

Pigmented fungiform papillae of the tongue: a clinical and histologic description

Bahir Chamseddin BS, Travis Vandergriff MD

Affiliations: Department of Dermatology, University of Texas Southwestern Medical Center, Dallas, Texas, USA

Corresponding Author: Travis Vandergriff, M.D., 5323 Harry Hines Boulevard, Dallas, TX 75390-9069, Tel: 214-648-4228, Email: Travis.Vandergriff@UTSouthwestern.edu

Abstract

A 28-year-old man with a history of mycosis fungoides presented for evaluation of multiple dark-brown macules and hyperpigmented dome-shaped papules on the distal tongue. A shave biopsy of the tongue revealed melanin pigment in the basal keratinocytes and melanophages in the lamina propria, consistent with pigmented fungiform papillae of the tongue. Relevant clinical and histologic features of this diagnosis are reviewed.

Keywords: pigmented fungiform papillae, histopathology

Introduction

Fungiform papillae of the tongue are normally red, dome shaped papules, which are located along the apex and lateral aspects of the tongue and contain taste buds to sense sweet, sour, bitter, salty, and umami [1]. This is in contrast to the conical or cylindrical filiform papillae, which are finer, smaller, sense only touch, and give the tongue its characteristic texture along the front two-thirds of the tongue's surface. Pigmentation of the fungiform papillae represents an acquired pigmentary disorder of the tongue and has been reported mostly in African Americans, although it may occur in other ethnicities at lower rates [2-5]. Familial cases have been reported as well [6]. Pigmented fungiform papillae of the tongue (PFPT) is usually an isolated finding but has been reported to occur in association with other pigmentary disorders including melasma and Hori nevus [3]. Herein we report clinical and histologic findings in a case of PFPT.

Case Synopsis

A 28-year-old man presented to the dermatology clinic for initial evaluation of new-onset brown pigmented patches on the tongue. The lesions were asymptomatic and he had noted no other abnormal pigmentation elsewhere. His past medical history was pertinent only for a five-year history of patch stage mycosis fungoides, which had been successfully managed with narrow band UVB phototherapy. He took omega-3 lipids and multivitamins but no other supplements or medications such as bismuth or minocycline. No family members were similarly affected.

On examination, the distal tongue showed multiple dark-brown macules and dome shaped papules corresponding to fungiform papillae (**Figure 1A**). Dermatoscopic evaluation of the mucosa revealed fungiform papillae with brown to grey pigmented borders in a cobblestone pattern (**Figure 1B**). A shave biopsy was performed and revealed papillary structures with hyperpigmentation of basilar keratinocytes as well as melanophages in the lamina propria (**Figure 1C, D**). A diagnosis of PFPT was made, and no further treatment was pursued.

Case Discussion

Common causes of acquired pigmented lesions of oral mucosa include amalgam tattoo, lentigo, melanocytic neoplasia, and drug induced changes such as those induced by bismuth or minocycline [7]. Pigmented fungiform papillae of the tongue represents a relatively uncommon cause of acquired pigmented lesions of oral mucosa, but the unique

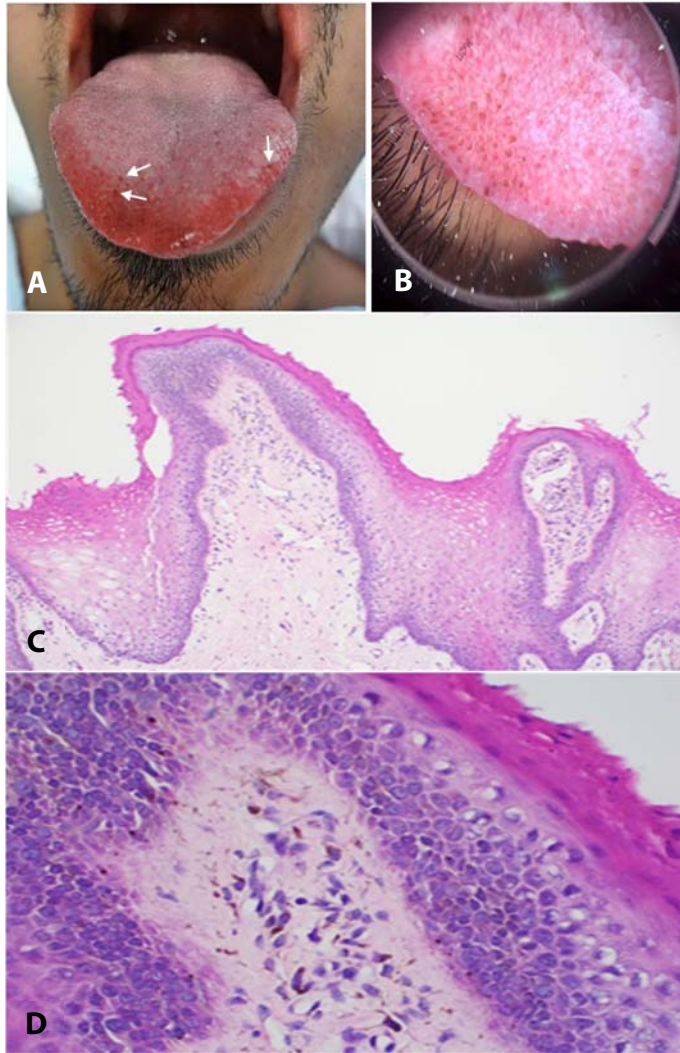


Figure 1. Physical, dermatoscopic, and histologic features of pigmented fungiform papillae of tongue. **A)** Pigmented papules corresponding to fungiform papillae. **B)** Dermatoscopic view of the hyperpigmented borders arranged in a cobblestone and rose petal pattern. **C)** Papillary structures with hyperpigmentation of the basal layer. H&E, 40 \times . **D)** Basilar hyperpigmentation with melanophages in the lamina propria. H&E, 100 \times .

clinical presentation should lead to an accurate diagnosis in most cases. Patients present with discrete brown macules, which are restricted to the normal distribution of fungiform papillae.

References

1. Roper SD. Taste buds as peripheral chemosensory processors. *Semin Cell Dev Biol.* 2013;24:71-9. [PMID: 23261954].
2. Holzwanger JM, Rudolph RI, Heaton CL. Pigmented fungiform papillae of the tongue: a common variant of oral pigmentation. *Int J Dermatol.* 1974;13:403-8. [PMID: 4430531].
3. Tan C, Liu Y, Min ZS, Zhu WY. A clinical analysis of 58 chinese cases of pigmented fungiform papillae of the tongue. *J Eur Acad Dermatol Venereol.* 2014;28:242-5. [PMID: 22897735].
4. Marcoval J. Response to: <<pigmented fungiform papillae of the tongue in Laugier disease (or Laugier-Hunziker syndrome)>>. *Actas Dermosifiliogr.* 2013;104:174. [PMID: 23260879].

Dermatoscopic findings in this case resemble those previously described. Namely, the papillary architecture imparts a cobblestone pattern and central pigmentary concentration with peripheral fading leads to a “rose petal” appearance [8, 9]. Microscopic evaluation is not always necessary to make the diagnosis of PFPT but typically reveals increased pigment in the basal layer and melanophages in the lamina propria, without melanocytic neoplasia or exogenous pigment granules [2, 10-12].

Pigmented fungiform papillae of the tongue usually represents an isolated clinical finding, although case reports in the literature indicate associations with a seemingly diverse and variable set of diseases including hemochromatosis, scleroderma, pernicious anemia, lichen planus, linear circumflex ichthyosis, hystero myoma, and breast cystic hyperplasia [3, 12, 13]. The co-occurrence of patch stage mycosis fungoides and PFPT of the tongue is most likely coincidental in the case presented herein.

Rarely, disease may impact the fungiform papillae of the tongue, including transient lingual papillitis, atrophy from lingual nerve injury, and Machado-Joseph disease characterized by absence of fungiform papillae and inability to sense taste [14].

Conclusion

In summary, PFPT represents a relatively uncommon but distinct cause of acquired pigmented lesions on oral mucosa and may be recognized by the constellation of unique clinical, dermatoscopic, and histologic features described herein.

Potential conflicts of interest

The authors declare no conflicts of interest.

5. Ghigliotti G, Chinazzo C, Parodi A, Rongioletti F. Pigmented fungiform papillae of the tongue: the first case in an Italian woman. *Clin Exp Dermatol*. 2017;42:206-8. [PMID: 28044360].
6. Chessa MA, Patrizi A, Sechi A, et al. Pigmented fungiform lingual papillae: dermoscopic and clinical features. *J Eur Acad Dermatol Venereol*. 2018;32:935-9. [PMID: 29356106].
7. Gondak RO, da Silva-Jorge R, Jorge J, et al. Oral pigmented lesions: Clinicopathologic features and review of the literature. *Med Oral Patol Oral Cir Bucal*. 2012;17:e919-24. [PMID: 22549672].
8. Mukamal LV, Ormiga P, Ramos ESM. Dermoscopy of the pigmented fungiform papillae of the tongue. *J Dermatol*. 2012;39:397-9. [PMID: 21950799].
9. Hsiao YH, Ko JH, Lu CF, Chen MJ. Dermoscopic findings in pigmented fungiform papillae of the tongue. *Eur J Dermatol*. 2011;21:819-20. [PMID: 21768060].
10. Koplun BS, Hurley HJ. Prominent pigmented papillae of the tongue. *Arch Dermatol*. 1967;95:394-6. [PMID: 6023044].
11. Isogai Z, Kanzaki T. Pigmented fungiform papillae of the tongue. *J Am Acad Dermatol*. 1993;29:489-90. [PMID: 8349870].
12. Ahn SK, Chung J, Lee SH, Lee WS. Prominent pigmented fungiform papillae of the tongue. *Cutis*. 1996;58:410-2. [PMID: 8970779].
13. Oh CK, Kim MB, Jang HS, Kwon KS. A case of pigmented fungiform papillae of the tongue in an Asian male. *J Dermatol*. 2000;27:350-1. [PMID: 10875205].
14. Phan CL, Kashmere JL, Kalra S. Unilateral atrophy of fungiform papillae associated with lingual nerve injury. *Can J Neurol Sci*. 2006;33:428-9. [PMID: 17168174].