Dermatology Practical & Conceptual

A False-Positive Bacillary Index Caused by Lawsonella clevelandensis: A Diagnostic Pitfall

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Introduction

Lawsonella clevelandensis is an anaerobic, partially acid-fast bacillus. Although currently regarded as a commensal organism, it has been associated with infections such as breast abscess. The Expanded Human Oral Microbiome Database (eHOMD) lists it as part of the normal human microbiome, with a predilection for sebaceous-rich areas such as the alar crease, glabella, and occiput [1]. Sebaceous gland hyperplasia (SGH) is a benign enlargement of sebaceous lobules, usually in middle-aged to elderly individuals, and may occur in familial clusters [2]. In some cases, it can present with leonine facies or coexist with sebaceous adenoma. This report emphasizes the importance of correlating slit-skin smear findings with clinical and histopathological features to prevent misdiagnosis of Hansen's disease when colonization rather than infection is present.

Case presentation

A 47-year-old Thai man from Bangkok with a history of long-term incarceration presented with multiple skin-colored to yellowish papules and plaques on the face and upper chest for 10 years, and a solitary nasal nodule with intermittent bleeding for 12 years. His father exhibited similar lesions. There was no sensory loss or peripheral nerve enlargement. Because of his leonine facies–like appearance and incarceration background, a slit-skin smear was performed to rule out leprosy. The smear showed acid-fast bacilli 3+ on the left face and 4+ on the right face, with a bacteriological index of 2.5. However, Mycobacterium leprae PCR was negative.

Biopsy from facial plaques revealed lobular enlargement of mature sebaceous glands, consistent with sebaceous gland hyperplasia. The nasal nodule demonstrated mixed mature and immature sebocytes (>50% mature), mild lymphohistiocytic infiltrate, and fibrosis—compatible with sebaceous adenoma. Tissue PCR identified *L. clevelandensis*, while mycobacterial culture showed no growth. Immunohistochemistry for excluding Muir–Torre syndrome demonstrated intact expression. The patient was treated with oral isotretinoin (20 mg/day), showing partial improvement after two months before being lost to follow-up.

Diagnosis: Familial Sebaceous gland hyperplasia with sebaceous gland adenoma, and *Lawsonella clevelandensis* colonization.

Figure 1. Multiple infiltrated skin-colored to yellowish papules coalescing into plaques on face "Leonine facies" .

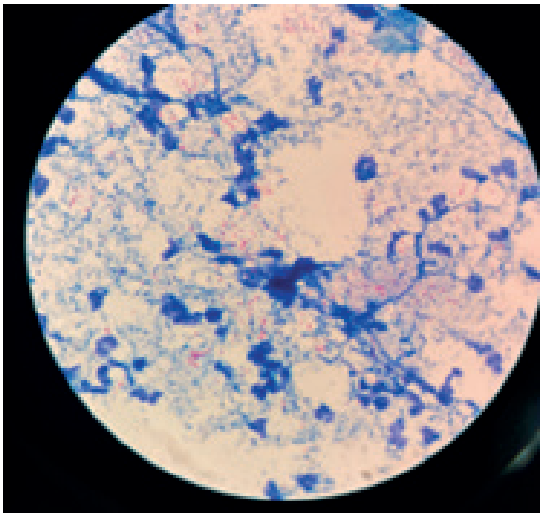

Figure 2. Slit skin smear demonstrated acid-fast bacilli (AFB) 3+ on left face (Ziehl-Neelsen stain, origin magnification, ×100).

Discussion

Infections attributed to *Lawsonella clevelandensis* have been reported, most often manifesting as abscess formation. A recent case report (2024) described a 56-year-old female who developed a breast abscess caused by Lawsonella clevelandensis. The abscess was located within fatty breast tissue adjacent to hair-bearing skin, which was considered a plausible portal of entry for infection [3]. This observation aligns with previous studies indicating that Lawsonella clevelandensis can colonize healthy skin, nostrils, and scalp hair shafts [4, 5].

This case highlights a potential link between the cutaneous microbiome and sebaceous proliferative disorder. One plausible explanation is that this organism exhibits a predilection for lipid-rich environments, which may account for its increased detection in patients with sebaceous gland hyperplasia.

This case illustrates an important diagnostic lesson: reliance on slit-skin smear alone may lead to misdiagnosis of Hansen's disease. Clinical examination—including sensory testing, nerve palpation, and lesion morphology—remains crucial. Histopathology, serologic testing, and microbiological testing are indispensable in atypical cases. Positive smears for acid-fast bacilli should be interpreted with caution, particularly when colonizing organisms like *L. clevelandensis* can mimic *M. leprae*.

Conclusion

Lawsonella clevelandensis can cause a false-positive result on slit-skin smear. While previously regarded as an opportunistic pathogen associated with abscesses, accumulating microbiome data indicate that also a common commensal of healthy skin, particularly within sebaceous-rich areas. Awareness of interpretation in positive acid-fast bacilli smears always correlate with clinical presentation, to avoid misdiagnosis of Hansen's disease.

References

1. Escapa IF, Chen T, Huang Y, Gajare P, Dewhirst FE, Lemon KP. New Insights into Human Nostril Microbiome from the Expanded Human Oral Microbiome Database (eHOMD): a Resource for the Microbiome of the Human Aerodigestive Tract. *mSystems*. 2018;3(6):e00187-18. Published 2018 Dec 4. DOI:10.1128/mSystems.00187-18
2. Farci, F. and R.P. Rapini, Sebaceous Hyperplasia, in StatPearls. 2025, StatPearls Publishing Copyright © 2025, StatPearls Publishing LLC.: Treasure Island (FL).
3. Lindstrom M, Ferrieri P, Kubiak JM. Lawsonella clevelandensis as a cause of monomicrobial breast abscess: a case report. *ASM Case Rep*. 2024;1(1):e00019-24. Published 2024 Dec 10. DOI:10.1128/asmcr.00019-24
4. Francuzik W, Franke K, Schumann RR, Heine G, Worm M. Propionibacterium acnes Abundance Correlates Inversely with Staphylococcus aureus: Data from Atopic Dermatitis Skin Microbiome. *Acta Derm Venereol*. 2018;98(5):490-495. DOI:10.2340/00015555-2896
5. Polak-Witka K, Constantinou A, Schwarzer R, et al. Identification of anti-microbial peptides and traces of microbial DNA in infrainfundibular compartments of human scalp terminal hair follicles. *Eur J Dermatol*. 2021;31(1):22-31. DOI:10.1684/ejd.2020.3948