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Case Report

Olanzapine-induced black hairy tongue: a rare case

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ABSTRACT

Olanzapine is second generation antipsychotic drug. It alters affinities for serotonin and dopamine receptors and provides mild sedating and calming effect. It is indicated for the treatment of schizophrenia, acute mania and the prevention of relapse in bipolar disorder. We present a case report of a 65- year- old man with bipolar disorder I, who developed black hairy tongue following treatment with olanzapine and completely recovered after withdrawal of treatment. Awareness about this particular adverse drug reaction will ensure proper management and avoid unnecessary investigations.

Keywords: Atypical antipsychotic, Bipolar disorder, Hairy tongue

INTRODUCTION

A 65-year-old male patient reported to the Outpatient Department of Oral Medicine and Radiology with a complaint of black discoloration on surface of his tongue. Medical history revealed that he had been prescribed olanzapine 20 mg per day orally for treatment of bipolar disorder for eight weeks. The patient was not taking any other medication. He noticed discoloration of tongue on 14th day after therapy.

CASE REPORT

Local examination of the oral cavity revealed black hair-like projections on the dorsum of the tongue anterior to circumvellate papillae. It was surrounded by white debris. The tip and lateral margins of the tongue were normal. Buccal mucosa and teeth were also normal. Xerostomia was present. Cervical lymphnodes were not palpable, Figure 1.

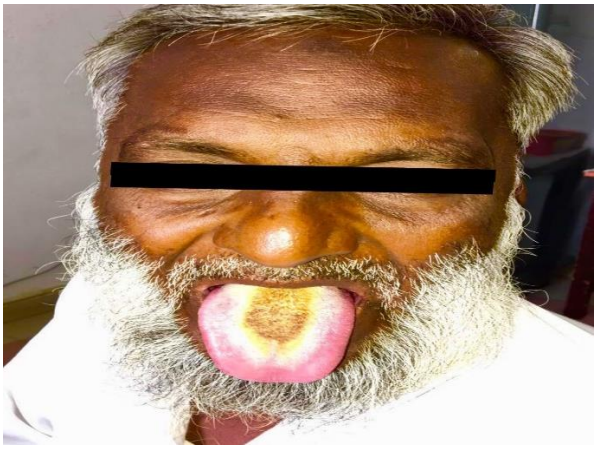

Figure 1: Black hairy tongue in a 65 year old man on Olanzapine.

The systemic examination of the patient revealed no abnormality. He had neither any predisposing factor (non-alcoholic, non- smoker, no history of excessive coffee or tea or red wine intake) nor any history of drug abuse or radiotherapy. He was HIV negative. He was not suffering from any other disease. His complete blood count was normal.

Biochemical tests including serum ferritin, serum folic acid, vitamin B12, thyroid profile, liver function tests and renal function tests were also normal. Scrape cytology of tongue lesion was done. Scrape smears were prepared using a wooden spatula. They were stained by May Grunward Giemsa stain, hematoxylin and eosin and Papanicolou stains as well as Periodic acid Schiff stain. May Grunward Giemsa stain revealed abundant cellularity consisting of normal squamous cells. Papanicolou and Periodic Acid Schiff stains did not reveal malignant cells and fungal bodies respectively. Swab from tongue patch cultured on Mac-Conkey, Nutrient agar and Blood agar media was sterile. Potassium hydroxide mount prepared from tongue scrapings did not reveal fungal elements either hyphae or spores. Fungal culture was negative on Sabouraud dextrose agar medium and dermatophyte test medium. Biopsy of the lesion could not be done as patient did not gave his consent for it.

Based on history, clinical examination and laboratory investigations done, diagnosis of BHT was made. Psychiatrist advised discontinuation of olanzapine. No alternative drug was prescribed. Follow up was done every week. Discoloration on tongue disappeared completely on 14th day. Rechallenge test was decided. Patient consented and psychiatrist coordinated for it. Olanzapine was represcribed in a lower dose of 5mg per day orally. Patient was asked to report weekly. BHT reappeared on 14th day. There was no other associated factor which could be held responsible for it. WHO-UMC causality assessment scale revealed certain ADR category and Naranjo ADR probability scale revealed a score of 9 (definite ADR).[1,2] The case has been reported through ADR monitoring centre, Report Id. 2017-07610.

DISCUSSION

Olanzapine is an atypical antipsychotic drug. It is thienodiazepine. It is well absorbed when administered oral route. Its peak plasma concentration is reached in about six hours. It is widely distributed throughout body. Olanzapine is 93% protein bound to plasma proteins. Glucuronidation and P450 mediated oxidation are the primary metabolic pathways for olanzapine. Olanzapine acts as antagonist at 5-HT 2a/2c, 5-HT 6, 5-HT 3, adrenergic alpha -1 receptors and M1-5 receptors. Potential adverse reactions of olanzapine are hyperlipidemia (elevated total cholesterol, LDL cholesterol and triglyceride), weight gain, hyperglycemia, insulin resistance, type 2 diabetes mellitus, increased risk of cerebrovascular events (stroke and transient ischaemic attack) in dementia patients, neuroleptic malignant syndrome, tardive dyskinesia and elevated hepatic enzyme (alamine aminotransferase). It has also been reported to cause aphthus stomatitis, glossitis and ulcers in oral cavity. Rare adverse reaction is black hairy tongue.[3,4]

The aetiology of BHT is unknown but several predisposing factors and medications have been implicated in the pathogenesis of this disorder. Predisposing factors include poor oral hygiene, smoking tobacco, chewing tobacco, excessive black tea /coffee consumption, heavy alcohol consumption, cocaine abuse, diseases (advanced cancer, HIV infection, trigeminal neuralgia, amylotrophic lateral sclerosis and graft-versus-host disease) and radiation exposure to the head and neck. Medications include (chloramphenicol, streptomycin, sulfonamides, cephalopsporins, clarithromycin, erythromycin, penicillins, amoxicillin, doxycycline, neomycin and linezolid), psychotropics (amitriptyline, clomipramine, imipiramine, desipiramine, maprotiline, tranycypromine, chlorpromazine, fluoxetine, paroxetine, thiothixine hydrochloride, olanzapine, benztropine mesylate, and clonazepam), antifungal (griseofulvin) and proton pump inhibitor (lansoprazole), antineoplastic (erlotinib), antihypertensive (alpha-methydopa), antituberculosis (isoniazid), interferon (PEG-INF alpha2a), oral contraceptives, bismutsalicylate, corticosteroids, oxidizing agents (sodium perborate, sodium peroxide and hydrogen peroxide), bismuth salicylate and antacids. Vegetable dyes may also cause it.[5,6]

Differential diagnosis of black hairy tongue includes pseudo-black hairy tongue (darkly stained tongue in absence of elongated filiform papillae), oral hairy leukoplakia (hairy white plaques appear usually on the lateral margins of tongue, in HIV infected patients), acanthosis nigricans (multiple dark papillary lesions on the dorsum and lateral margins of the tongue) and pigmented filiform papillae of the tongue. They can be differentiated from BHT both clinically and histologically.[7,8]

Black hairy tongue has been reported by Tamam et al, in a 25 year-old women patient with bipolar disorder. Patient developed black hairy tongue following the addition of

olanzapine (20mg per day) to lithium (1200mg per day) treatment. Patient was prescribed lower dose of olanzapine (5mg per day) and lithum treatment. BHT completely disappeared over next three weeks. They concluded that BHT may develop as an adverse reaction to olanzapine treatment, especially when combined with lithium.[9]

Black hairy tongue with a fixed dose combination (FDC) of olanzapine (5mg) and fluoxetine (20mg) has been reported by Jhaj et al, This FDC was used for the treatment of psychosis with depression in a 70 -year -old male patient. After two months of treatment, patient developed BHT. Drugs were stopped. Three months after withdrawal of the drugs the tongue resolved completely.[10]

Olanzapine-induced BHT has been previously reported by Kanodia S, et al.[11] The present case reports the development of black hairy tongue on 14th day with olanzapine (20mg per day) monotherapy in a 65-year-old patient of bipolar disorder I (DSM-5-Diagnostic code 296.41). The tongue lesion resolved completely within two weeks after withdrawal of olanzapine.

BHT is a rare adverse drug reaction of olanzapine. The exact mechanism behind this is not known. It has been suggested that anticholinergic property of olanzapine has potential to induce BHT through dry mouth (xerostomia), which leads to defective desquamation of the keratinized layer of tongue resulting in excessive growth and thickening of filiform papillae and retension of long conical filaments of orthokeratotic and parakeratotic cells, which appear as hair like superficially. These the secondarily collect porphyrin producing chromogenic organisms present in the oral flora lending the lesion characteristic black/ brown/ yellowish-brown/ green hue.[12,13]

Limitations

Mucosal punch biopsy, dermoscopic and electron microscopy examinations were not done.

CONCLUSION

Authors report this case to highlight the occurrence of BHT as an adverse drug reaction of olanzapine, which is widely prescribed for the treatment of many psychiatric disorders and to sensitize the clinicians about this rare ADR of olanzapine. BHT is generally a self limiting disease. It carries a good prognosis. Patients should be educated and counselling of patients on the importance of comprehensive daily oral hygiene, aggressive oral hydration and increased daily consumption of raw fruits and vegetables should be done in advance.

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