



Recurrent Paraspinal Lipoma of the Mandible: Case Presentations

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Abstract

Introduction and Importance: The occurrence of lipoma, a relatively common benign tumor, is predominantly observed in subcutaneous tissues with higher adipose content, such as the trunk and limbs. Parosteal lipomas are rare based on their location, and those occurring in the jaw are even more uncommon.

Case Presentation: We present a case of recurrent left mandibular para-bone lipoma in a 42-year-old male patient. The patient had previously undergone surgical treatment for a tumor at the same location in another medical institution 8 years ago, with postoperative pathological results confirming it as a lipoma. Following the operation, there was no discomfort reported for 6 years. However, two years ago, a soft mass reappeared at the site and required further treatment. The patient underwent surgical resection again, which confirmed the presence of lipoma through pathological examination. No discomfort has been observed during follow-up.

Clinical Discussion: The occurrence of parosteal lipoma in the jaw bone is rare, and no cases of recurrence after surgical treatment have been reported. This case represents the first documented instance of recurrent parosteal lipoma. The unique anatomical location characterized by close proximity to hard tissue imposes limitations on its surgical management. To minimize the risk of postoperative recurrence, clinicians should perform comprehensive surgical treatment based on preoperative auxiliary examination and intraoperative findings.

Conclusion: The low recurrence rate of parosteal lipoma necessitates the integration of comprehensive surgical treatment with preoperative adjuvant examination and intraoperative findings, followed by long-term vigilant post-operative monitoring.

Introduction

Lipoma is a benign soft tissue tumor characterized by slow growth, commonly found in subcutaneous tissues abundant in adipose cells such as the trunk and limbs. The tumor cells are typically well-differentiated, with rare occurrences of malignant transformation [1,2]. Apart from subcutaneous or deep soft tissues, lipomas can also develop in the lateral periosteal region, known as parosteal lipomas [3]. Oral and maxillofacial lipomas predominantly occur in adipose-rich areas like the cheek and neck. Lipomas occurring within the oral cavity are uncommon, while extramural lipomas in the maxillofacial region are even rarer. Surgical resection is a standard treatment approach for lipomas, resulting in generally favorable prognosis with low recurrence rates [4]. This paper presents a case of recurrent parosteal lipoma located at the left mandibular vestibular sulcus that was effectively treated. This case report has been reported in line with the SCARE 2023 Criteria.

Case Presentation

A 42-year-old male patient presented to a medical institution with a chief complaint of a painless left lower gum mass persisting for 2 years, necessitating treatment. The patient reported previous surgical intervention at another medical facility for the same tumor 8 years ago, with postoperative histopathological findings consistent with lipoma. Following surgery, the patient remained asymptomatic for 6 years until the recurrence of a soft mass 2 years ago.

The local examination revealed that the patient exhibited overall good oral hygiene, and the mass was located in the buccal vestibular groove of the left first molar root, measuring approximately 17mm×15mm×6mm in size. Palpation indicated a soft consistency with clear boundaries, absence of wave sensation, smooth surface without nodules, normal mobility, no tenderness upon pressure, and a missing left mandibular second premolar tooth with no percussion sensitivity observed in

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Figure 1: The intraoral photographs revealed the presence of a mass in the buccal vestibular groove of the left first molar root. The yellow arrow indicates the mucosal scar resulting from a previous surgical procedure.

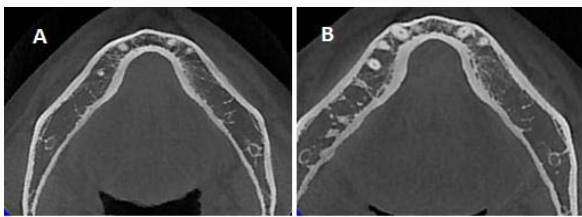


Figure 2: The CBCT image in 2022 (Figure A) reveals the presence of recurrent tumor, characterized by distinct low-density shadow masses (indicated by the green arrow). Prior to surgery in 2024, an enlargement of these low-density shadow masses is observed on the CBCT image (Figure B), as indicated by the red arrow.



Figure 3: The yellow-white mass is visible in the intraoperative images, with the blue arrow indicating its adherence to the periosteal layer.

the adjacent tooth. Furthermore, there were no deep periodontal pockets detected. An evident mucous scar was observed at the upper margin of the mass. No palpable enlarged lymph nodes were found on both sides or neck region. Preoperative Cone-Beam Computed Tomography (CBCT) demonstrated continuous cortical bone integrity in the left mandible without any signs of bone destruction; however, a well-defined low-density shadow measuring about 15mm×15mm was closely associated with the mandible.

After considering the patient's medical history, conducting a thorough clinical examination, and reviewing imaging results, a preliminary diagnosis of left mandibular vestibular groove lipoma was made. With the patient's informed consent, surgical resection of the tumor was performed under local anesthesia. Transverse incisions were made along the upper margin of the mass to expose and separate its connection with the frontal mass and mental nerve. The upper margin of the tumor was carefully detached from the submucosa, revealing its deep surface adherent to the mandible's periosteum. Complete removal of the tumor was achieved followed

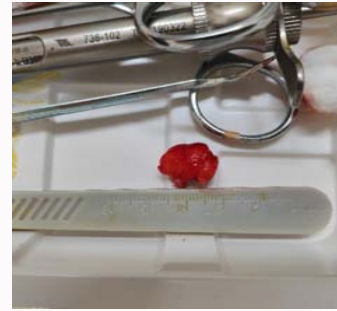


Figure 4: The tumor specimen was completely resected, 17 mm × 15 mm × 6 mm.

by compression at sutured areas to control bleeding. The excised tissue was preserved in 10% formalin solution for subsequent pathological examination which confirmed left mandibular vestibular groove lipoma as per diagnosis. Postoperatively, no discomfort or complications were reported by the patient who underwent suture removal one week after surgery with satisfactory wound healing observed. Continuous telephone follow-up has been conducted post-surgery (Figures1-5).

Discussion

Lipomas can occur in any location where adipose tissue is present, and they can be solitary or multiple. Lipomas are among the most common benign soft tissue mesenchymal tumors composed of mature adipose cells, particularly in subcutaneous tissues such as the trunk and limbs [1,5]. According to statistics, the prevalence of lipomas in the oral and maxillofacial region ranges from 1% to 4%, with lipomas occurring within the oral cavity being relatively uncommon [6,7]. The buccal mucosa is the most frequent site for oral lipomas (40.6%), followed by the tongue (17.9%), lip (12.6%), gum (8.7%), floor of mouth (6.8%), gingivobuccal folds and palate (4.8%), and other sites (3.9%) [6]. Parosteal lipoma is a relatively rare subtype of lipoma that typically presents between 40 and 60 years old, accounting for only 0.3% of all lipomas; it predominantly occurs in bones such as femur, proximal radius, humerus, tibia, clavicle, and pelvis. Parosteal lipoma occurring in the head and neck jaw region is exceptionally rare, with only one reported case [8].

The first report of parosteal lipomas, also known as periosteal lipomas due to their origin from the periosteum, was made by Seerig in 1836. Different literature reports have referred to them as subperiosteal lipomas or extraperiosteal lipomas based on their specific sites of occurrence. However, some scholars later argued that there were no tumor-originated cells in the periosteum and suggested that calling the condition an extraperiosteal lipoma would be more appropriate. In 1998, Power officially named it parosteolipoma [9]. Lipomas are typically asymptomatic soft tissue masses that may compress local tissues, particularly muscles or nerves, leading to localized numbness and other symptoms depending on their location and size. Imaging findings usually reveal well-defined low-density shadows closely associated with the surrounding bone and may exhibit various changes in the adjacent bone [10]. Miller et al. [11], based on internal osteogenesis degree, classified Parosteal lipoma into four subtypes: type I ossification, type II pedicled exostosis, type III ossification exostosis, and type IV plaque chondro-bone change. In conjunction with HE staining results from this case study, it aligns with a type I parosteal lipoma consistent with equine et al.'s reported

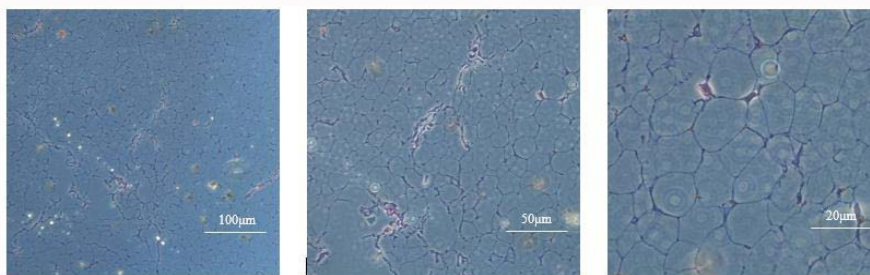


Figure 5: Histological examination using hematoxylin-eosin staining revealed the presence of adipose tissue in the postoperative specimen.

parosteal lipoma at the same location.

Surgical resection is the primary treatment for parosteal lipoma [9]. The majority of parosteal lipomas can be removed through a simple tumor resection, but in cases where the lipoma is closely attached to the periosteum and causes bone destruction, it may be necessary to perform an enlarged periosteum or partial bone removal. Lee et al. [12] reported a case of periosteal lipoma located at the first metatarsophalangeal joint of the right foot, which had a complete envelope and was completely detached along the edge of the mass. Tetsuhiko et al. [13] described a rib parosteal lipoma that required partial resection on the 3rd and 4th ribs due to its close adhesion to them. Generally, after surgical treatment, parosteal lipomas have a good prognosis with low recurrence rates. There have been no reported cases of recurrence following surgical resection of parosteal lipomas.

This case represents the initial documentation of recurrent parosteal lipoma. Based on the patient's account, he underwent surgical intervention at another medical facility 8 years ago for a tumor in the same location, which was pathologically confirmed as a lipoma post-surgery. Although the precise anatomical level of the previous tumor within the oral cavity could not be definitively determined, (Figure 1) demonstrates a mucosal scar positioned at the upper boundary of this current tumor, consistent with its location. Considering both tumors' locations and considering the possibility of lipoma recurrence, we can reasonably conclude that this is indeed a recurrent lipoma case. The intraoral swelling material exhibited soft consistency with clear boundaries, normal mobility, smooth surface texture, and absence of tenderness. Taking into account the patient's medical history and CBCT examination findings, an initial diagnosis of left mandibular vestibular groove lipoma was made. Preoperative CBCT revealed a low-density mass closely associated with the mandible while intraoperatively it was observed that the tumor adhered tightly to periosteum. By carefully separating the upper margin of this tumor from submucosa using peeling techniques, complete "removal" from periosteal attachment was achieved without further manipulation involving deep jaw structures or periosteum processing. Additionally worth noting is that anteriorly this mass abutted against but did not cause any discomfort such as lower lip numbness in relation to left mandibular nerve proximity experienced by our patient thus far; however continued growth may potentially lead to traction or compression affecting mental nerve function resulting in lower lip numbness or other functional disturbances. Combined with the CBCT imaging comparison of the patient in 2022, it was observed a significant increase in low-density images at the site over the past two years. While most are benign tumors, solid parosteal lipomas that continue to grow have the potential to invade adjacent bones or exert pressure on local muscles, nerves, and other

surrounding tissues and organs, leading to functional impairments [14]. Therefore, early detection of parosteal lipomas is strongly recommended for prompt complete surgical removal.

Conclusion

Although parosteal lipoma exhibits a low recurrence rate, it is imperative to integrate preoperative examinations and intraoperative findings for comprehensive surgical management, followed by long-term and meticulous postoperative monitoring. In the event of tumor recurrence at the same surgical site, prompt surgical intervention should be undertaken subsequent to auxiliary diagnostic assessments in order to prevent potential complications.

Data Availability

The datasets generated during and/or analyzed during the current study are available from the corresponding author on reasonable request. All data and clinical data mentioned in this article are known to patients, and they signed informed consent and agreed to use this information for the case report. This case report has been approved by the Ethics Review Committee of Beijing Friendship Hospital Affiliated to Capital Medical University, with the number BFHHZS20240205.

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