IOSR Journal of Dental and Medical Sciences (IOSR-JDMS)
e-ISSN: 2279-0853, p-ISSN: 2279-0861.Volume 24, Issue 8 Ser. 6 (August. 2025), PP 09-12
www.iosrjournals.org

Unveiling The Mimic: Benign Spindle Cell Tumor Resembling Fibrous Epulis In The Mouth- A Rare Case Report

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Abstract:
Background:
Spindle cell lesions of the oral cavity often pose diagnostic challenges, clinically resembling reactive gingival overgrowths such as fibrous epulis. Accurate differentiation between benign and malignant spindle cell tumors is essential, as management strategies and prognosis vary significantly.
Case report:
A 42-year-old female presented with a painless, fibrous, pedunculated growth (1.5 × 1.5 cm) on the interdental papilla between her maxillary central incisors. There was no pain, systemic illness, or lymphadenopathy. The lesion was excised, and histopathology revealed bland spindle-shaped cells arranged in a patternless fibrous stroma, without atypia, mitoses, or necrosis. Immunohistochemistry showed CD34 negativity, helping to exclude solitary fibrous tumors and vascular spindle cell lesions. The final diagnosis was a benign spindle cell tumor. No recurrence was observed during follow-up.
Conclusions:
This case underscores the critical importance of histopathological and immunohistochemical evaluation of even seemingly innocuous oral soft tissue lesions. Reliance solely on clinical appearance, such as resemblance to fibrous epulis, may lead to misdiagnosis. Accurate identification prevents undertreatment and ensures appropriate management and follow-up care.
Keywords: *Benign spindle cell tumor; Fibrous epulis mimic; Oral cavity; CD34-negative; Case report*

Date of Submission: 14-08-2025 Date of Acceptance: 24-08-2025

I. Introduction

Spindle cell tumors in the oral cavity represent a diagnostic dilemma due to their clinical resemblance to both reactive lesions and true neoplasms. These tumors present as slowly enlarging, painless masses and are histopathlogically characterized by spindle-shaped cells. Fibrous epulis is a localized gingival overgrowth that arises in response to chronic irritation such as plaque, calculus, or prosthetic trauma. Although it is not a true neoplasm, its clinical appearance often overlaps with benign or even malignant spindle cell tumors[1].

Accurate diagnosis of spindle cell lesions is crucial, as their management and prognosis vary widely depending on the underlying pathology. Benign spindle cell tumors include myofibroma, neurofibroma, schwannoma, and fibromatosis, while malignant ones include spindle cell carcinoma and various sarcomas[2]. Immunohistochemical studies play an important role in distinguishing these lesions. One such marker, CD34, is useful in identifying solitary fibrous tumors and vascular proliferations[3]. In this case, CD34 negativity helped rule out those possibilities, thereby narrowing the diagnosis.

This article presents a rare case of a benign spindle cell tumor arising from the upper anterior region between two incisors in the interdental papilla, which clinically mimicked fibrous epulis. The lesion was eventually diagnosed through histopathological examination and immunohistochemistry. This case demonstrates the importance of performing biopsy of all soft tissue growth in the oral cavity howewer small it may appear because what appears clinically harmless may have a different underlying pathology.

II. Case Report

A 42-year-old female patient presented with a growth in the upper anterior region arising between the two central incisors and covering half the crown of both incisors (Figure 1).

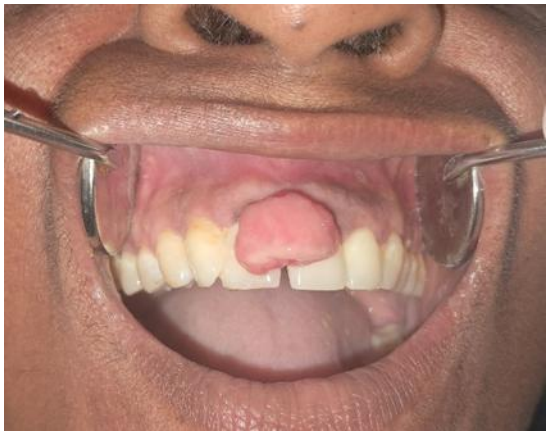


Figure 1: Clinical representation of the lesion

The lesion was fibrous in appearance and pedunculated of the size 1.5×1.5 cm and had pinkish hue, firm consistency, and well-defined margins. It did not bleed spontaneously or on palpation. On taking the history, it was revealed that the lesion was initially smaller in size and gradually increased to current size. The patient had reasonably maintained dental hygiene and had no systemic illness. There was no associated pain, paresthesia, or lymphadenopathy. Intraoral periapical Xray did not show any abnormality (Figure 2).

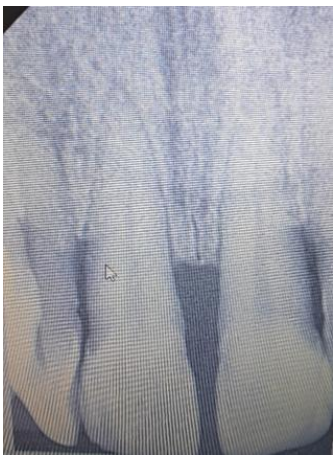


Figure 2: Intra oral Radiograph

After the routine blood investigations, the lesion was excised completely under local anesthesia, operated area was sutured with 3-0 vicryl sutures (Figure 3) and the specimen (Figure 4) was sent for histopathological examination.

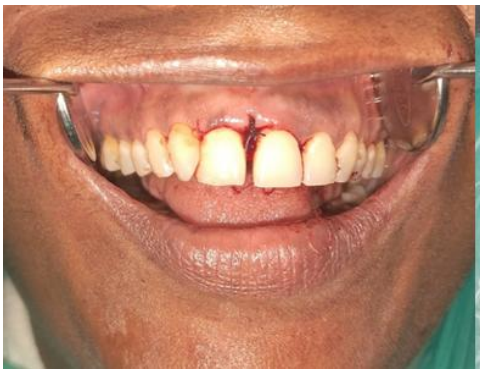


Figure 3: Immediate post-operative picture

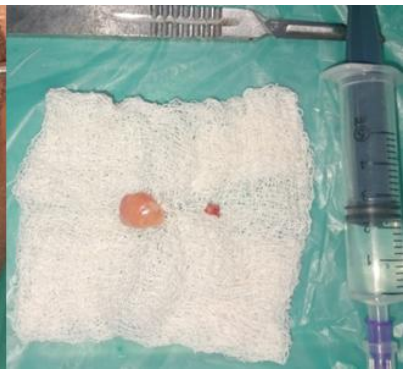
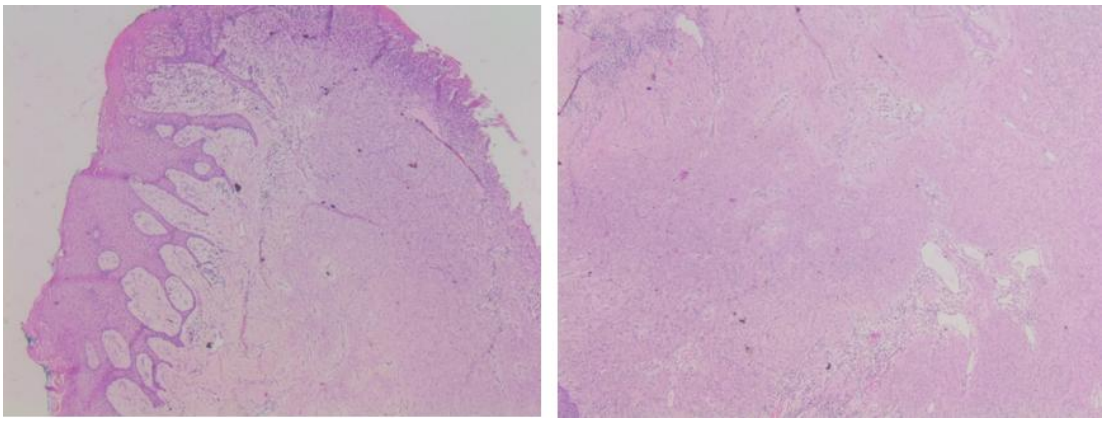


Figure 4: Excised specimen

The specimen of size 1.5 X 1.5 X 0.5 cm in size was processed routinely and stained with hematoxylin and eosin for microscopic examination. Microscopically, the sections showed tissue covered by stratified squamous epithelium. The subepithelial region consisted of a patternless arrangement of oval to stellate-shaped spindle cells within a fibrous stroma. These cells were uniform, with bland nuclear features and minimal cytoplasm. Scattered dilated blood vessels were seen within the lesion. Importantly, no areas of hypercellularity, mitotic figures, or necrosis were observed (Figure 5a & 5b).



(a) (b)

Figure 5 a & b: Histopathological examination

Immunohistochemistry was performed to further characterize the lesion. The spindle cells were negative for CD34 (Figure 6), ruling out solitary fibrous tumors and other CD34-positive vascular tumors[3].

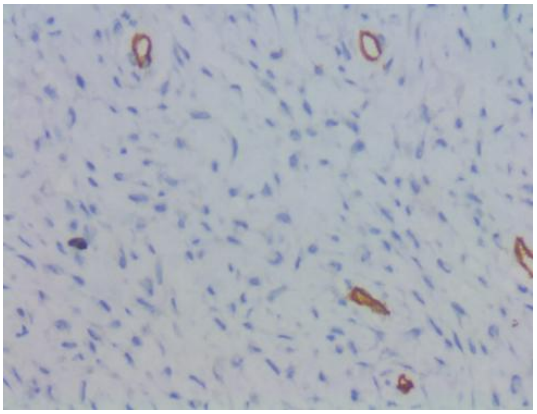


Figure 6: Immunohistochemical examination

The overall histopathological impression was that of a benign spindle cell tumor. Patient was followed up to check for any recurrence but did not show any recurrence or any complications (Figure 7).

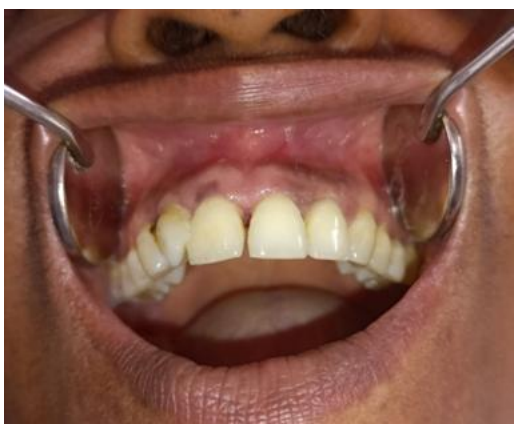


Figure 7: Follow up after 4 months

III. Discussion

Benign spindle cell tumors are uncommon in the oral cavity and are often misdiagnosed due to their resemblance to more common reactive lesions such as fibrous epulis. Fibrous epulis, although benign and reactive in nature, is characterized histologically by dense fibrous connective tissue with overlying stratified squamous epithelium, often accompanied by inflammatory infiltrates[4]. It typically occurs on the gingiva, especially in the interdental papillae. In the present case, the lesion was located in the interdental papilla between two maxillary central incisors, a site typical for fibrous epulis, also the clinical appearance suggested such a diagnosis but histopathology revealed something unexpected. This discrepancy highlights the limitations of relying solely on clinical findings for diagnosis.

Spindle cell lesions encompass a broad range of pathologies. Benign variants such as myofibroma, neurofibroma, and schwannoma share overlapping features but can be distinguished by immunohistochemical markers. Myofibromas typically stain positive for smooth muscle actin (SMA) and negative for S-100 and CD34[5]. Schwannomas and neurofibromas, on the other hand, are S-100 positive[6]. In the current case, CD34 negativity was a key finding. CD34 is a glycosylated transmembrane protein expressed in various mesenchymal and vascular tumors, including solitary fibrous tumors[7]. CD34 positivity, especially with a staghorn vascular pattern, would point toward such a diagnosis. The absence of CD34 expression, along with the lack of atypia and mitosis, supported the diagnosis of a non-vascular benign spindle cell lesion.

Histologically, the tumor in this case was composed of uniform spindle cells in a disorganized, patternless architecture, without evidence of malignancy. There was no pleomorphism, necrosis, or increased mitotic activity, which are hallmarks of sarcomatous transformation[8]. This helped exclude malignant spindle cell tumors such as fibrosarcoma or spindle cell carcinoma. Additionally, the absence of inflammatory cells and granulation tissue helped distinguish it from reactive proliferations like pyogenic granuloma or traumatic fibroma.

The clinical behavior of benign spindle cell tumors is typically nonaggressive so complete surgical excision is usually the preferred treatment plan[9]. Recurrence is rare unless the lesion is incompletely excised or associated with syndromic conditions, such as neurofibromatosis. In the case presented, the lesion was well-circumscribed and was excised entirely, suggesting an excellent prognosis. Nevertheless, periodic follow-up is advised to detect any signs of recurrence or unexpected progression.

This case is a strong reminder of the importance of histopathological examination in all oral soft tissue growths. A lesion that clinically mimics fibrous epulis may in fact be a neoplasm requiring a different treatment approach and follow-up such as wide local excision along with adjuvant therapy like radiotherapy and chemotherapy. In this case, it was found to be benign. Even benign spindle cell tumors need to be correctly identified to prevent undertreatment or misclassification. The use of immunohistochemical markers like CD34, SMA, desmin, and S-100 provides essential diagnostic clarity in these cases[10]. While fibrous epulis may not recur after simple excision, benign spindle cell tumors such as myofibromas and fibromatoses have a known tendency to recur if incompletely excised, making correct diagnosis essential for proper management.

Ultimately, this case contributes to the limited literature on benign spindle cell tumors of the oral cavity and highlights the importance of considering such entities in the differential diagnosis of fibrous-appearing oral lesions. Greater awareness and accurate classification of these lesions will help clinicians provide better care and avoid diagnostic pitfalls. This case also underscores the necessity of multidisciplinary collaboration between clinicians, pathologists, and oral surgeons for effective patient management. More case reports and studies are needed to better understand the clinical spectrum, recurrence potential, and long-term outcomes of these rare tumors.

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