Neurofibroma of Lip: Report of a Rare Case

1N Kannan, 2Rajendra Patil, 3Sreenivasulu Pattipati
1Professor and Head, Department of Oral Medicine and Radiology, Narayana Dental College and Hospital, Nellore Andhra Pradesh, India
2Professor, Department of Oral Medicine and Radiology, Narayana Dental College and Hospital, Nellore, Andhra Pradesh, India
3Postgraduate Student, Department of Oral Medicine and Radiology, Narayana Dental College and Hospital, Nellore Andhra Pradesh, India

Correspondence: N Kannan, Professor and Head, Department of Oral Medicine and Radiology, Narayana Dental College and Hospital, Chinthareddypalem, Nellore-524002, Andhra Pradesh, India, e-mail: natarajankannan1@rediffmail.com

Abstract
Neurofibroma is a benign tumor of neural tissue origin. It most frequently involves the skin and rarely the oral mucosa. The nature of the disease has been recognized as hereditary with an autosomal dominant trait with variable penetrance. It has been reported to occur 1 in every 3000 births.

The oral lesions occur as discrete, nonulcerated nodules, which tend to be of the same color as the normal mucosa. Usually occurs on the buccal mucosa, palate, alveolar mucosa, vestibule and the tongue.

An interesting case of asymptomatic swelling of the lower lip since 20 years is presented. The swelling was gradual in onset and slowly increased in size in the first year of its appearance, after there was no increase in size of the swelling and it remained stable until the patient reported at our clinic. It was a solitary diffuse, lobulated swelling of lower lip extending distally from left commissure, mesially crossing the midline, anteriorly from vermilion border of lower lip, posteriorly extending into labial vestibule. Excisional biopsy was performed and histological examination revealed interlacing fascicles of elongated cells with very dark staining nuclei and focal areas resembling Antoni A pattern, which confirmed the lesion to be neurofibroma of lip.

Keywords: Solitary labial neurofibroma, nonmyelinating Schwann cells, NF1genes, perineural cells, mast cells, endothelial cells, mitogens, neurofibromin.

INTRODUCTION

Neurofibroma is an uncommon benign tumor of the oral cavity derived from the cells that constitute the nerve sheath. Neurofibroma is seen either as a solitary lesion or as part of the generalized syndrome of neurofibromatosis [usually neurofibromatosis type 1 (NF-1), also called von Recklinghausen disease of the skin].1,2 The solitary form does not differ from the disseminated form or the multiple form of the disease, except that systemic and hereditary factors present in the disseminated form are absent in the solitary type.

Oral cavity involvement by a solitary and peripheral plexiform neurofibroma in patients with no other signs of neurofibromatosis is uncommon. Sporadic cases have been reported in the submandibular gland, tongue, and on the periosteum at the mental foramen. This sporadic syndromic occurrence has also been seen in the cutaneous region, and several authors have suggested that these isolated neurofibromas may represent a hamartomatous growth.3,6

The World Health Organization (WHO) has subdivided neurofibromas into 2 broad categories: dermal and plexiform. Dermal neurofibromas arise from a single peripheral nerve, while plexiform neurofibromas are associated with multiple nerve bundles. Other clinicopathologic subtypes include localized neurofibroma (sporadic neurofibroma), diffuse neurofibroma, plexiform neurofibroma, and epithelioid neurofibroma.1

Localized or solitary neurofibroma is the most frequent manifestation and develops along a peripheral nerve as a focal mass with well-defined margins but not encapsulated. Localized or solitary neurofibroma is rare in infancy and typically appears in late childhood or during teenage years.3 The majority of isolated or solitary neurofibromas are sporadic, and a small minority may be associated with the NF-1 syndrome.5

Most of these arise in the third to fourth decades of life. Neurofibroma involving a major nerve, especially those encased in bone, such as the inferior alveolar nerve in the mandible, results in a fusiform expansion of the nerve canal—the so-called blunderbuss canal formation. Soft tissue growths are noted when smaller peripheral nerves are involved.1,2

The cause of solitary neurofibroma is unknown.3,4 However, neurofibromatosis is inherited as an autosomal dominant trait with a high degree of penetrance but variable expressivity. As many as 50% of cases are reported to be the result of spontaneous mutation. Two subsets have been defined: one is associated with the NF-1 (NFI) gene, and the other is associated with the neurofibromatosis type 2 (NF2) gene.5

An estimated 5% of patients with NF1 have an intraoral manifestation of the disease.7 Discrete neurofibromas may involve the tongue8,9 or the larynx.10

CASE REPORT
A 60-year-old male patient presented to the Department of Oral Medicine and Radiology of Narayana Dental College and Hospital with a complaint of asymptomatic swelling in lower lip with facial disfigurement (Fig. 1) and difficulty in speech since 20 years.
Swelling was gradual in onset and slowly increased in size in first year of its appearance. Thereafter there was no further increase in size of the swelling. Patient did not have any symptoms of altered sensation in the region. His medical history was otherwise unremarkable.

Patient underwent uneventful dental extraction in right lower back region of the jaw 3 years back.

**Clinical examination:** On inspection a diffuse solitary swelling present in lower lip. It extends distally from left commissure, mesially crossing midline, anteriorly from vermilion border of lower lip, posteriorly extending into the depth of lower labial vestibular sulcus. It measured approx. 4.5 × 4 cm. Mucosa over the swelling appeared stretched and shiny and no signs of discharge, bleeding and pulsations.

On palpation, the swelling was nontender, nonreducible, firm in consistency; three nodules were felt. Edges and margins were well-defined. No pulsations were felt. Inspectory findings of size, shape and extent were confirmed by palpation. Diascopy and fine needle aspiration were done and both were negative.

Based on history and clinical examination we provisionally diagnosed the swelling as neurofibroma of lip.

**DIFFERENTIAL DIAGNOSIS**

In general, diagnostic consideration for lip swellings should include conditions of mucocele, lipoma and, pleomorphic adenoma of minor salivary gland origin.

Mucocele is a common lesion of lower lip that results from rupture of salivary gland duct and spillage of mucin into surrounding tissues. It appears as a dome shaped mucosal swelling varies from 1 to 2 mm to several cm. These are characteristically fluctuant but some are firm on palpation.11,12

Lipoma is a benign tumor of fat cells. It is usually soft, smooth surfaced nodular masses that can be sessile or pedunculated. These are asymptomatic and often noted for months to years. Clinically they can appear as yellow and deeper lesions may appear pink. Common intraoral sites are buccal mucosa and vestibule; most of the patients are older than 40 years.11,12

Pleomorphic adenoma of minor salivary gland is a common tumor of salivary glands and 8% of cases occur in minor salivary glands. Palate is common site; majority of cases reported in 4th to 6th decades, mean age is 43 years. It is a small, painless, quiescent nodule, which slowly increases in size. It is an irregular nodular lesion; on palpation firm in consistency. Recurrent lesions occur as multiple nodules.11,12

**DIAGNOSIS AND TREATMENT**

Lesion was surgical excised under local anesthesia and specimen (Fig. 2) was sent for histopathological examination.

Histopathology reveals that a well-encapsulated mass comprising of short/long interlacing fascicles (Fig. 3) of elongated cells with very dark staining nuclei and varying amounts of collagen strands.

Very minimal to moderate amounts (more at periphery) of highly vascular fibrocellular stroma with occasional myxoid areas and areas of hyalinization is seen. Focal areas resembling Antoni A pattern are seen. The wavy serpentine nuclei (Fig. 4) arranged in ladder pattern and numerous mast cells present.

Collagen bundles were seen in the stroma with a shredded carrot appearance. Histopathologically it was diagnosed as neurofibroma-cellular type. The patient has reported to our hospital after six months and eighteen months duration for follow-up and there was no recurrence of the lesion.

**DISCUSSION**

Neurofibromatosis was first described by Von Recklinghausen in 1882.13

![Fig. 1: Close-up view of labial neurofibroma](image1)

![Fig. 2: Surgically excised neurofibroma (worm like appearance)](image2)

![Fig. 3: Fascicles of nerve bundles](image3)
Neurofibroma is a benign tumor of neural tissue origin. It most frequently involves the skin and rarely the oral mucosa. The nature of the disease has been recognized as hereditary with an autosomal dominant trait with variable penetrance. Two types of neurofibromas have been defined; 1. Neurofibromatosis type 1 genes coding on chromosome 17q11.2. 2. Neurofibromatosis type 2 genes coding on chromosome 22q12.1. Incidence of type 1 in 2,500 to 3,000 births and its prevalence in population is 1 in 5,000; type 2 incidence is 1 in 33,000 to 40,000 births and its prevalence in population is 1 in 2,10,000.12,14 Neurofibromas are derived from the Schwann cells, perineural fibroblasts. Skin lesions appear as soft, drooping and doughy masses, often resembles “a bag of worms”. Only 4-7% of patients affected by neurofibromatosis display oral manifestations.15,16 Oral lesions are discrete, nonulcerated nodules, which tend to be of same color of normal mucosa. Usually occurs on buccal mucosa, palate, alveolar ridge, vestibule and tongue; also reported in lips and gingiva.12,15,16 Intraosseous lesions are quite rare, with the most common site being the posterior mandible.16,17 Females are more frequently affected, with the female-to-male ratio being 2:1. Most patients are younger than 45 years of age. Central neurofibromas in early stages, they are asymptomatic, but, as they grow in size, they may cause expansion of the cortical plates of the mandible, with or without destruction, and pain and anesthesia or paresthesia of the lower lip. Radiographically, the tumor appears as a well-circumscribed or poorly demarcated radiolucent lesion, usually involving the mandibular canal. CT or MRI is important to delineate the exact location and dimensions of the tumor. Malignant transformation of neurofibroma is reported to occur in 5% to 16% of patients with neurofibromatosis. Solitary neurofibromas very rarely undergo malignant transformation. Neurofibromas have been reported to locally recur after treatment; because the absence of a capsule in neurofibroma, making complete extirpation of the tumor more difficult. Even more radical surgery has been proposed to prevent local recurrence.18

CONCLUSION

Neurofibroma usually presents with classical features like wide spread soft tissue nodules and skin pigmentation; thus making it not so difficult to identify and diagnose. However, difficulty arises in such cases wherein the patient presents with only oral manifestations like swellings intraorally or on the lips. Here we present a case with asymptomatic lip swelling with longstanding duration without any systemic manifestations, which proved to be very challenging. Having taken a detailed case history and careful clinical examination, it made us to take a chance to provisionally diagnose it as neurofibroma as none of the other lesions favored to be diagnosed at this clinical situation. Although some common lesions affecting the lips were also considered in differential diagnosis. So, our experience with rare swelling affecting the lip with longstanding duration make us to highly recommend suspecting neurofibroma and investigating the case in that order.

REFERENCES