

Diabetic Tongue - Could it be a Diagnostic Criterion?

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ABSTRACT

Diabetes mellitus (DM) is a common disease which usually manifests in the form of polyuria, polydipsia, weight loss, fatigue, weakness, blurry vision, frequent skin infections, and slow healing of skin lesions. Taste disturbances like ageusia, hypogeusia and dysgeusia have been associated with DM. The early diagnosis of DM based on these symptoms is very important to start treatment early and thereby prevent complications. We present an interesting case of a female presenting with altered taste as the first symptom of DM.

Keywords: Altered taste, diabetes mellitus, diagnosis

Introduction

Diabetes mellitus (DM) is turning out to be a global epidemic. Type 2 DM is the most common form of DM. The symptoms that commonly indicate hyperglycemia are polyuria, polydipsia, weight loss, fatigue, weakness, blurry vision, frequent skin infections, and slow healing of skin lesions after minor trauma.^[1] Taste disorders like ageusia (taste loss), hypogeusia (decrease in taste), and dysgeusia (abnormal taste) form an important but neglected part of presentation of DM. We report a unique case of a housewife presenting with altered taste as the initial symptom of DM.

Case Report

A 50-year-old educated housewife, presented with complaints of altered taste of all kinds of food on and off for a period of 2 months. There was no history of disturbance of smell or focal neurological deficit. There was no history of rhinitis, sinusitis, head injury, denture use, or any gastrointestinal disorders. History excluded thyroid disorders, liver or kidney disorders, use of alcohol, tobacco, local radiation therapy, or drugs associated with altered taste. There was no personal or family history of hypertension or DM. On examination, she was afebrile with blood pressure of 124/80 mmHg and body mass index (BMI) of 26.6 kg/m². Hypogeusia was detected for all taste qualities

using chemical gustometry. Oral cavity examination did not reveal any other abnormality. Systemic examination revealed no signs of peripheral neuropathy or other abnormalities. Given the complaints, a random blood sugar level test was performed, which revealed a level of 291 mg/dl. Hence, the patient was advised dietary changes and routine investigations to look for any systemic disorder and confirm diagnosis of DM. Fasting and postprandial blood sugar levels (FBSL and PPBSL) were found to be 146 and 188 mg/dl, respectively. Glycated hemoglobin (HbA1c) was 8.5%. Renal/liver function tests and lipid profile were within normal limits. Urine analysis showed no proteinuria or ketonuria. Fundus examination of the eye showed no signs of retinopathy. Based on laboratory values, patient was diagnosed as a case of type 2 DM (American Diabetes Association, 2007).^[1] The patient was advised diet, exercise, and body weight reduction. The laboratory values repeated after 2 months showed FBSL - 122 mg/dl, PPBSL - 175 mg/dl, and HbA1c - 7.6%. Over 2 months, the patient's taste disturbances resolved completely. After 5 months of regular exercise and diet, the values of FBSL, PPBSL, and HbA1c dropped down to 118 mg/dl, 151 mg/dl, and 6.6%, respectively. The patient has been advised to continue with diet/exercise and follow-up every 3 months with FBSL, PPBSL, and HbA1c reports.

Discussion

Studies that have shown an increase in prevalence of diabetes in India have also reported a very high prevalence of undiagnosed diabetes in the community. The individuals who are unaware of their disease status are left untreated only to present at a later stage

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DOI:
10.4103/2249-4863.141654

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with complications. The disease tends to progress more rapidly in individuals not receiving appropriate intervention. Hence, it is necessary to detect them early and provide necessary treatment.^[2]

Taste disorders form a common part of presentation of several diseases. Taste loss may occur in physiological conditions like ageing, pregnancy, and menopause. Patients with xerostomia, Sjögren's syndrome, and zinc deficiency also experience taste loss. Other conditions in which taste loss may occur include liver and kidney disorders, DM, depression, and surgical procedures around the chorda tympani or glossopharyngeal nerve. Patients with head trauma and epilepsy may also experience taste loss. Numerous drugs (methotrexate, dexamethasone, antihypertensives, and antimicrobial agents) have been associated with taste loss.^[3]

Taste disorders have been described in the past during the course of DM. Le Floch *et al.*,^[4] in 1989 had mentioned about the decrease of the diabetic individual's ability to detect and recognize the primary taste modalities. An Indian study in 2012 evaluating 50 cases of DM with oral complications found taste impairment in 20% cases.^[5] Another Indian study found that taste alteration was more common in uncontrolled diabetics than in controlled diabetics.^[6] Electrogustometric examination in 73 patients from Czech Republic showed that about 40% of type 2 DM have hypoguesia and 5% have aguesia.^[7] A 2009 Spanish study concluded that hyperglycemia induces a concentration-dependent impairment of sweet taste perception in diabetic patients as the result of an adaptation of the sensory cell to elevated circulating concentrations of glucose.^[8]

Newly-diagnosed DM patients have a blunted taste response with a preference for sweet-tasting foods, which is partially reversed after correction of hyperglycemia, and is independent of somatic or autonomic nerve function. Many mechanisms are being considered, but a specific cause for taste sense alteration is still not known. It is believed that in diabetic patients with complications; neuropathy involving taste nerve tracts and microangiopathy involving taste buds may be responsible for the decreased taste sensation. But in newly diagnosed DM cases without complications, defects in the taste receptor may be responsible.^[9]

Disturbance of taste is mostly transient and does not often appear in daily practice. Also patients do not associate taste disturbance with chronic diseases like diabetes or hypertension. In our case, a taste disturbance helped us to diagnose a case of DM before the complications could set in. It is very essential that we specifically ask patients for history of altered taste whenever other risk factors for diabetes are present. Also it is

important to give attention to complaints related to taste by any vigilant patient.

The risk of Indian patients getting diabetes is evaluated using the Indian Diabetes Risk Score based on factors such as age, obesity, physical inactivity, family history of diabetes, etc.^[2] Changes in taste thresholds in type 2 DM if systematically analyzed and documented, may provide an additional diagnostic, screening, and monitoring tool for DM in the future. As seen in this case, altered taste was present only during certain time and not throughout the day. Rather than being an indicator of duration or complications of disease, it could be an indicator of fluctuations in blood sugar levels. Taste disturbances could be a significant pointer to diabetes in at risk patients.

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How to cite this article: Bhandare NN, Keny MS, Nevrekar RP, Bhandare PN. Diabetic tongue - Could it be a diagnostic criterion?. *J Fam Med Primary Care* 2014;3:290-1.

Source of Support: Nil. **Conflict of Interest:** None declared.