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Case Report

Acute Necrotizing Dermohypodermatitis Due to an Unusual Germ: *Providencia Stuartii*

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ABSTRACT

This 33-year-old lady was hospitalised for systemic lupus and received corticosteroid therapy; upper limb edoema developed as a result. The interview revealed a theory of trauma related to a fall in the bathroom. During the examination, it was discovered that the patient's overall health was quite poor and that her left upper limb was edematous, unpleasant to the touch, and covered in an erythematous plaque with blisters and a necrosis area. After 72-hours, ciprofloxacin, gentamycin, and amoxicillin antibiotic treatment had no noticeable effects. A bacteriological examination of the ulcer indicated the presence of *Providencia stuartii*, which is susceptible to cefotaxime but resistant to ciprofloxacin and amoxicillin. The biological evaluation revealed hyperleukocytosis (12,800 white blood cells/L), thrombocytopenia (103,000/L), and anaemia (9.1 g/dL). Following the administration of cefotaxime together with surgical debridement, apyrexia set in within 24-hours, and full recovery occurred three-weeks later. The search for atypical germs and the performance of an antibiogram must be mandated in front of an acute necrotizing dermohypodermatitis (AND) due to the odd location, the circumstances of the occurrence, and the clinical component.

Keywords
Hospitalization; Infectious skin diseases; Acute necrotizing dermohypodermatitis; Providencia stuartii; Bamako; Mali.

INTRODUCTION

Acute necrotizing dermohypodermatitis (AND) causes dermal and hypodermal necrosis, an acute bacterial infection. Sedentary lifestyle, chronic diseases, etc., are also rising pathologies. A medical-surgical emergency has occurred. Most frequently, the alleged microorganism is a severe strain of Group A beta-hemolytic Streptococcus (GABHS) or one that is linked to other microorganisms.[1] Urinary tract infections are frequently linked to *Providencia stuartii* (*P. stuartii*). It is uncommon for the *P. stuartii* germ to be connected to a skin illness. We have a new observation to report.

CASE REPORT

A 33-year-old woman was admitted to the Bamako Dermatology Hospital's Dermatology Unit with systemic lupus who was receiving corticosteroid medication (cortancyl 45 mg/day), which caused swelling to develop in her left upper leg as a result of lesions about a week, eroding and developing. She had poorly managed lupus since 2018, which caused her to experience hypertension. Despite starting an amoxicillin-based antibiotic medication after 4-days in the hospital, there was no change. The questioning exposed the idea of trauma in relation to a fall in the bathroom. Examination revealed a generally changed state with a fever of 38.9, a pulse rate of 90, and blood pressure (BP) of 140/80.

The left upper limb felt uncomfortable, itchy, and edematous. It is topped by blisters connected to a circular, 4 cm-diameter necrotic plaque on the back of the arm. In the frontal region of the post-bullous and crusty-scaly lesions (Figures 1 and 2).

She also has a right lower limb gait problem after a hypertensive episode. The rest of the exam is normal. In light of this table, antibiotic therapy consisting of 2 grammes of amoxicillin per day along with 160 mg of gentamicin and 1 gramme of ciprofloxacin per day was delivered for 3-days without result. The bacteriological sample and culture we conducted as a result

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Figure 1. *Ulcerative Crusty Lésions*

Figure 2. *Elbow Necrosis, Bullae*

Figure 3. *Healing*

of this led to the identification of a single anaerobic bacterium, *P. stuartii*. A Gram-negative biofilm-forming bacterium called *P. stuartii* is responsible for a high-frequency of urinary tract infections in catheterized individuals. However, little is known about how these biofilms are structured and how they can withstand environmental stresses. This bacterium was susceptible to cefotaxime, but resistant to ciprofloxacin and amoxicillin. Anemia was 9.1 g/dL, thrombocytopenia was 103000/L, and hyperleukocytosis was 12800 white blood cells/L according to a full blood count. An antiseptic, surgical cleaning, and antibiotic therapy based on 3 g cefotaxime/day for 3-weeks were started as part of the treatment. Within an autologous transplant of the elbow lesion, full healing is achieved after one month (Figure 3).

DISCUSSION

A case of left upper extremity AND caused by an uncommon germ, PS, has been reported. Clinical and biochemical data supported the diagnosis. The lower extremity of an AND typically has a channel of entry linked to comorbidities. Skin erosions caused by poorly managed lupus, a chronic pathology being treated with systemic corticosteroids, served as the patient's entry point and may have contributed to the development of AND. In general, Streptococcus is mostly to blame and is frequently challenging to isolate. However, other aerobic and anaerobic microbes can also be discovered, or frequently strange pathogens by accident. Streptococci were undoubtedly eliminated by our initial treatment, which included amoxicillin, gentamicin, and ciprofloxacin, as well as possibly additional sensitive microorganisms that were missed in the culture that focused on *P. stuartii*.

In common practise, skin infections caused by *P. stuartii* are infrequently recorded and are frequently indiscriminately treated with severe antibiotic therapy. *P. stuartii* can grow in stools and urine in people, which could serve as a nosocomial reservoir.[2] Long-term care facility residents frequently contract opportunistic infections from *P. stuartii*, which thrives in the wild. A Gram-negative biofilm-forming bacterium called *P. stuartii* is responsible for a high-frequency of urinary tract infections in catheterized individuals.

The planktonic and biofilm cells of *P. stuartii* are remarkably resistant to calcium, magnesium, and high urea concentrations, and they have the capacity to develop throughout a broad pH range. The Omp-Pst2 porin is involved in the early phases of development as well as adaptation to high concentrations of urea and variable pH, according to research done on a *P. stuartii* strain that lacks it.[3] Purple staining of the urine, a symptom of purple urinary sac syndrome (PUBS), is a common result of it.[4,5] Individuals with prostatic hypertrophy who use indwelling catheters and bedridden patients may experience symptoms and find that they are linked to urinary tract infections.[6,7]

The identification of the germ by the culture and the antibiogram, made it possible to conduct an adapted antibiotic therapy and to improve the clinical picture of our patient.

As part of the unusual germs responsible for AND in 2001 in Dakar Mame Thierno D et al reported a case following an accidental fishbone injury; biology had revealed Vibrio vulnificus.[8] A germ found in seawater (shellfish and fishbone). It is a particularly virulent germ that causes a relatively mild infection with cellulitis or serious myositis in patients suffering from chronic pathologies.[9,10] However, these techniques identification in the event of treatment failure are unavailable and expensive in many of our centres.

CONCLUSION

Our observation is particular by the appearance of an AND on the upper limb due to an uncommon germ *P. stuartii*. a multi-resistant pathogen. This clinical feature must require a thorough questioning and sample collection in order to look for unusual microorganisms.

CONSENT

The authors have received written informed consent from the patient.

CONFLICTS OF INTEREST

The authors declare that they have no conflicts of interest.

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