Case Report

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Rare Presentation of Neurofibromatosis Type I with Oral Lesion

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ABSTRACT

Background: The term neurofibromatoses is applied to a group of autosomal dominant disorders characterized by neuroectodermal tumors involving several parts of the body. Among the eight types recognized, Neurofibromatosis Type-1 is common without racial differences. It is chiefly characterized by six or more cafe´-au-lait macules, two or more neurofibromas, freckling in the axillary or inguinal region and Lisch nodules over the iris. Oral neurofibromas are extremely variable and rare, posing a diagnostic challenge to oral healthcare providers. We present a rare case of Neurofibromatosis type- 1 with oral nuerofibromas (two) in the hard palate, presence of cafe au lait (coffee with milk) pigmentation, discrete multiple nodules over different regions of the body, two Lisch's nodules of Iris. Clinical presentation of this patient is in accordance with the diagnostic criteria given by the National Institutes of Health Criteria for Neurofibromatosis Type 1.

Keywords: Cafe´-Au-Lait Macules, Lisch's Nodules, Oral Neurofibroma, Neurofibromatosis Type-1.

INTRODUCTION

Neurofibromatosis was described in 1882, by German pathologist Friedrich Daniel Von Recklinghausen, when he found a series of patients with a combination of cutaneous lesions and tumors of the peripheral and central nervous system. [1] Neurofibromatosis type-1 is a neuro-cutaneous autosomal dominant disorder, affecting all 3 germinal layers, having the potential to involve any organ system.[2] It is caused by a mutation in the NF1 gene on chromosome 17q11.2, which encodes for the protein neurofibromin. [3] Neurofibroma appears either as a solitary lesion or in a syndrome or as von Recklinghausen's disease of the skin. [4] Benign oral peripheral nerve tumors including schwannoma, neurofibroma, nerve sheath myxoma, palisded encapsulated neuroma etc, not only share a neural origin, but also exhibit notable heterogenecity in terms of microscopic and pathogenetic aspects. [5]

Oral neurofibromas usually appear as painless pedunculated or sessile nodules, with slow growth pattern. Pain or paraesthesia may occur on nerve compression. [6] Lisch nodules are pigmented hamartomas, which appear as translucent brown-pigmented spots on the iris. Lisch nodules are the characteristic features of the affected individuals. [7] In this paper we report a case of Neurofibromatosis type 1 that received its diagnosis, after observation of its significant presentation along the oral cavity and its confirmation by histopathology.

CASE REPORT

A 39-year-old female patient reported to the Department of Oral Medicine and Radiology with a chief complaint of swellings along the roof of the mouth since past 12 months. About 20 years back the patient noticed a swelling along her lip , for which she underwent a surgery. Later she developed similar swellings all over her body. The swelling was not associated with any pain or any

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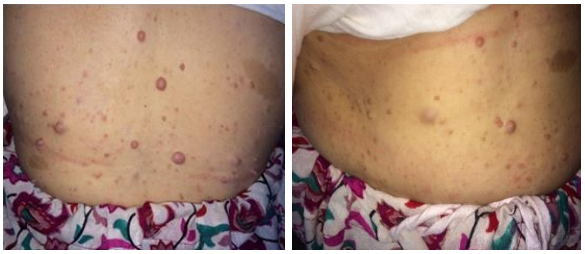

Fig 1 & 2: Dermal Neurofibromas with café – au – lait spots and pre axillary freckling.

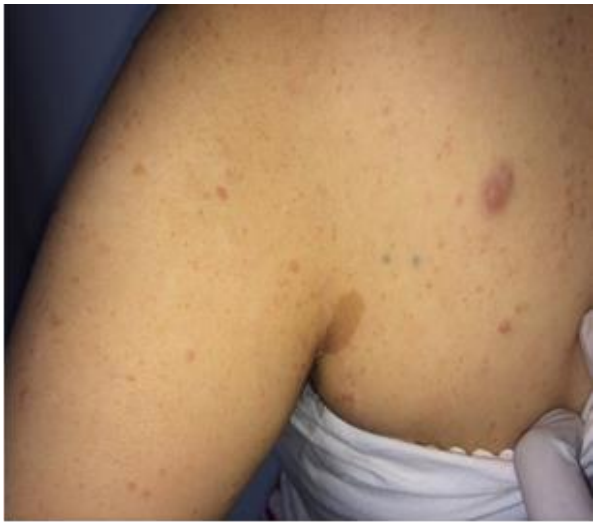

Fig 3: Dermal Neurofibromas with café – au – lait spots and pre axillary freckling.

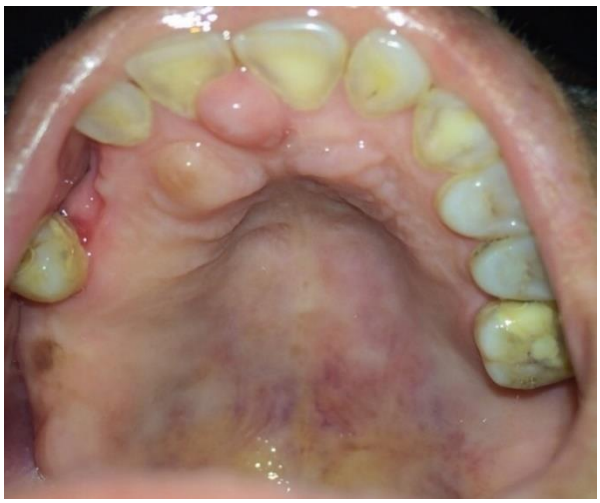

Fig 4: Oral Neurofibromas along hard palate 11,21 and 11,12.

other relevant symptoms. Patient was not aware of any such similar condition in her family. On comprehensive general physical examination, the patient was moderately built and nourished, calm, coherent, able to respond well to the questions with

Fig 5: Gross Tissue Specimen.

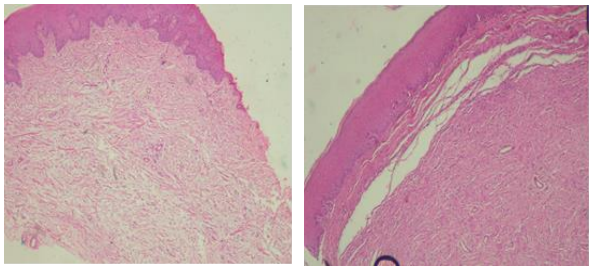

Fig 6: H&E sections, showing parakeratinized stratified squamous epithelium with underlying connective showing loosely arranged collagen fibers along with neural component with wavy nuclei.

no visual spatial difficulties. Vital signs were within the normal range. Extra oral examination revealed diffuse flat, oval to rounded brownish black pigmentation with smooth borders measuring 0.5-1.5cm. Non inflammatory purple nodular masses (figure 1,2,3) of various sizes were present all over her body including the chest, back, abdomen region. On palpation these nodules were discrete, well circumscribed, soft to firm in consistency, nontender and compressible in nature. Diffuse freckling in the axilla was appreciated. Ophthalmological examination through slit lamp, revealed the presence of pigmented hamartomatous nodular aggregate along the iris resembling Lisch nodules and early onset of cataract, with no signs of glaucoma. Intraoral examination revealed two oval, well defined sessile growth (figure 4) along the pre-maxilla region of the hard palate, one growth in relation to 11,21 and another in relation to 11,12. The former and latter swellings measured about 0.25 × 0.25 and 0.5 × 0.5 cm in dimension. The

former being regular and the latter irregular in shape, with mucosa over the growth appearing pink in color. On palpation the swellings were sessile with variable consistency, non-tender.

The patient was subjected to intraoral periapical radiographic investigation of the anterior teeth region, which showed no visible bony involvement. Based on clinical presentation of cutaneous pigmentation, generalized multiple nodules, Lisch nodules in the eyes and intraoral well-circumscribed tumor growth, a provisional diagnosis of Oral Neurofibroma with Neurofibromatosis type I was made. With the patients consent, an excisional biopsy procedure was performed under L.A (figure 5).The biopsy specimen, stained with H&E, showed parakeratinized stratified squamous epithelium with underlying connective tissue along with focal area of sub-epithelial hyalinization. The connective tissue showed loosely arranged collagen fibers along with neural component with wavy nuclei dispersed all over the connective tissue with moderate vascularity along with inflammatory cells (figure 6), confirming the diagnosis of Neurofibromatosis Type I.

Hence the based on the clinical as well as histopathological features, a final diagnosis of Neurofibromatosis Type I was given. Further review could not be done, as patient did not turn up for consecutive follow ups.

DISCUSSION

In 1882 German pathologist, Friedrich Daniel von Recklinghausen, accurately described the diverse findings of Neurofibromatosis as a single entity. Since then, the condition is often referred to as von Recklinghausen's disease.

According to the most widely accepted classification, there are four recognized forms of neurofibromatosis:

1. von Recklinghausen's neurofibromatosis (or neurofibromatosis type 1 [NF-1] or peripheral neurofibromatosis)
2. Bilateral acoustic neurofibromatosis (or neurofibromatosis type 2 [NF-2] or central neurofibromatosis)
3. Segmental neurofibromatosis
4. Cutaneous neurofibromatosis

Further the presence of three additional forms: type 3 (mixed), type 4 (variant) and type 5 (late-onset), were suggested by Riccardi.[8] Neurofibromatoses type1 disorder, presents with signs and symptoms, which may begin at birth and evolve over a life time, they may include both tumor and non-tumor manifestations.[9] The following are the diagnostic criteria laid down by National Institute of Health Consensus Development Conference, [10] which states at least four cardinal features should be present to confirm the diagnoses as Neurofibromatosis Type-1:

1. 6 or more café-au-lait macules larger than 5mm before puberty or 15mm after puberty
2. Freckling in the axillary or inguinal region
3. 2 or more neurofibromas or 1 plexiform neurofibroma
4. 2 or more Lisch nodules
5. Optic Glioma
6. A distinctive osseous lesion such as sphenoid dysplasia
7. Affected first-degree relative

This patient was evaluated initially by experts in Oral Medicine at Dental Hospital with referral consultations made to (Dermatologist, Ophthalmologist, Neurologist, Obstetrician) for comprehensive general evaluation. Our case was found to fulfill the diagnostic criteria. Neurofibroma's are rare slow-growing benign tumors, that are derived from the neural sheaths of peripheral nerves. They comprise of Schwann cells, fibroblast-like cells and intermediate cells.[11] In this patient, multiple dermal neurofibromas involved several regions of the body (figure 1).

Café au lait spots are hyperpigmented maculae, with either smooth or irregular borders. These maculae vary in their color and size, and appear anywhere on the skin, with rare occurrence on the face. [12] In Neurofibromatosis type I, inguinal and axillary freckles (Crowe's sign) are seen occuring, diffusely over the trunk, extremities, upper eyelids, and base of the neck.[13] This patient presented with both, the pigmentation and the preaxillary freckling (figure 1, 2).

Lisch nodules are well defined, avascular, smooth, regular, dome-shaped melanocytic

hamartomas, which are variable in color (yellow to brown), size and number. They are located on the surface of the iris, with their prevalence increasing with age. [14]. In the head and neck region, neurofibromas are frequently seen affecting scalp, cheek, neck and oral cavity. In the oral cavity they commonly occur on the tongue, lip, palate, gingiva, major salivary glands, and maxillary bones. [14] Prompt diagnosis of NF1 is essential, to prevent the risk of development of complications such as neurofibrosarcoma, pheochromocytoma, leukemia, rhabdomyosarcoma, Wilms' tumor, CNS tumors and optic gliomas. [15]

CONFLICT OF INTEREST

No potential conflict of interest relevant to this article was reported.

REFERENCES

1. Gerber PA, Antal AS, Neumann NJ, Homey B, Matuschek C, Peiper M et al. Neurofibromatosis. Eur J Med Res 2009; 14: 102-105.

2. Ghosh SK, Bandyopadhyay D, Ghosh A, Sarkar S. Mucocutaneous Manifestations of Neurofibromatosis Type-1: A Clinical Profile of 51 Indian Patients. J Turk Acad Dermatol 2008; 2 (4): 1-4.

3. Kanneppady SK, Lakshman AR, Kanneppady SS, Banu V, Castelino RL. Neurofibromatosis Type 1 with Oral and Extra Oral Manifestations. www.journalofdentofacialsciences.com 2013; 2(4): 25-28.

4. Depprich R, Singh DD, Reinecke P, Kubler NR, Handschel J. Solitary submucous neurofibroma of the mandible: review of the literature and report of a rare case. Head & Face Medicine 2009; 5(24): 1-4.

5. Campos MS, Fontes A, Marocchio LS, Nunes FD, Machado de souse SCO. Clinicopathologic and immunohistochemical features of oral neurofibroma. Acta Odontologica Scandinavica, 2012; 70: 577–582.

6. Agrawal SM, Barodiya A, Agrawa MGl. Neurofibromatosis involving hard palate: A rare case report. Clinical Dentistry.2 0 1 2;6(12): 34-37.

7. Munhoz EA, Cardoso CL, Tolentino ES, Centurion BS, Goncales ES, Santana E et al. Von Recklinghausen's disease - Diagnosis from oral lesion. Neurofibromatosis I. Int. J. Odontostomat. 2010; 4(2):179-183.

8. Dimitrova V, Yordanova I, Pavlova V, Valtchev V, Gospodinov D, Parashkevova B et al. A case of neurofibromatosis type 1. Journal of IMAB 2008; vol. 14: book 1 / 63-67.

9. Theos A, Korf BR. Pathophysiology of Neurofibromatosis Type 1. Ann Intern Med. 2006;144(11):842-849.

10. Lopez-Jornet P, Gomez-Garcia E, Camacho-Alonso F. Solitary oral neurofibroma. N Y State Dent J 2010; 76: 54-55

11. Lykke E, Noergaard T, Rasmussen ER. Lingual neurofibroma causing dysaesthesia of the tongue. BMJ Case Rep 2013 ; 2013: bcr2013010440. doi:10.1136/bcr-2013-010440.

12. Garcia-de Marcos JA, Dean-Ferrer A, Alamillos-Granados F, RuizMasera JJ, Garcia-de Marcos MJ, Vidal-Jimenez A et al. Gingival neurofibroma in a neurofibromatosis type 1 Gingival neurofibroma in a neurofibromatosis type 1 patient. Med Oral Patol Oral Cir Bucal 2007;12:E287-91.

13. Ghalayani P, Saberi Z, Sardari F. Neurofibromatosis type I (von Recklinghausen's disease): A family case report and literature review. Dent Res J (Isfahan). 2012 ; 9(4): 483–488.

14. Bharath TS, Krishna YR, Nalabolu GR, Pasupuleti S, Surapaneni S, Ganta SB. Neurofibroma of the palate. Case Rep Dent. 2014;2014:898505. doi: 10.1155/2014/898505. Epub 2014 Apr 17.

15. Rupak S, Baby GG, Padiyath S, Kumar KKR. Neurofibromatosis Type I with Oral Manifestations. e-Journal Of Dentistry. 2012; Vol 2 (1): 136-139.