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A Solitary Gingival Neurofibroma, Swindle To Periodontist-A Case Report

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Abstract

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Introduction

The growth of Schwann cells, perineural cells, and endoneural fibroblasts results in neurofibroma, a benign peripheral nerve sheath tumour. Neurofibromatosis type-1 (NF1), also known as von Recklinghausen's disease, is a systemic disorder caused by a mutation in the NF1 tumour suppressor gene. According to Shklar and Meyer classification (1963) it can manifest as either single lesion, known as solitary neurofibroma, or as a component of generalised syndrome. (1) Solitary neurofibroma of oral cavity first elaborated by Brucein in 1954. (2) The solitary type may be central or peripheral. If left untreated, these lesions could result in significant functional issues or potentially turn into cancerous tumours. Clinically oral neurofibromas are slow-growing, soft, sessile submucosal tumours. Histopathological examination and immunohistochemistry, mostly based on S-100 protein detection, which indicates their brain origin, support the diagnosis.

This article describes a rare instance of an asymptomatic gingival solitary neurofibroma that was effectively treated in a male patient who had no other signs of neurofibromatosis type-1 at all.

Case Presentation

In November 2021, an 18-year-old male patient was referred to the Department of Periodontology in Dr. R. Ahmed Dental College and Hospital, chief complaint of a painless localised round gingival growth present in left lower back tooth region. The growth started one year back and gradually increased in present size.

The patient had no specific medical history and did not smoke. Intraoral examination showed a firm, non-ulcerated sessile non-tender growth on the buccal gingiva of left mandibular canine and first premolar involving attached gingiva and extended to alveolar mucosa (Fig-1). The growth was pink in colour, smooth and shiny surface approximately 9 mm x 10 mm in diameter. Intraoral periapical radiograph did not reveal any bony involvement.

Based on the history and clinical examination the lesion was provisionally diagnosed as fibroma, other differential diagnosis included soft tissue lesions such as peripheral giant cell granuloma, peripheral ossifying fibroma, and pyogenic granuloma, benign neoplasms. Thorough supra and subgingival scaling was done and after follow up an excisional gingival biopsy was planned. The patient underwent complete blood investigation before surgery and all the blood parameters were within normal limit. Local

anaesthesia was given using 2% lignocaine with 1:80,000 adrenaline. The growth was surgically excised from within through internal bevel incision and reflecting mucoperiosteal flap with the help of #15 blade to avoid creating any mucogingival defect [Figure-2,3]. Simple interrupted 3-0 silk suture was placed.

On histopathological examination, Haematoxylin and eosin stained (Fig-4) sectioned revealed the presence of normal stratified squamous epithelium supported by connective tissue largely composed of interlacing bundles of spindle shaped cell with wavy nucleus. In some areas delicate collagen, myxoid connective tissue, multiple small axonal tissues were present. Mast cells were also visible. Overall H/P features are suggestive of Solitary Neurofibroma.

At one week follow up visit there were no postoperative complications. Absence of café-au-lait spots, Lisch nodules, and axillary freckling and no history of similar findings or growth in the family members helped to rule out NF-1. There were no signs of recurrence or NF-1 over a follow-up period of 12 months. Patient was recalled after one-month, three-month, six-month and 12 months postoperatively and there was satisfactory healing with no recurrence.

Figure-1

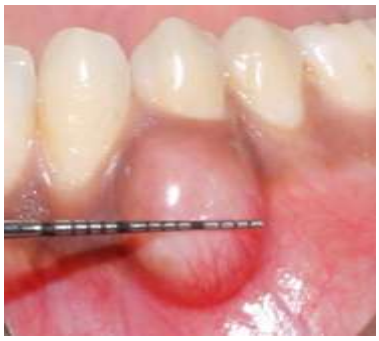


Figure-2

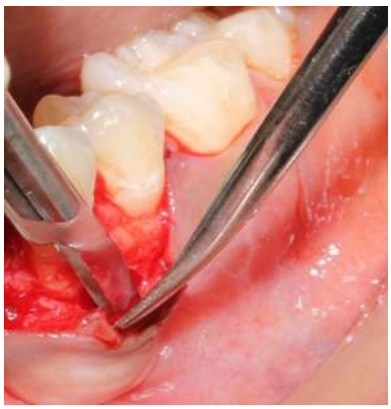


Figure-3

Volume 6, Issue 2; March-April 2023; Page No 1044-1047

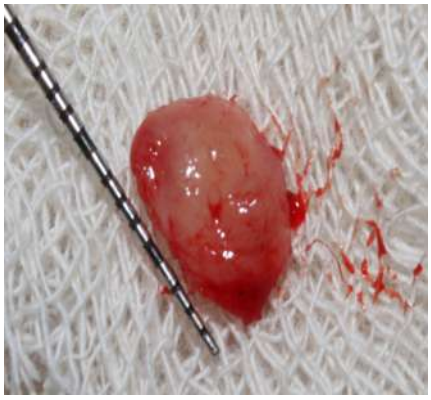
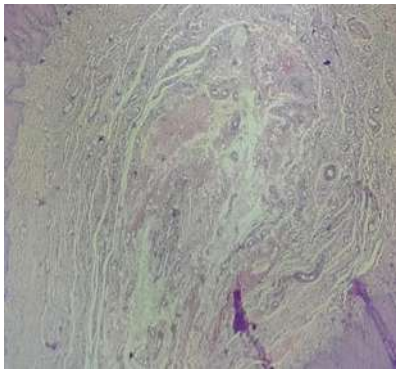


Figure-4



Discussion

Neurofibromas are the most common benign neoplasms arising from the peripheral nerve sheath and can manifest as single or multiple tumours. Although in the skin, the lesions appear most frequently, other organs such as the stomach, intestines, kidneys, bladder, larynx, and heart may also be affected. Neurofibromas can be present at birth or can appear at any point during life; they frequently affect adults and kids between the ages of 9 and 50, with a mean age of 31.2 years. (3)

Neurofibromas can be classified into two main groups, localised and plexiform. (5) Localized neurofibromas originate from a single site along a peripheral nerve and show a focal mass with well-defined margins; plexiform neurofibromas extend along a peripheral nerve and may involve multiple nerve branches.

Histologically Schwann, perineural, endoneural fibroblast, and intermediate cells complexly proliferate to create non-encapsulated tumours called neurofibromas. (6) (7) (8) They then exhibit significant microscopic cell heterogeneity. They are typically well-circumscribed tumours with a varied number of mast cells. Interspersed sheaves of elongated spindle-shaped cells with wavy or comma-shaped nuclei are a characteristic feature. There is presence of a myxoid matrix filled with scattered fragile collagen fibres.

Since many years, malignant transformation of neurofibromas has been a well-documented phenomenon. Its incidence ranges from 3 to 5%. (9) (10) It is known to be a malignant peripheral nerve sheath tumour and frequently develops in diffuse neurofibromatic lesion, particularly in NF1 individuals. The scalp, cheek, neck, and oral cavity are the areas of the head and neck most frequently affected. According to earlier research, isolated neurofibromas in the mouth cavity occur about 6.5%.

Solitary oral neurofibromas resemble circumscribed nodules that match the colour of the surrounding mucosa and are typically asymptomatic; their clinical aspect is unspecific and does not significantly differ from cutaneous neurofibromas. (14) (15) (16)

Surgery is used to remove solitary neurofibromas in order to treat a functional or aesthetic issue, prevent persistent damage, or in the event that a malignant transformation develops. To lower the risk of

Volume 6, Issue 2; March-April 2023; Page No 1044-1047

recurrence, it is advised to undergo total tumour excision with 1 cm of surgical margins. (14) (16)

Conclusion

Even though it is unlikely, it should not be ruled out that NF1 could be discovered in the gingiva. The current case report demonstrates that NF1 can manifest as a single, painless swelling in the gingiva. If it is not addressed, this condition can impair the patient's periodontal condition and cause speech and mastication difficulties. For patients with neurofibroma, dental care should focus on restoring oral health including comfort, functionality, and aesthetics.

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Volume 6, Issue 2; March-April 2023; Page No 1044-1047