GINGIVAL NEUROFIBROMA IN NON SYNDROMIC NEUROFIBROMATOSIS TYPE 1

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Abstract

Neurofibromatosis type 1 may present as a gingival neurofibroma in a patient with no family history. Accurate diagnosis will lead to successful management of oral lesions. The present case is a report of sporadic gingival neurofibroma in an 18 year old male.

GINGIVAL NEUROFIBROMA IN NON SYNDROMIC NEUROFIBROMATOSIS TYPE 1

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CONSENT STATEMENT

Written informed consent was obtained from the patient to publish this report in accordance with the journal's patient consent policy.

INTRODUCTION

Neurofibromatosis type 1 also known as von Recklinghausen's disease is a relatively common disease of nervous tissues. It is an autosomal dominant disease caused by a mutation in the NF1 gene characteristically shown as multiple neurofibromas and cafe ´-au-lait spots (1). Per the nature of NF1 gene mutation, NF1 has multiple and varied clinical manifestations, from mild to extreme forms that cause impairment and disability (2)

In 72% of patients with NF1 oral manifestations occur (3) but rarely occur as gingival enlargement. In this paper, we report a rare manifestation of NF1 in the lingual gingiva in a patient without a family history of neurofibromatosis.

CASE PRESENTATION

An 18-year-old male was referred to the Department of Oral Medicine, Shahid Beheshti University of Medical Sciences (Iran, Tehran) for evaluation of painless swelling of the left posterior lingual vestibule of the mandible and tooth mobility in that region for two weeks. The patient had no history of previous trauma or medical problems. Intraoral examination showed a firm swelling extending from teeth no 33 to 35 with intact mucosa (Figure 1). The local teeth were vital. The patient's oral hygiene was good. Imaging, in the panoramic radiograph, showed nothing notable. It appeared that the infra alveolar canal was intact. Due to clinical,

and histopathologic features, "Neurofibroma" was considered. On gross examination, the lesion consists of one piece of nodular oval cream-white tissue with firm consistency covered by irregular mucosa measuring 1.3×1.1×0.4 cm.

Histopathologic sections revealed a mesenchymal tumor composed of fibrous to myxoid connective tissue with abundant spindle cells with wavy nuclei, few mast cells, giant fibroblasts, and scattered chronic inflammatory cells. The lesion is covered by para-keratinized stratified squamous epithelium (Figure 2). The nature of spindle cells was determined through immunohistochemistry (IHC) which were scattered positive for S-100 protein (Figure 3). But IHC staining was negative for Desmin, SMA (Smooth muscle Actin), and Myogenin. According to the aforementioned histopathologic, IHC features, more evaluation clinically and family history have been done. The patient stated that he had no family history of such lesions. Then we observed his body for other clinical features to confirm "Neurofibromatosis" and we found more café-au-lait macules on the trunk, neck, and scalp, axillary freckling, and Lisch nodules in his eyes (Figure 4). He mentioned that he had a history of macular lesions of scalp biopsy and a histopathological report of "Nevus Spilus". Because it appears that NF shows nonaggressive behavior, no additional treatment was done just following him for recurrent or malignancy. The recurrent lesion was undergone surgical treatment the next year after the first biopsy. There was no recurrence during a 24-month follow-up period. Informed consent was obtained from the patient for publishing her clinical photography.

DISCUSSION

The two main forms of neurofibromatosis are type 1 (NF1) and type 2 (NF2) of which the former is characterized by café-au-lait spots and neurofibroma and the latter by bilateral acoustic neuroma. The more common of the two, NF1, was first described in 1882 by Friedrich Daniel von Recklinghausen and it is caused by the mutation of genes located on chromosome 17 (17q11.2) (4). NF1 gene produces neurofibromin, a tumor suppressor protein whose signaling inhibits the *ras* signal transduction pathway and so controls cell growth (5).

The etiology of neurofibromatosis, an autosomal dominant neurocutaneous syndrome, is unknown although several theories have been proposed. Approximately 50% of the cases of NF1 are sporadic and represent a spontaneous mutation. Sporadic NF1 is considered one of the diseases with the highest spontaneous mutations affecting humankind (6).NF1 impacts cognitive development in affected children. Patients with sporadic NF1 have significantly better IQ than those with familial NF1. This has an impact on the long-term care and management of patients with NF1 (7).

Oral manifestations of NF1 are seen in approximately 72% of NF1 cases (8) and may present as impacted, displaced, supernumerary, or missing teeth (9). Gingival manifestations of neurofibroma are rare and constitute only 2% of the cases that appear in the oral cavity (9). The present case showed a firm swelling extending from the lingual side of the mandibular left canine to the first premolar on the same side. The lesion had intact covering mucosa and an intact mandibular canal on the panoramic radiograph. Teeth in the lesion environment were vital and had healthy periodontium. Gingival neurofibroma may lead to periodontal problems when it obstructs routine oral hygiene care.

The most common mode of treatment for oral neurofibroma is surgical excision (10). For plexiform neurofibroma, which possesses a high risk of malignant transformation, oral selective mitogen-activated protein kinase inhibitor Selumetinib has now become the standard of care, especially in children where lesion shrinkage is 68% (11).

Patients with NF1 have a higher lifetime risk of malignant transformation than the general population which is estimated at about 5% for localized neurofibroma (10) and as high as 29% for plexiform neurofibroma (12).

CONCLUSION

It is prudent that dental professionals are aware of the oral manifestations of NF1 for timely detection of the condition, and for appropriate preventive follow-up for early diagnosis of any eventual malignant trans-

formation. Gingival manifestations of neurofibroma may cause periodontal problems so early management is key, especially in the patient with no familial history.

DECLARATION OF CONFLICT OF INTEREST

The authors report no conflict of interest.

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