

**CASE REPORT****LINEZOLID INDUCED BLACK HAIRY TONGUE: A RARE SIDE EFFECT****Ishma Aijazi, Fadhil M Abdulla**

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Linezolid induced black hairy tongue is a rare benign reversible side effect of linezolid therapy. We report a case of a 61 year old diabetic lady who developed thrombocytopenia and black hairy discoloration of the tongue after being prescribed linezolid for foot osteomyelitis by the orthopaedic surgeon. Patient was encouraged to practice good oral dental hygiene, advised to use a soft tooth brush, regular mouth wash and baking soda containing tooth paste. The condition resolved four weeks after cessation of the antibiotic therapy.

**Keywords:** Linezolid, side effect, black tongue, oxazolidinone

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**INTRODUCTION**

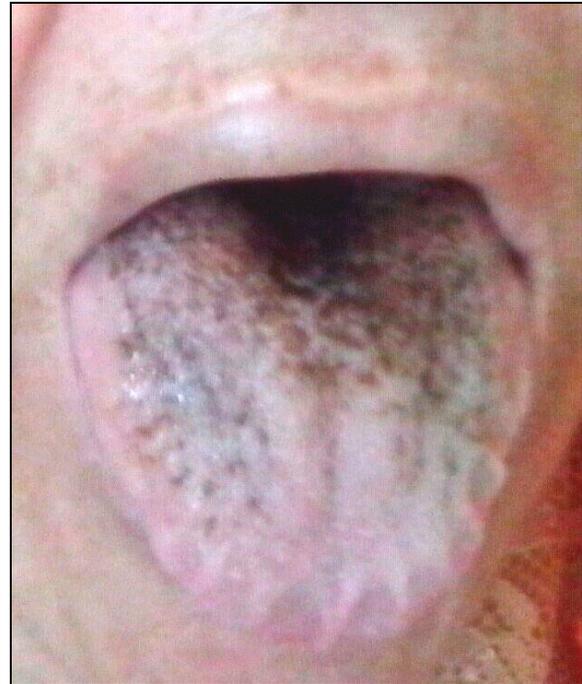
Linezolid belongs to the oxazolidinone group of antimicrobials. Its use in the community has increased tremendously because it is active against methicillin-resistant staphylococcus aureus (MRSA) and vancomycin-resistant enterococci (VRE). Since it has very high bioavailability so patients on it can be discharged early from the hospital. Hence it offers an economic advantage over other MRSA options. It is also used for uncomplicated skin and soft tissue infections. Most common side effects include head ache, nausea, vomiting and diarrhoea. Prolong antibiotic course of more than 2 weeks has been associated with thrombocytopenia, anaemia, reversible bone marrow suppression and neuropathies.<sup>1,2</sup>

Linezolid causes either blackish discoloration of the tongue or oral mucosa or it causes hypertrophy and pigmentation of the filliform papillae, known as "black hairy tongue", both are rare side effects. It is seen that darkening of the oral mucosa and the tongue is a reaction pattern that can occur due to a large number of physiologic, toxic, metabolic disorders, and exogenous substances.<sup>3</sup> Several antibiotics including linezolid can cause this adverse effect. The purpose of this paper is to report a case of linezolid induced black hairy tongue and to review literature on it.

**CASE REPORT**

A 62 year old U.A.E national lady, who was known to have type 2 diabetes mellitus, chronic kidney disease, ischemic heart disease and post procedural hypothyroidism was admitted from medical clinic for the evaluation of low platelets. She also had symptoms of respiratory tract infection. There was no history of gum bleed, epistaxis or bleeding from any other orifice. She had past history of use of oral linezolid 2 weeks prior to admission for left foot osteomyelitis. She was non-smoker had dysgeusia,

liking to tea and coffee but no addictions. On examination she was vitally stable.



**Figure-1: Black hairy tongue**

Examination of the oral cavity revealed a black hairy discoloration of the tongue. The blackish discoloration spared the sides and the anterior part of the tongue and it could not be wiped with gauze. The patient was edentulous and denied brushing or regular use of mouth wash. She had very poor oral hygiene with multiple dental cavities in the remaining teeth. There was no discoloration of the lips or the buccal mucosa. She had no palpable cervical lymph nodes and there was no skin rash. Rest of systemic examination was unremarkable.

Laboratory results: WBC 6200/microliter (4000-10000/microliter), haemoglobin 9.9 g/dl,

platelets 47,000/microliter (150,000–250,000/microliter), blood culture no growth. Blood film: platelets were reduced on the film. Normal leucocyte count with normal morphology, no immature cells, normocytic normochromic anemia with rouleaux formation. Film is consistent with thrombocytopenia.

She was hydrated and given antibiotics for respiratory tract infection. Careful search was done to find cause of her black hairy tongue and thrombocytopenia. Since she had history of recent use of the antibiotic linezolid so a detailed review of literature was done to find its association with black hairy tongue. It was seen that tongue discoloration caused by linezolid is benign and reversible. Patient was directed to use a soft tooth brush and advised regular use of mouth wash. An oral swab for bacterial and fungal culture was planned if the condition did not settle down during the subsequent outpatient follow up.

Three weeks after cessation of the antibiotic and improved oral and dental hygiene the condition regressed and thrombocytopenia also improved.

## DISCUSSION

Black discoloration of the tongue has been described with medications including certain antibiotics namely cephalosporins, penicillins, clarithromycin, tetracyclins and sulfonamides, other medicines include steroids, methyl dopa and lansoprazole.<sup>1</sup> In elderly renal transplant patients linezolid has been associated with reversible black discoloration of the tongue and lips.<sup>2</sup> This rare side effect is reported in 1.1% of (548 patients) in comparator-controlled trials.<sup>3</sup>

Blackish discoloration of the tongue should be distinguished from black, "hairy" tongue which occurs due to the hypertrophy of the filiform papillae. Linezolid associated black hairy tongue is also a rare association.<sup>4</sup> Med line search (from January 2000 till February 2013) revealed only 6 reported cases of this condition.<sup>1,2,4-7</sup> Median duration from initiating linezolid therapy to the diagnosis of black discoloration was 2 weeks. Discoloration resolved after discontinuation of linezolid after a median of 7 days. In 2 of the reported cases no changes were observed in the filiform papillae so these patients were labelled as linezolid induced black discoloration of the tongue rather than black hairy tongue.

Black hairy tongue is self-limiting condition in which there is abnormal hypertrophy and elongation of the filiform papillae on the surface of the tongue.<sup>8</sup> There is no objective criteria for diagnosing this condition.<sup>9</sup> Most patients are asymptomatic, occasionally patients complain of tickling and burning sensations, nausea, halitosis, unattractive appearance of the tongue. Black is the most common discoloration, however yellow, brown

and green discoloration has also been described in literature.<sup>8</sup> This is due to defective desquamation of the dorsum of the tongue, usually the posterior one third.<sup>9</sup> This defective desquamation prevents normal debridement resulting in excessive growth and thickening of filiform papillae which later on collects debris, bacteria, fungi, and other foreign materials which contribute to the discoloration. However the exact mechanism of drug induced BHT (benign hairy tongue) is unknown.

Predisposing factors include smoking, chewing tobacco, drinking alcohol, poor oral and dental hygiene, crack cocaine, radiation therapy, trigeminal neuralgia, over use of peroxide containing mouth washes. Drugs that cause xerostomia, like anticholinergic, antihypertensive, anti-depressants, antibiotics like tetracyclines and penicillin all contribute to this condition.<sup>10</sup> The diagnosis of Black hairy tongue relies on the identification of discoloured, elongated and hypertrophied filiform papillae. Once diagnosed the main stay of treatment is discontinuation of the offending medication and encouraging good oral dental hygiene.<sup>10</sup> If needed gentle cleaning of the tongue can be done with a soft tooth brush and baking soda or three percent hydrogen peroxide.<sup>8</sup>

## CONCLUSION

Linezolid induced black discoloration of the tongue and black hairy tongues are both benign, reversible self-limiting conditions which disappear after discontinuation of linezolid. Concomitant risk factors like use of antibiotics, medications causing dry mouth, smoking, poor oral hygiene, consumption of coffee, green tea or other coloured beverages should be avoided. Hence prospective counselling of patients on the importance of good oral hygiene when taking this medication should be done. Above all health care physicians should not panic and be aware of the rare side effect of this medicine.

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