CASE REPORT
ISSN 2645-4351

https://doi.org/10.22037/jds.v43i3.46773

Gingival Lipoma Following Grafting of Tongue Tissue: A Case Report

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Submitted: 20 November 2024
Revised: 23 December 2024
Accepted: 28 December 2024
Published: Summer 2025

How to cite:
Anbari F, Atarbashi-Moghadam S, Ladan-Moghadam M, Dalirani S. Gingival Lipoma Following Grafting of Tongue Tissue: A Case Report. J Dent Sch 2025;43(3):173-176.

Abstract

Objectives: Lipoma, the most frequently observed benign mesenchymal neoplasm, is infrequently encountered within the oral cavity. Typically manifesting in middle-aged individuals irrespective of sexual predilection, it presents as an asymptomatic, slowly progressive lesion. Within the oral cavity, the buccal mucosa and mucobuccal fold represent the most common anatomical locations for lipoma development. **Case:** A 36-year-old male patient's medical history included a shotgun injury 15 years prior, which resulted in the avulsion of multiple mandibular teeth. Subsequently, tongue tissue was grafted to the affected area. A pedunculated lesion later developed within the grafted tissue and was surgically removed. Histopathological examination of the excised lesion revealed an intraoral lipoma. The patient's medical history was otherwise unremarkable, with no reported systemic illnesses or medication use. A separate, analogous case involved tongue tissue grafting to a cleft palate defect, which also exhibited similar characteristics. **Conclusion:** The significance of this case lied in the rare occurrence of a lipoma on an edentulous mandibular ridge previously augmented with a tongue tissue graft. The etiology of lipoma may be linked to both the surgical trauma and the inherent properties of the grafted tissue. Critically, this report highlighted the potential for donor tissue characteristics to persist within the recipient site following grafting, contrasting with the typical physiological traits of the recipient site itself. This observation warranted careful consideration in comparable clinical scenarios.

Keywords: Intraoral Lipoma; Soft Tissue Tumor; Mesenchymal Tumor; Lingual Graft; Benign Soft Tissue Tumor

Introduction

Lipoma, the most frequently observed benign mesenchymal neoplasm, is nonetheless uncommon within the oral cavity.[1] Typically presenting in middle-aged individuals, it exhibits no significant sexual predilection.[2] First characterized by Roux in 1848, who described it as a soft tissue lipoma, this lesion is histologically comprised of mature adipocytes and clinically manifests as a yellowish, soft tissue mass.[3] Characterized by slow growth, lipomas typically appear as painless, exophytic lesions with a smooth surface, exhibiting either a yellow hue or a color consistent with the surrounding mucosa, contingent upon the lesion's depth.[4] The surface remains generally smooth and non-ulcerated, unless secondary trauma occurs.[5]

The buccal mucosa and mucobuccal fold are the most frequent locations in the oral cavity, followed by the tongue, floor of the mouth, and lips.[5]

Case Report

A 36-year-old male patient presented to the department of Oral Medicine with a history of a shotgun injury to the left submandibular region approximately 15 years ago. This incident resulted in the avulsion of teeth numbers 31 through 36. Subsequently, the affected area underwent grafting with tongue tissue. The presented CT scan was performed 15 years prior, as part of the preoperative planning for mandibular reconstructive surgery (Figure 1). Over time, the grafted tissue exhibited hypertrophic growth. The patient's medical history was unremarkable for systemic disease, with no reports of current medication use.

Figure 1: The CT scan image obtained from the patient after jaw reconstruction surgery 15 years ago.

A pedunculated, exophytic lesion with a granular surface was observed on the mandibular edentulous ridge at the tongue graft site during intraoral examination. The overlying mucosa presented a similar appearance to the natural tissue of the

tongue. The lesion, measuring approximately 2 × 2 cm^2, exhibited a firm consistency (Figure 2). The patient reported occasional tenderness upon palpation and some discomfort during mastication.

An excisional biopsy was performed to remove the lesion, which was clinically diagnosed as either an irritation fibroma or a benign mesenchymal tumor (Figure 3). The excised tissue was submitted for histopathological analysis. Microscopic examination revealed an encapsulated mass comprised of mature adipocytes arranged in lobules, interspersed with fibrovascular connective tissue and muscle fibers. The overlying mucosa was identified as tongue mucosa (Figure 4).

Figure 2: An exophytic pedunculated lesion with granular surface, similar to the natural tissue of the tongue

Figure 3: Sample obtained by excisional biopsy

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A diagnosis of intraoral lipoma was made based on clinical and histological findings. This type of oral lipoma has not been previously documented in the literature, to the best of our knowledge.

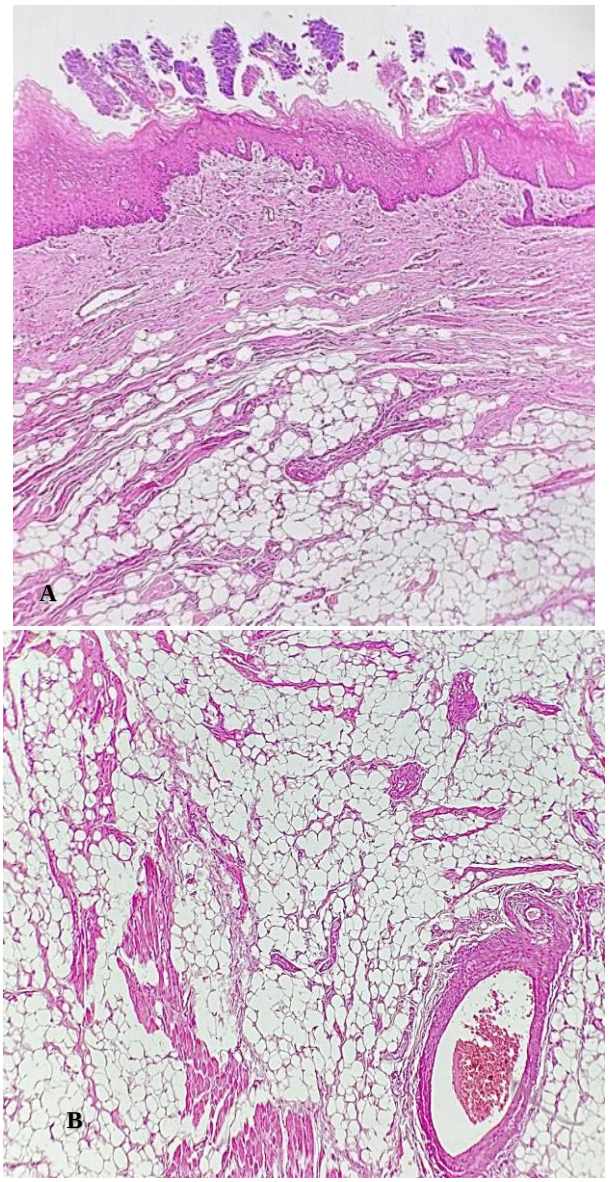

Figure 4: Histopathologic view of the lesion showed an encapsulated mass composed of lobules of mature fat cells intermixed with fibrovascular connective tissue and muscle fibers. A: H&E staining, magnification × 100, B: H&E staining, magnification × 400)

Discussion

Oral lipomas most frequently manifest in the buccal mucosa and vestibule, likely due to the abundance of adipose tissue in these regions. The tongue is the next most common location, while the palate, which contains the least amount of fat within the oral cavity, is the least frequent site of occurrence.[5, 6] Although the precise etiology and pathogenesis of oral lipomas remain unclear, prior research has proposed several potential contributing factors, including endocrine imbalances, trauma, and inflammation.[7, 8] Traumatic lipoma, a benign neoplasm, typically manifests at the site of prior injury after a latency period of five to six years.[9] Ntep DB et al. (2019) documented a case of an intraoral lipoma located in the buccal mucosa, which arose six years after a patient experienced trauma, specifically an ulcer resulting from instrumentation during a tooth extraction procedure.[9] The present case was notable because the lipoma developed on the edentulous ridge, an area generally characterized by a lower concentration of adipose tissue compared to regions like the buccal mucosa and tongue. Lipoma formation at the recipient site following gingival grafting is uncommon. However, in this particular case, the donor tissue was harvested from the lingual region, an area known for its relatively high adipose tissue concentration. The subsequent development of a lipomatous mass at the graft site suggested a potential correlation between the surgical trauma inherent to the grafting procedure and the adipocytic nature of the transplanted tissue. This case indicated that the lipoma likely arose from the confluence of surgical trauma and the presence of abundant adipose tissue within the graft. A comparable lesion was identified in the palate of another patient within the same department, associated with a tongue graft utilized for cleft palate repair. However, definitive characterization of the lesion was precluded by the patient's refusal of a biopsy. As illustrated in Figure 5, the lesion at the cleft palate site shared identical characteristics with the donor site that was a healthy tongue tissue. The surface of the lesion appeared to have a coated tongue appearance, which may be due to diminished oral hygiene.

Figure 5: A lesion with a similar appearance to the grafted tissue from the tongue at the site of the cleft palate.

Lipomas, although typically superficial, can extend deeply, infiltrating muscle layers and adhering to adjacent tissues, resulting in immobility. Deeply situated lipomas may manifest only as subtle tissue protrusions or remain entirely encapsulated.[10] Clinical diagnosis is usually sufficient for oral lipomas, obviating the need for imaging. However, imaging, particularly magnetic resonance imaging (MRI), is warranted when the lesion presents with pain, rapid growth, significant size, or fixation to surrounding structures.[1, 11]

A differential diagnosis for oral lipomas, based on their location, encompasse dermoid cysts, ranulas, thyroglossal duct cysts, pleomorphic adenomas, ectopic thyroid tissue, mucoepidermoid carcinomas, angiolipomas, fibrolipomas, and malignant lymphomas.[12, 13] In this particular case, given the lesion's presentation and its apparent reactive etiology, the differential diagnosis included irritation fibroma and benign mesenchymal lesions associated with normal tongue tissue.

The gold standard for diagnosing oral lipomas relies on a synthesis of clinical observations and histopathological analysis.[13]

Surgical excision is the standard treatment for oral lipomas. While recurrence is uncommon, intramuscular lipomas exhibit a higher rate of recurrence due to their infiltrative growth pattern.[10] In this particular case, the lesion was excised under local anesthesia, and the wound was closed with 2% vicryl catgut sutures. The patient experienced no postoperative complications, and a two-year follow-up revealed no evidence of recurrence.

Conclusion

The case presented here highlights a rare occurrence of an oral lipoma situated on the edentulous ridge, a site atypical for lipoma development. It is crucial to acknowledge that grafts transplanted to recipient sites may exhibit

characteristics reminiscent of the donor tissue, potentially deviating from the expected features inherent to the recipient site itself.

Acknowledgements: None acknowledgments.

Author Contributions:
F.A: study design; S.A: pathologic observations; M.LM: manuscript writing and drafting.; S.D: manuscript writing and editing.

Funding: None

Ethical Approval Code: Not applicable.

Informed Consent Statement:
Written informed consent was obtained from the patient for publication of this case report and any accompanying images anonymously.

Data Availability Statement: available upon reasonable request.

Using AI: This manuscript was written entirely by the authors without the assistance of any AI tools or large language models.

Conflict of Interest: No conflicts of interest to declare.

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