases, malignancies and drugs have been associated.

Although Sweet syndrome has been reported to be associated with various types of infections, according to our knowledge it has never been reported in association with melioidosis in the literature. Here in we report a 33-year-old man with melioidosis presenting as Sweet syndrome.

Case report

A 33-year-old previously healthy man presented with 3 weeks duration of intermittent fever with chills, rigors and arthralgia affecting the knees. On the 10th day of fever patient developed painful erythematous swellings affecting the hands and ear lobes associated with bilateral red eyes. There was no history of diabetes mellitus, liver disease or renal disease.

He was a mason also engaged in paddy cultivating during leisure times. He was a non smoker and a teetotaller.

Upon presentation he was ill, febrile with a temperature of 102°F. Examination revealed bilateral red eyes with plum coloured painful plaques affecting hands, feet and ear lobes. He was haemodynamically stable and rest of the systemic examination was unremarkable.

Baseline investigations showed,

- Full blood count; neutrophilia with left shift
- ESR; 109 mm
- CRP; 70mg/dl
- CXR - normal
- UFR - normal
- blood cultures; negative
- Skin biopsy showed papillary dermal oedema and leukocytoclastic debris suggesting Sweet syndrome.

Diagnosis of Sweet syndrome was made based on lesional morphology, consistent histological findings, and fever with constitutional symptoms, neutrophil leukocytosis, high ESR, and CRP.

He was started on prednisolone and skin lesions completely resolved but fever persisted.

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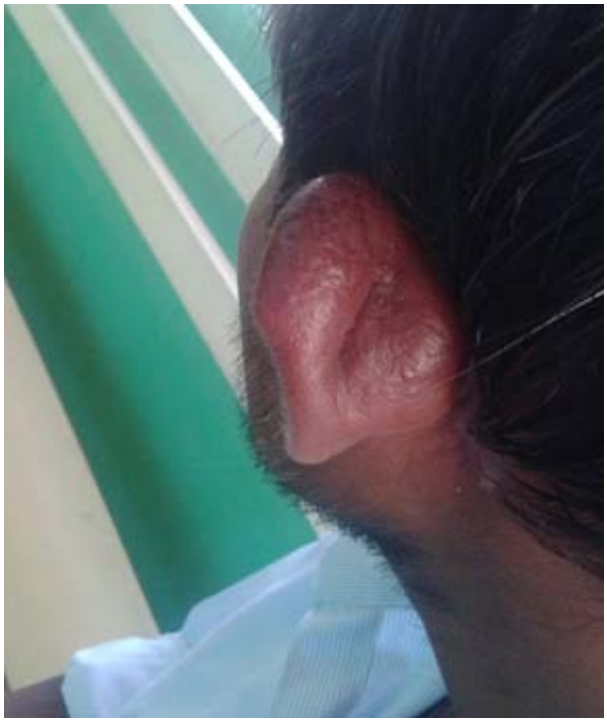

Figure 1. *Plum coloured plaque on ear.*

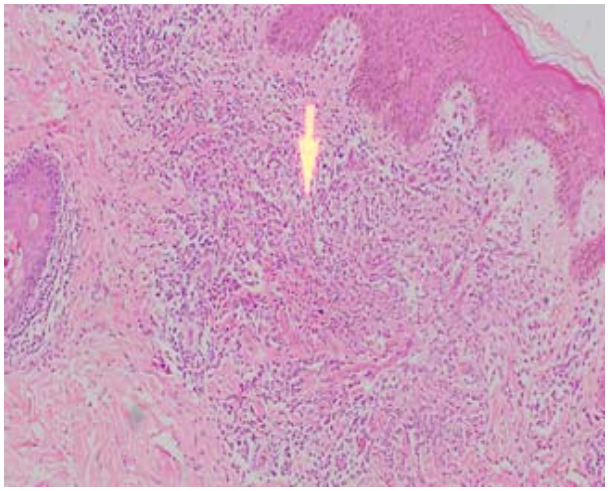

Figure 2. *Histology X100.*

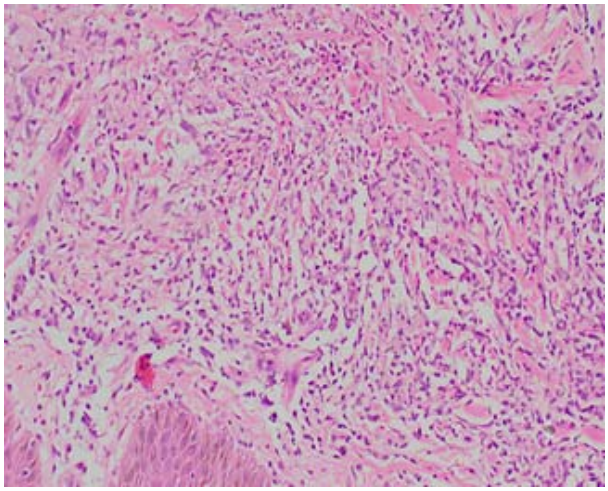

Figure 3. *Histology X200.*

Therefore we investigated further to evaluate pyrexia of unknown origin and possible underlying causes of Sweet syndrome.

- 2D Echocardiogram and ultrasound abdomen – normal.
- Mantoux test – negative
- Typhoid and Brucellosis serology – negative
- ANA, RF, vasculitis screen (pANCA, cANCA, Cryoglobulin levels – negative
- Malarial parasites – negative
- Blood picture – suggestive of bacterial infection
- Mycloma screening – negative
- HIV serology – negative
- Bone marrow biopsy – reactive marrow

Since patient was engaged in paddy cultivating, we did melioidosis antibody titire which was significantly positive with titre of >10204.

Diagnosis of melioidosis is usually established by isolating the organisms from blood or rising antibody titer. In our patient although the blood cultures were negative, his antibody titer was very high which made us to establish the diagnosis of melioidosis in consultation with microbiology team.

Patient was started on high dose IV ceftazidime 2g 8 hourly and oral cotrimoxazole 960 mg twice daily after getting consultant microbiologist's opinion. Fever responded initially but reappeared on day 15 of antibiotic treatment since fever reappeared; he was investigated for the possibility of internal abscesses with CT head, chest, abdomen and pelvis, which were negative.

Antibiotics changed over to IV meropenem 1g 8 hourly with oral cotrimoxazole after discussing with microbiology team. He showed good response with resolution of fever and reduction of inflammatory markers.

IV merapenem was continued for 42 days along with co-trimoxazole and eradication phase continued with oral cotrimoxazole for another 90 days.

Discussion

Meleioidosis is an emerging infection in Sri Lanka with an increasing number of cases being reported. It is caused by the facultative intracellular gram negative bacterium *Burkhoderia pseudomallei*[1].

Since the clinical presentation of melioidosis is not distinctive, and may range from chronic suppurative disease to acute sepsis, a high index of clinical suspicion is required.

First published case in Sri Lanka was in 1917, reported in a European tea broker who was resident in Sri Lanka. Thereafter several cases were found in 1994. Organism had isolated from lung abscess in a tourist returning to Holland from SriLanka. Then in 2006 and 2005 two cases were identified in blood and pus samples from symptomatic patients[1]. In 2006 to 2014 there were 32 culture confirmed melioidosis cases reported[2] so far we have identified significant number of patients of melioidosis all over Sri Lanka mainly from rural areas[3].

Cutaneous manifestations of melioidosis vary greatly such as cutaneous abscesses, granulomas, cellulitis, purpura, pustules, urticarias which we didn't see in our patient. Infection is usually acquired via direct contact of abraded skin with contaminated soil or water. Therefore high incidences are reported in farmers, agricultural workers especially during rainy season[4]. Melioidosis is more prone to occur in patients with comorbidities like diabetes mellitus, CKD, malignancies, chronic lung diseases and alcoholism. Incubation period may extend from days to years[5]. Our patient also had farming exposure, which made us to suspect melioidosis even though he didn't have any other predisposing conditions.

Diagnosis is established by isolation of organism in pus, exudate, sputum or blood etc. and high IgM antibody titers in blood[6]. Though blood cultures were negative melioidosis antibody titer became highly positive >10204 which enable us to diagnose. Low antibody titers can be seen in some people in endemic areas but very high titers like in our patient is diagnostic.

Since infection has a prolonged latency period, it needs treatment of acute phase as well as eradication phase with multiple antibiotics for a sufficient period. Acute phase is usually treated with IV ceftazidime with or without cotrimoxazole. Imepenums are also effective. Eradication phase needs 3 months course of cotrimoxasole/doxycycline/chloramphenicol. Antibiotic sensitivity varies greatly according to strain pattern and geographical area[7]. Our patient initially responded to IV ceftazidime but later we had to treat with IV merapenem with oral cotrimoxazole during acute phase and continued with oral cotrimoxasole, in eradication phase.

Sweet syndrome is a neutrophilic dermatosis characterized by abrupt onset erythematous, tender, plaques with juicy appearance mostly on head, neck and upper limbs, with fever and neutrophil leucocytosis. Aetiology remains unclear but numerous diseases such as infections, autoimmune diseases, malignancies and drugs have been associated[8].

Diagnostic criteria of Sweet syndrome as follows and our patient fulfilled 2 major with 3 minor criteria[9]

Major

1. Acute onset of typical lesions
2. Histopathological findings consistent with Sweet syndrome

Minor

1 Fever>38°C

2 Association with malignancy, inflammatory disorder or
Pregnancy, or antecedent respiratory or gastrointestinal infection

3 Excellent response to systemic corticosteroids or potassium iodide (KI)

4 Abnormal laboratory values at presentation (three of four required: ESR >20 mm; leukocytes >8000; neutrophils >70%; elevated C-reactive protein)

Although Sweet syndrome has been reported to be associated with various types of infections, according to our knowledge it has never been reported in association with melioidosis in the literature.

This case report serves to highlight the importance of recognizing Sweet syndrome as a part of protean manifestations of melioidosis.

Conflict of interest

None

References

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