

Pythons and a palmar rash

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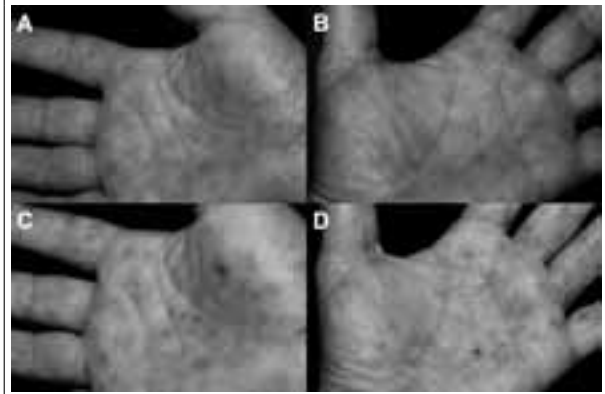
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CASE REPORT

A 55-year-old woman with intravenous drug abuse in the past presented to our emergency department with a three-day history of fever with headaches, myalgia and neck pain. On the fourth day her fever resolved spontaneously and a non-itching, red spotted rash developed on both hand palms and foot soles. She also complained about nausea and joint pain of the wrists and fingers. She had not been sexually active for over eight years. On further questioning she told us she keeps pythons and boa constrictors as pets. For medication she takes pantoprazole, promethazine and acetaminophen. The last few days she had taken more than ten Ibuprofen tablets a day because of her wrist pain. On physical examination her blood pressure was 145/85 mmHg and temperature 37.9 °C. The left thenar eminence was enlarged and painful and a non-blanchable maculopapular rash was seen on both palms and both soles (*figure 1*). Some pustules were present and cultures were taken. She had no cardiac murmurs or lymphadenopathy. Her laboratory results showed a thrombocytopenia of $116 \times 10^9/l$, leucocytes of $8.6 \times 10^9/l$, C-reactive protein of 235 mg/l and a serum creatinine of 68 $\mu\text{mol/l}$. Urine analysis was positive for protein, erythrocytes and leucocytes. The chest X-ray was normal.

Figure 1. The fourth day after the first symptoms developed, a non-blanchable maculopapular lues-like rash was noted on both palms of the left (A) and right (B) hand. Note the difference between the left and right thenar eminence. On day 7, three days after initiating doxycycline, her systemic symptoms had resolved but the palmar lesions on the right (C) and left (D) palm were slightly worse. A week later most of the skin lesions had improved with some local desquamation before complete resolution after three weeks



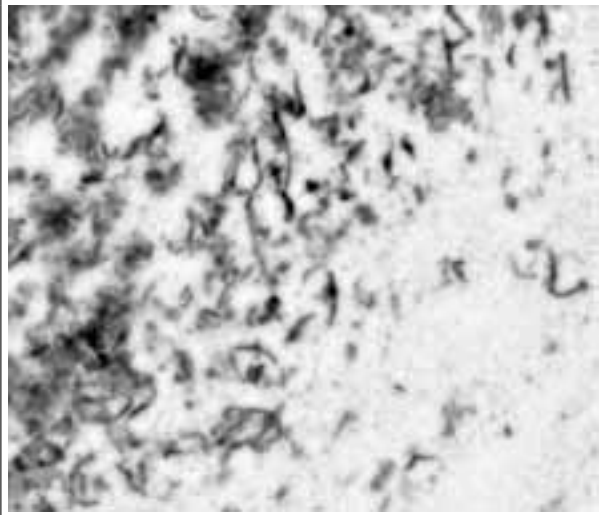
WHAT IS YOUR DIAGNOSIS?

See page 233 for the answer to the photo quiz.

DIAGNOSIS

Many people who keep snakes also breed rats to feed their pets. After thorough questioning the patient admitted that she also bred rats and that she regularly gets bitten. She did not mention this because she did not think of it as being abnormal or helpful for finding the cause of her complaints. Her clinical presentation combined with a history of recent rat bites is very suggestive of 'rat bite fever'. We assumed that the elevated creatinine and abnormal urine findings were caused by excessive NSAID usage. Our patient was given doxycycline orally and was advised to stop taking Ibuprofen. On presentation to the outpatient clinic four days later her complaints had improved, and the swelling of the thenar eminence and the rash on her palms and soles had decreased. Her serum creatinine had normalised. The Gram stain of the pus culture showed a pleomorphic Gram-negative bacillus 0.3 to 0.5 μm wide and 1 to 5 μm long, occasionally forming up to 150 μm long filaments and beadlike chains characteristic for the *Streptobacillus moniliformis* (figure 2).¹ We confirmed our diagnosis using S16 rRNA sequencing.^{2,3}

Figure 2. The Gram-stain of the pus culture showed a pleomorphic Gram-negative bacillus 0.3 to 0.5 μm wide by 1 to 5 μm long occasionally forming up to 150 μm long filaments and beadlike chains characteristic for the *Streptobacillus moniliformis*



As differential diagnosis we thought of Weil's disease, parvovirus B19, coxsackievirus, enteroviruses and syphilis. Syphilis appeared less likely given the fact that the patient had not had any sexual intercourse for over eight years. However serology for *Treponema pallidum* was positive. We concluded that this was a false-positive result, caused by a cross reaction with the *Streptobacillus moniliformis*.⁴ *Streptobacillus moniliformis* is part of the normal nasopharyngeal flora of rats and other rodents.⁵ Humans can be infected by bite wounds or scratches from infected rodents. Ingestion of food or beverages contaminated with infected excrements can also cause disease in humans.⁴ Remarkably, wounds at the bite site heal quickly with minimal inflammation, often before the first symptoms of rat bite fever appear. Classical symptoms of rat bite fever include fever, skin rash on the peripheral extremities and migratory polyarthralgias. Complications are endocarditis, myocarditis, septic arthritis, systemic vasculitis, meningitis, hepatitis and focal abscesses. Untreated, rat bite fever has a mortality rate of approximately 10%.⁴ Appearance of the described rash, especially the haemorrhagic pustules, in the setting of an otherwise nonspecific set of symptoms, should strongly suggest the diagnosis of rat bite fever.

REFERENCES

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