Lingua Villosa Nigra in a 3-Month-Old Infant Following Antibiotic Exposure: A Case Report at Chawama Mini Hospital in Chingola.

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ABSTRACT

Background: Lingua villosa nigra (LVN), or black hairy tongue, is a benign condition caused by elongation and discoloration of the filiform papillae. While common in adults, LVN is extremely rare in infants and can cause diagnostic uncertainty. Antibiotic-induced disruption of the oral microbiota is a recognized risk factor, but few cases have been reported in children under six months.

Case Presentation: We report a 3-month-old male with persistent black discoloration of the dorsal tongue following antibiotic treatment for staphylococcal scalded skin syndrome. The lesion was initially misdiagnosed as oral candidiasis and treated with nystatin, without improvement. Examination revealed black, elongated filiform papillae on the dorsal tongue and no systemic illness. A diagnosis of lingua villosa nigra was made, and conservative management with gentle tongue brushing was started.

Outcome: The patient showed progressive improvement, with near-complete resolution in three weeks and full resolution within two months.

Conclusion: Greater awareness of lingua villosa nigra in infants is essential to prevent misdiagnosis and unnecessary antifungal therapy. Conservative oral hygiene remains the standard treatment.

Keywords: Lingua villosa nigra, black hairy tongue, infant, antibiotic exposure, Chawama Mini Hospital, Chingola.

INTRODUCTION

Lingua villosa nigra (LVN), or black hairy tongue, is a benign oral condition marked by elongation and discoloration of the filiform papillae. Discoloration results from keratin accumulation and chromogenic organisms (Kumar et al., 2022). While LVN is common in adults, it is rare in infants and may cause diagnostic uncertainty. Predisposing factors in young children include antibiotic use, altered oral microbiota, reduced mechanical desquamation, and, in some reports, use of herbal infusions or vitamin supplements that lower oral pH (Owczarek-Drabińska & Radwan-Oczko, 2020). This case highlights a rare instance of LVN in early infancy and emphasizes the importance of evidence-based, conservative management.

PATIENT INFORMATION

Age: 3 months

Sex: Male

Setting: Chawama Mini Hospital, Chingola, Zambia

Caregiver: Mother

Birth and Feeding History

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The infant was born at term by cesarean section for fetal macrosomia to a primigravida mother, with a birth weight of 4,500 g. He was exclusively breastfed and received all vaccinations per the Zambian Expanded Program on Immunization.

Past Medical History

At around 1 month of age, the infant was treated for staphylococcal scalded skin syndrome with systemic cloxacillin syrup (50 mg/kg/day in three divided doses for 10 days). No other illnesses, hospitalizations, or chronic conditions were reported.

CLINICAL FINDINGS

The caregiver reported a gradual onset of tongue discoloration that persisted despite antifungal treatment. The infant remained well, with normal feeding and appropriate weight gain.

Oral Examination: Black discoloration of elongated filiform papillae was observed, predominantly affecting the median anterior dorsal surface of the tongue, with no involvement of the buccal mucosa, gums, or palate.

General Examination: Vital signs were normal, with no skin lesions or systemic abnormalities. Growth parameters were appropriate per the under-five growth monitoring chart.

Figure 1: Clinical photograph of the infant's tongue at initial presentation, showing black, elongated filiform papillae on the dorsal surface. (Informed consent for publication of this image has been obtained from the caregiver.)

TIMELINE

September 2025	Treated with antibiotics (cloxacillin syrup) for staphylococcal scalded skin infection.
November 2025	Onset of tongue discoloration.
Initial visit	Misdiagnosed as oral candidiasis; nystatin initiated.
3 weeks later	No improvement; re-evaluation performed; diagnosis of lingua villosa nigra made.
Management	Discontinuation of antifungal therapy and initiation of gentle tongue brushing.

DIAGNOSTIC ASSESSMENT

The diagnosis of lingua villosa nigra was made clinically, based on characteristic appearance, prior antibiotic exposure, and lack of response to antifungal therapy.

Differential diagnoses included oral candidiasis and pigmented oral lesions. Oral candidiasis was excluded based on the features summarized in Table 1.

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Table 1. Distinguishing Clinical Features Between Oral Candidiasis and Lingua Villosa Nigra

Morphology	White, curd-like plaques on buccal mucosa, palate, gums; plaques leave an erythematous base when scraped	Black or brownish discoloration of elongated, hair-like filiform papillae on the dorsal tongue
Distribution	Diffuse involvement of oral mucosa	Typically spares buccal mucosa, palate, and gums
Response to antifungal therapy	Usually improves within 5–7 days	No improvement (key feature in this case)

Other pigmented oral lesions, such as amalgam tattoo, melanotic macule, or drug-induced pigmentation, were considered unlikely due to the infant's age, absence of dental restorations, and the presence of elongated papillae.

THERAPEUTIC INTERVENTION

Discontinuation of nystatin therapy.

Gentle tongue brushing twice daily using a soft toothbrush moistened with water.

The caregiver was reassured and informed about the benign nature of the condition.

No pharmacological intervention was required.

FOLLOW-UP AND OUTCOMES

Improvement was observed within three weeks, with near-complete resolution of discoloration and papillary elongation. Full resolution occurred within two months.

Figure 2: Clinical photograph of the infant's tongue at two-month follow-up, showing complete resolution of discoloration and normal filiform papillae. (Informed consent for publication of this image has been obtained from the caregiver.)

DISCUSSION

Lingua villosa nigra is rarely reported in infants, but antibiotic exposure is a consistently identified predisposing factor when it does occur (Owczarek-Drabińska & Radwan-Oczko, 2020; Yamada et al., 2024). This case is among the few well-documented instances in a 3-month-old following systemic cloxacillin therapy.

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Comparison with previously reported infant cases

Table 2 summarizes published cases of LVN in infants from the past decade, highlighting typical age ranges, antibiotic associations, and favorable outcomes with conservative management.

Table 2. Published Case Reports of Lingua Villosa Nigra in Infants (2016–2026)

Owczarek-Drabińska & Radwan-Oczko (2020)	3 months	No (herbal tea use)	Gentle tongue brushing	Resolution in 4 weeks
Acosta et al. (2022)	10 months	Cephalexin	Oral hygiene, discontinuation of antibiotic	Improvement in 2 weeks
Yamada et al. (2024)	2 years	Meropenem, vancomycin, linezolid	Discontinuation of antibiotics, brushing	Resolution in 3 weeks
Dias et al. (2025)	5 weeks	No	Gentle brushing	Resolution in ~2 weeks
Present case	**3 months**	**Cloxacillin (10 days)**	**Gentle tongue brushing**	**Complete resolution in 2 months**

This case is consistent with previous reports, confirming that LVN in very young infants is benign and self-limiting once the inciting factor is removed and gentle mechanical debridement is performed.

Pathophysiological role of antibiotics

Antibiotics are thought to contribute to LVN through two primary mechanisms. First, systemic antibiotic therapy disrupts the normal ecological balance of the oral microbiota, analogous to its well-documented effects on the skin and gut microbiome. This dysbiosis can lead to a relative overgrowth of chromogenic bacteria (e.g. Candida species or pigment-producing Actinomyces), which produce pigments that stain the elongated papillae (Kumar et al., 2022). Second, the elongation of filiform papillae results from either abnormal accumulation of keratin or defective desquamation of the keratinized layer. Antibiotic-induced alteration of the oral flora may affect local immune and inflammatory signaling, potentially influencing keratinocyte turnover and desquamation, although further research is needed to clarify this relationship (Yamada et al., 2024).

Why antifungal therapy is ineffective

Although Candida may sometimes be found on swabs from LVN lesions, the condition is not a primary fungal infection. Discoloration and papillary hypertrophy result from bacterial dysbiosis and keratin retention, not invasive fungal growth. Therefore, antifungal treatment does not affect the course of LVN (Owczarek-Drabińska & Radwan-Oczko, 2020). In this case, the lack of response to nystatin was a key diagnostic clue prompting re-evaluation.

Clinical implications

This case highlights the need to consider LVN in infants with persistent black tongue discoloration, especially after antibiotic therapy. Misdiagnosis as oral candidiasis can result in unnecessary antifungal prescriptions and delayed care. Conservative oral hygiene, specifically gentle tongue brushing twice daily, remains the gold standard and is safe and effective in infants.

PATIENT PERSPECTIVE

The caregiver expressed relief after the diagnosis was clarified and reassurance was provided about the benign nature of the condition. The mother reported that tongue brushing was well tolerated and she was grateful to avoid further medication.

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INFORMED CONSENT

Informed consent was obtained from the caregiver for publication of this case report, including the use of clinical photographs (placeholders), in accordance with the Helsinki Declaration.

CONCLUSION

This case demonstrates that lingua villosa nigra, though rare, can occur in infants after antibiotic exposure. Clinical diagnosis is sufficient in typical cases, and conservative management with gentle tongue brushing is the gold-standard treatment. Increased clinician awareness can prevent misdiagnosis as oral candidiasis and avoid unnecessary antifungal therapy.

LEARNING POINTS

Lingua villosa nigra, although rare, should be considered in infants with persistent black tongue discoloration.

Antibiotic exposure is a key predisposing factor, even in very young infants.

Clinical diagnosis is sufficient; no laboratory tests are required in typical cases.

Conservative oral hygiene (gentle tongue brushing) is the gold-standard treatment.

Antifungal therapy is ineffective and should be avoided once LVN is diagnosed.

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