

## Cutaneous melioidosis presenting as multiple abscesses

Dear Editor,

Melioidosis is caused by *Burkholderia pseudomallei*. It can affect multiple organ systems and is most commonly encountered in immunocompromised individuals.<sup>1</sup> Cutaneous involvement can occur primarily or secondary to dissemination from other organ involvement.<sup>2</sup> The cutaneous lesions may present with varied morphologies, such as abscesses, cellulitis, ulcers and nodules. Hence, they can mimic many other common cutaneous infections. We describe a case of multifocal cutaneous abscess due to *Burkholderia pseudomallei* in a patient with breast carcinoma.

A 51-year old housewife, a patient with metastatic carcinoma of the breast, presented with multiple skin swellings with mild pain, developing over a week. There was no history of fever or other systemic symptoms. She had completed chemotherapy for the malignancy two years ago and had received one cycle of radiotherapy. She did not recall any history of trauma or outdoor activity prior to the development of the lesions. On examination, there were multiple well-to-ill-defined abscesses, with an indurated surface at the outer portion with apparently normal-looking skin and a central area showing erythema, distributed over the trunk and extremities [Figure 1]. On palpation, the swellings showed softening in the central part with minimal tenderness. She was admitted with a provisional diagnosis of bacterial abscess. Routine tests were normal. Aspirated pus was sent for culture and sensitivity testing, and showed growth of *Burkholderia pseudomallei* sensitive to ceftazidime, meropenem and cotrimoxazole [Figures 2a, 2b, and 2c]. Pus was negative for the cartridge-based nucleic acid amplification test for *Mycobacterium tuberculosis*. Complete blood counts were within normal limits. The blood sample was negative for culture and sensitivity. A final diagnosis of multifocal cutaneous melioidosis was made. She received intravenous meropenem for three weeks and oral cotrimoxazole for two months. Few of the abscesses necessitated incision and drainage [Figure 3]. All the lesions had healed completely with post-inflammatory hyperpigmentation by the two-month follow-up. The patient was advised to continue oral cotrimoxazole for an additional four months.



**Figure 1:** Right buttock showing skin-coloured to erythematous nodular swelling with erythema limited to the central part only.

Melioidosis is one of the emerging pathogens which can affect almost all organ systems. Immunocompromised individuals are more likely to develop all forms of cutaneous melioidosis.

The causative organism is found in water and soil in the endemic areas. Minor skin abrasions usually act as the point of entry and can result in primary localised cutaneous melioidosis. Multifocal lesions may result from the haematogenous dissemination.

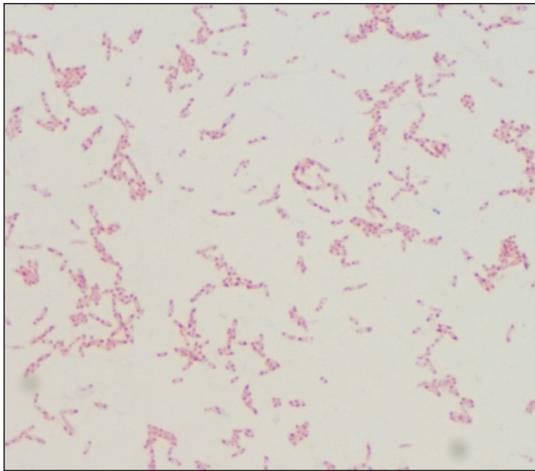
The morphological presentation may be varied; and can thus lead to confusion and delay in diagnosis. Various presentations include nodular lesions, abscesses, cellulitis, and ulceration. Such lesions may be caused due to a large number of pathogenic organisms. Hence, history of

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**Figure 2a:** Image showing classical safety pin appearance of the Gram negative organism. [Gram stain, 100x].



**Figure 2c:** Cream-coloured colonies of *Burkholderia pseudomallei* on blood agar.



**Figure 3:** Complete healing of the lesion at two months follow-up.



**Figure 2b:** Pink colonies of *Burkholderia pseudomallei* on MacConkey agar.

evolution and clinical morphology may help in diagnosis. We have compiled the various characteristic features of these differentials in Table 1.

Our case had multiple abscesses, with only the central part of the abscess showing erythema with minimal pain. Fever was absent. This presentation may be labelled as a partially cold abscess. Identifying this morphological pattern may help in differentiating melioidosis abscess from other causes of cutaneous abscesses.

Diagnosis of melioidosis is by isolation of the organism in the clinical samples, using various methods, such as culture media like blood agar, MacConkey agar, or selective media like Ashdown's medium or *Burkholderia pseudomallei* selective agar.<sup>1,3</sup> VITEK medium can identify the organism with 99% probability.<sup>1</sup> 16SrRNA and groEL gene sequencing, identification by polymerase chain reaction, indirect hemagglutination assay, enzyme-linked immunosorbent assay, lateral flow immunoassay, and matrix-assisted laser desorption ionisation time-of-flight mass spectrometry (MALDI-TOF MS) are few of the newer diagnostic techniques, but the utility of these methods is limited due to non-availability in resource-poor centres.<sup>3,4</sup> Once the diagnosis is established, the treatment comprises of two phases: intensive phase of intravenous administration of meropenem or ceftazidime, followed by a continuation phase of oral cotrimoxazole for six months.

Our case showed that the lesions started as skin-coloured swellings with induration, and there was gradual evolution of erythema and softening in the central parts of the abscess. This finding was consistent in all the lesions. Hence, such evolution and morphological presentation may indicate melioidosis being the causative factor.

We report this case to highlight the importance of identifying the cutaneous morphology and establishing the evolution of the lesions in the diagnosis of cutaneous melioidosis.

**Table 1: Table enlisting the various differentiating points for differential diagnosis for cutaneous melioidosis**

Causative organism/ Symptoms	Bacterial abscesses	Tubercular gumma	Atypical mycobacterial abscess	Cutaneous melioidosis
Duration (average)	Few days (1-7 days)	Few weeks (one to two months)	Few days (7-14 days)	Few days (7-14 days)
Local symptoms	Severe pain	No pain/very minimal pain	Moderate pain	Minimal pain
Systemic symptoms	Fever	Fever, loss of appetite, loss of weight, night sweats	Usually absent	Usually absent if only cutaneous abscess
Evolution	Ruptures spontaneously in 4-7 days	Usually requires assisted rupture, or ruptures late (after few weeks)	Ruptures after 1-10 days	Ruptures rarely, requires incision and drainage
Discharge	Profuse purulent discharge	Sero-purulent, minimal	Sero-purulent, moderate amount	Purulent discharge, profuse
Morphology	Erythematous nodule with central/tip showing purulent discharge	Subcutaneous nodular lesions with sinuses and ulceration with perilesional hyperpigmentation, puckering scar	Subcutaneous nodules with erythema, sinus and ulceration	Erythema limited to the centre part of the lesion
Diagnosis	Bacterial culture and sensitivity and Gram stain	CBNAAT positive, Quantiferon TB Gold	Culture, PCR	Gram stain and culture, VITEK
Treatment	Antibiotics (empirical or as per culture sensitivity)	Antitubercular therapy	Minocycline, fluoroquinolones, amikacin	Meropenem, ceftazidime, cotrimoxazole

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**Arpita Nibedita Rout<sup>1</sup>, Chandra Sekhar Sirka<sup>2</sup>,  
Srujana Mohanty<sup>3</sup>, Sonika Garg<sup>1</sup>,**

Departments of <sup>1</sup>Dermatology, <sup>2</sup>Dermatology & Venereology and <sup>3</sup>Microbiology, All India Institute of Medical Sciences, Bhubaneswar, Odisha, India.

**Corresponding author:**  
Dr. Arpita Nibedita Rout,

Department of Dermatology, All India Institute of Medical Sciences, Bhubaneswar, Odisha, India.  
arpitanrout1988@gmail.com

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