Case Report

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Angiofibroma of the maxillary gingiva: a rare case report and review of the literature

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Introduction: Angiofibromas are benign fibrovascular neoplasms that rarely involve the oral cavity.
Case presentation: A 36-year-old female presented with a painless swelling on the buccal gingiva adjacent to the right maxillary second molar. Examination revealed a solitary, sessile, oval mass measuring 1.5 cm × 1.2 cm × 1.0 cm. The lesion was excised under local anesthesia. Histopathology confirmed an angiofibroma, showing non-keratinized hyperplastic epithelium overlying a fibrous stroma containing numerous newly formed capillaries. Healing was uneventful, with no recurrence at 1 year.
Clinical discussion: Oral angiofibromas mimic common lesions such as fibromas, necessitating histopathological confirmation. Differential diagnoses include solitary fibrous tumors and spindle cell lipomas. Complete local excision is curative.
Conclusion: This rare case of maxillary gingival angiofibroma underscores the importance of histopathological evaluation for definitive diagnosis. Complete excision yields excellent outcomes.

Keywords: angiofibroma, benign neoplasm, case report, histopathology, oral cavity

Introduction

Angiofibromas are benign mesenchymal tumors with fibrovascular proliferation, sharing vascular and fibroblastic features yet exhibiting distinct clinical and histopathological traits[1,2]. Juvenile nasopharyngeal angiofibroma mainly affects adolescent males and is locally aggressive[3]. Two other entities – giant cell angiofibroma (GCA) and cellular angiofibroma (CAF) – have been reported in the oral cavity[4,5]. GCA, first described in the orbit[6], displays features intermediate between solitary fibrous tumor and giant cell fibroblastoma, with CD34-positive multinucleated giant cells[7], and only two cases involving the oral buccal mucosa have reported[8–10]. CAF, initially identified in the vulvovaginal region[11,12], usually arises in genital areas but can occur elsewhere[13,14]; oral cases have not been documented. Accurate diagnosis relies on histopathological and immunohistochemical analysis, with CD34 being a key marker[15–17]. This article reviews the clinicopathological features of oral angiofibromas and updates their immunohistochemical profile and differential diagnosis.

HIGHLIGHTS

- This is the first reported case of angiofibroma arising on the buccal gingiva adjacent to the maxillary second molar, an exceptionally rare anatomic subsite for this benign neoplasm.
- Histopathological confirmation was essential for diagnosis as the clinical presentation mimicked more common lesions such as fibromas and lipomas.
- Complete surgical excision resulted in excellent postoperative healing with no recurrence at the 6-month follow-up, supporting the favorable prognosis of oral angiofibromas when adequately excised.

To substantiate the novelty of this case, a structured literature search was conducted across the PubMed, Scopus, and Google Scholar databases through January 2026. The search terms included "oral angiofibroma," "gingival angiofibroma," "buccal gingiva tumor," and "extranasopharyngeal angiofibroma." Only English-language articles and case reports involving the oral cavity were included. Reference lists of relevant articles were also screened manually. To the best of our knowledge, no previously published cases describing an angiofibroma arising in the buccal gingiva adjacent to the maxillary second molar were identified.

This case report has been reported in line with the SCARE checklist[18].

Case presentation

A 36-year-old female presented with a painless, gradually enlarging swelling on the right upper gum of 2 months' duration, causing discomfort while chewing over the last month. There was no pain, bleeding, or ulceration, and no relevant medical history was noted.

Extraorally, there was no facial asymmetry or lymphadenopathy, and the skin appeared normal. Intraorally, a well-defined,

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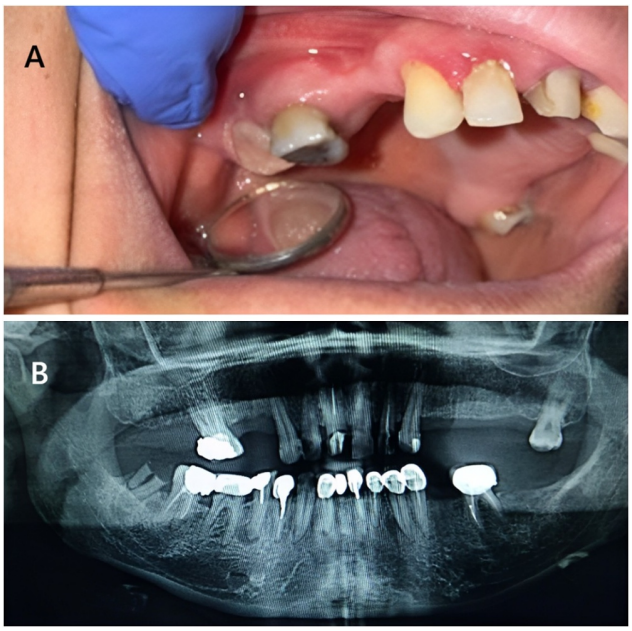

Figure 1. (A) Clinical photograph showing a well-defined, solitary, sessile, oval growth on the buccal gingiva adjacent to the right maxillary second molar (tooth #17). (B) Panoramic X-ray showing no bony involvement of the lesion.

solitary, sessile, oval growth (approximately 1.5 × 1.2 × 1.0 cm) was found on the buccal gingiva near tooth #17, matching the mucosal color with a faint reddish hue, with a smooth, non-ulcerated surface, and no pulsations. The lesion was soft to firm, non-tender, and doughy, with minimal bleeding on probing. Adjacent teeth were vital and stable, with healthy periodontal tissues. A provisional diagnosis of fibroma was made, and the differential diagnosis included lipoma, angiofibroma, hemangioma, and peripheral giant cell granuloma.

Radiographic examination, including a periapical radiograph and an orthopantomogram, revealed no evidence of bony involvement, erosion, or root resorption, confirming the soft-tissue nature of the lesion (Fig. 1).

Routine hematological investigations were within normal limits, with a bleeding time of 2 minutes 30 seconds and a clotting time of 4 minutes 15 seconds.

The lesion was excised under local anesthesia with a No. 15 blade, using an elliptical incision with a narrow margin down to the periosteum, ensuring complete removal. It was well-circumscribed, with no bony involvement or infiltration. Hemostasis was achieved with minimal blood loss. The site healed by secondary intention and was covered with Oralpaste™.

The patient received analgesics, multivitamins, and chlorhexidine mouth rinse twice daily for 1 week. Histopathological examination of the excised right buccal mucosal mass (15 × 11.83 × 5 mm; firm, without nodules) revealed hyperplastic, nonkeratinized epithelium over fibrous tissue containing numerous capillaries, consistent with angiofibroma, with no evidence of malignancy.

Although the histopathological features were consistent with angiofibroma (Fig. 2), immunohistochemical (IHC) analysis was not performed due to resource limitations. Ideally, IHC markers such as CD34, vimentin, desmin, S-100, and STAT6 would aid in confirming the diagnosis and excluding histological mimics such as solitary fibrous tumor, spindle cell lipoma, and angiomyofibroblastoma. CD34 positivity is typically observed in angiofibroma, while negative staining for desmin and S-100 helps exclude myogenic and neural lesions. The postoperative period was uneventful, with minimal edema and no pain. At 1 week, healing was progressing with healthy granulation tissue. By 6 weeks, complete mucosal healing with normal contour and color was observed. At 6 months, there was no recurrence, and the patient was satisfied with the functional and esthetic results.

The patient was followed for 1 year; at the 1-year follow-up visit, clinical examination revealed complete healing with normal gingival contour, color matching the adjacent mucosa, and no recurrence (Fig. 3).

An annual follow-up was recommended to monitor for potential recurrence.

A detailed timeline of the disease course is shown in Table 1.

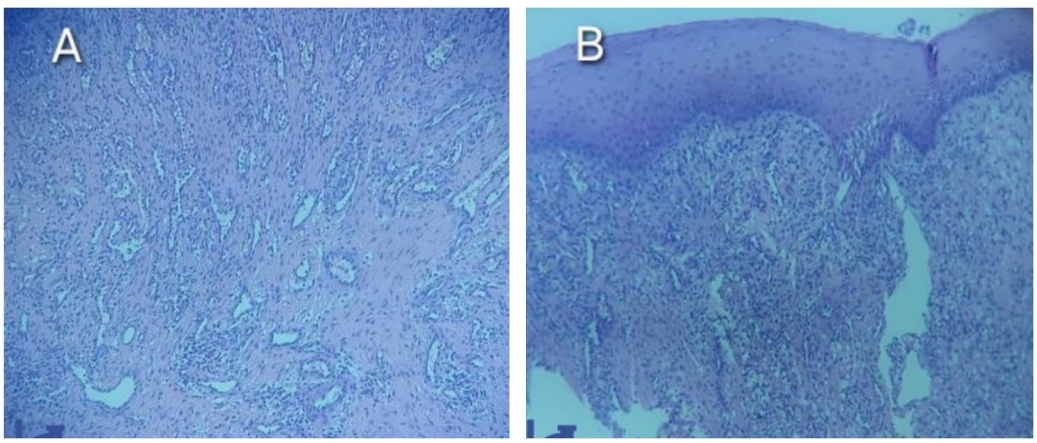

Figure 2. (A) Photomicrograph showing histopathological features of the lesion (hematoxylin and eosin stain, original magnification 40×). Non-keratinized hyperplastic oral mucosal epithelium of several layers in thickness lines a non-inflamed, thick, fibrous connective tissue stroma. (B) Higher-magnification photomicrograph (hematoxylin and eosin stain, original magnification 100×) demonstrating numerous newly formed capillaries embedded within the fibrous connective tissue stroma. No malignancy or atypical cellular features are observed.

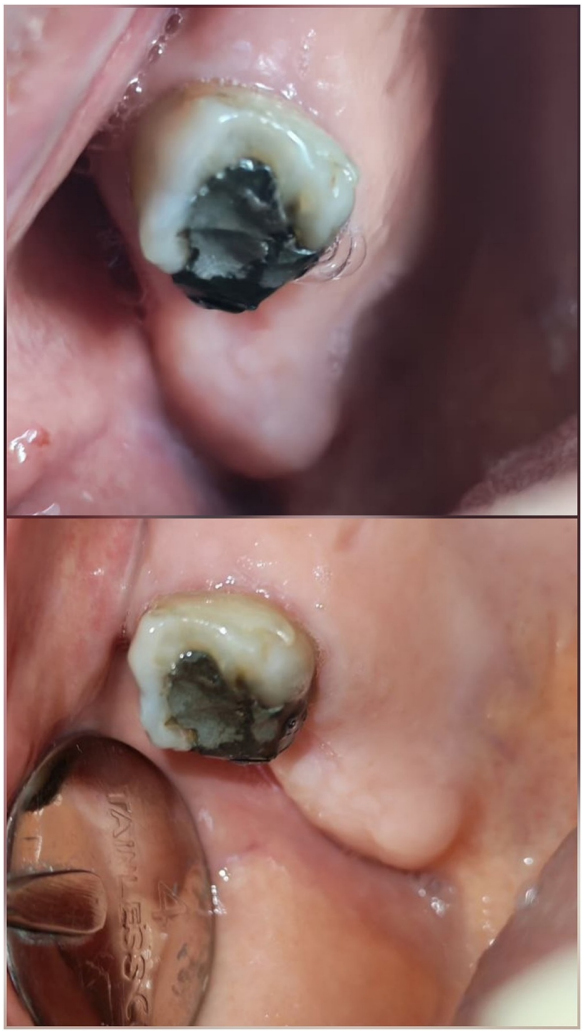

Figure 3. (A) Postoperative clinical photograph at 6-week follow-up showing complete mucosal healing with normal gingival contour, color matching the adjacent mucosa, and no scar formation or evidence of recurrence. (B) Postoperative clinical photograph at 1-year follow-up showing complete healing with normal gingival contour, color matching the adjacent mucosa, and no recurrence.

Discussion

Angiofibromas are rare benign vascular tumors with proliferating blood vessels in a fibrous stroma. They are typically found in the nasopharynx of adolescent males as juvenile nasopharyngeal angiofibromas; extra-nasopharyngeal cases are extremely rare, especially in the oral cavity[11,19]. This case involves an angiofibroma on the buccal gingiva near the right maxillary second molar in a 36-year-old female, an unusual location and demographic.

Oral angiofibromas present with nonspecific clinical features that mimic common reactive and neoplastic lesions. In this case, the lesion appeared as a painless, slow-growing, sessile mass with a color similar to that of the adjacent mucosa and a doughy consistency, initially suggesting a fibroma, with differential diagnoses including lipoma, hemangioma, and peripheral giant cell granuloma. This clinical ambiguity underscores the essential role of histopathological examination in establishing a definitive diagnosis[20].

The differential diagnosis of a gingival mass in the posterior maxilla is broad and includes both reactive and neoplastic lesions. Common entities specific to this location include fibroma, peripheral ossifying fibroma, peripheral giant cell granuloma, and pyogenic granuloma. Fibromas typically present as firm, pale lesions with dense collagenous stroma and minimal vascularity[21].

Peripheral ossifying fibroma often demonstrates calcifications or ossifications histologically, which were absent in the present case[22].

Peripheral giant cell granuloma is characterized by multinucleated giant cells and hemorrhagic stroma, features not observed here[23].

Pyogenic granuloma exhibits a lobular capillary proliferation with prominent inflammation, contrasting with the non-inflamed fibrous stroma seen in angiofibroma[24].

Additionally, a hemangioma may be considered clinically; however, its prominent vascular spaces and endothelial proliferation differ histologically from the capillary-rich fibrous architecture of an angiofibroma[25].

Therefore, accurate diagnosis in this anatomical region relies heavily on histopathological evaluation, ideally supplemented by immunohistochemistry.

Histopathological findings were characteristic of angiofibroma, aligning with previously described cases[26,27]. However, routine histopathology alone cannot definitively exclude histologic mimics such as solitary fibrous tumor, spindle cell lipoma, and angiomyofibroblastoma, which share overlapping morphological features. Immunohistochemical (IHC) confirmation – particularly CD34, STAT6, desmin, and S-100 – is the gold standard for definitive diagnosis[15–17]. In the present case, the diagnosis relied solely on morphology due to resource limitations, and the absence of IHC significantly limited diagnostic certainty. Future reports should ideally incorporate a panel of these markers to strengthen diagnostic accuracy. From a site-specific perspective, lesions arising on the gingiva require careful differentiation due to the high prevalence of reactive lesions in this region.

The differential diagnosis includes vascular and fibrous lesions: angiomyolipoma contains muscular arterioles and is positive for HMB-45 and Melan-A, unlike angiofibroma[28,29]. Angiomyofibroblastoma features hyper- and hypocellular zones

Table 1

Detailed timeline of the disease course.

Time point	Clinical event
Month – 2	Patient noticed small, painless swelling on upper right gingiva
Month – 1	Gradual enlargement; mild discomfort during mastication
Day 0	Clinical examination, periapical radiograph, OPG; provisional diagnosis of fibroma
Day 7	Excisional biopsy (2–3 mm margins, down to periosteum); minimal bleeding
Day 14	Histopathological diagnosis: angiofibroma (non-keratinized epithelium, fibrous stroma, numerous capillaries)
Week 1 post-op	Healthy granulation tissue; no pain or edema
Week 6 post-op	Complete mucosal healing; normal gingival contour
Month 6 post-op	No recurrence; patient satisfied with functional and esthetic outcomes
Month 12 post-op	No recurrence; normal contour and color matching adjacent mucosa

with desmin and estrogen receptor positivity, whereas angiofibroma expresses CD34 but not desmin[12,30,31]. Juvenile nasopharyngeal angiofibroma shows fibroplasia with sinusoidal vessels and androgen receptor positivity, and is locally aggressive[19,32,33]. Solitary fibrous tumor is CD34 and STAT6-positive, with NAB2–STAT6 fusion[34,35]. Spindle cell lipoma has bland spindle cells, collagen, adipocytes, CD34 positivity, and prominent vascular channels, with possible chromosomal 13q14 rearrangements[17,36–38]. Superficial angiomyxoma has myxoid stroma with neutrophils, unlike the fibrous stroma of angiofibroma[39,40]. Pyogenic granuloma is reactive, lacks encapsulation, and shows inflammation and granulation tissue[41,42].

The pathogenesis of angiofibroma is not fully understood, with proposed factors including infection, trauma, hormones, and arteriovenous malformations[26]. Schiff suggested an origin from hormone-sensitive fibrovascular tissue in the periosteum[17], and recent evidence links it cytogenetically to spindle cell lipoma and mammary-type myofibroblastoma[17,38,43]. Prognosis after complete excision is excellent, with low recurrence rates[20,27]; no recurrences were noted in series reported by Iwasa and Fletcher[11] and Eversole[20]. Long-term follow-up is advised, especially if margins are compromised.

This case offers several noteworthy contributions. To our knowledge, this is the first reported angiofibroma arising on the buccal gingiva adjacent to the maxillary second molar, which is an unusual oral subsite. Additionally, its occurrence in a 36-year-old female contrasts with the classic male predominance of juvenile nasopharyngeal angiofibroma, expanding the recognized clinical spectrum. Successful management with conventional excisional surgery provides valuable treatment information.

This report has limitations, including the absence of immunohistochemical analyses of markers such as CD34, STAT6, desmin, and S-100, which could have improved diagnostic accuracy. Although no recurrence was observed at 6 months and 1 year, this period may be insufficient to assess the lesion's behavior, especially given its rarity and unusual location. Long-term follow-up is needed to understand recurrence patterns and validate treatment. Additionally, because this is a single case, the findings are limited; further cases from multicenter studies are necessary to better define clinical behavior and management.

Conclusion

This rare case of maxillary gingival angiofibroma highlights the importance of histopathology in diagnosing oral swellings with nonspecific clinical features. However, the absence of immunohistochemical confirmation – particularly CD34, STAT6, desmin, and S-100 – limits diagnostic certainty, given the morphological overlap with other fibrovascular and spindle-cell lesions. Complete excision yielded an excellent outcome with no recurrence at 1-year follow-up. Future reports should incorporate IHC analysis to ensure diagnostic precision and better characterize this rare entity. Long-term follow-up is advised.

Ethical approval

Ethical approval was not required for this case report, in accordance with institutional guidelines, as it involves a single patient and does not include any experimental intervention. Written informed consent was obtained from the patient for the publication of clinical details and images.

Consent

Written informed consent was obtained from the patient for publication of this study and accompanying images, a copy of the written consent is available for review from the Editor-in-Chief of the International Journal of Surgery Case Reports.

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Author contributions

A.M.: Conceptualization, Data Curation, Investigation. N.S.: Methodology, Resources, Validation, Writing – Review & Editing. N.K.: Investigation, Supervision. J.K.: Investigation. D.A.: Investigation. Q.A.: Investigation.

Conflicts of interest disclosure

The author declares that there is no conflict of interest.

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Data availability statement

The data supporting the findings of this case report are included within the article. Raw data are available from the corresponding author upon reasonable request.

Patient perspective

The patient recognized the importance of this surgical intervention in achieving satisfactory functional outcomes.

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Not applicable.

References

[1] Fletcher CD, Unni KK, Mertens F. World Health Organization Classification of Tumours: Pathology and Genetics of Tumours of Soft Tissue and Bone. IARC Press; 2002. editors.

[2] Weiss SW, Goldblum JR. Enzinger and Weiss's Soft Tissue Tumors. 5th. Mosby Elsevier; 2008.

[3] Barnes L, Eveson JW, Reichart P, *et al*. World Health Organization Classification of Tumours: Pathology and Genetics of Head and Neck Tumours. IARC Press; 2005. editors.

[4] Dei Tos AP, Seregard S, Calonje E, *et al*. Giant cell angiofibroma. A distinctive orbital tumor in adults. Am J Surg Pathol 1995;19:1286–93.

[5] Nucci MR, Granter SR, Fletcher CD. Cellular angiofibroma: a benign neoplasm distinct from angiomyofibroblastoma and spindle cell lipoma. Am J Surg Pathol 1997;21:636–44.

[6] Hayashi N, Borodic G, Karesh JW, *et al*. Giant cell angiofibroma of the orbit and eyelid. Ophthalmology 1999;106:1223–29.

[7] Thomas R, Banerjee SS, Eyden BP, *et al*. A study of four cases of extra-orbital giant cell angiofibroma with documentation of some unusual features. Histopathology 2001;39:390–96.

[8] Qian YW, Malliah R, Lee HJ, *et al*. A t(12;17) in an extraorbital giant cell angiofibroma. Cancer Genet Cytogenet 2006;165:157–60.

[9] Kintarak S, Natiella J, Aguirre A, *et al*. Giant cell angiofibroma of the buccal mucosa. Oral Surg Oral Med Oral Pathol Oral Radiol Endod 1999;88:707–13.

[10] Rousseau A, Perez-ordonez B, Jordan RC. Giant cell angiofibroma of the oral cavity: report of a new location for a rare tumor. Oral Surg Oral Med Oral Pathol Oral Radiol Endod 1999;88:581–85.

[11] Iwasa Y, Fletcher CD. Cellular angiofibroma: clinicopathologic and immunohistochemical analysis of 51 cases. Am J Surg Pathol 2004;28:1426–35.

[12] Nucci MR, Fletcher CD. Vulvovaginal soft tissue tumours: update and review. Histopathology 2000;36:97–108.

[13] Garijo MF, Val-Bernal JF. Extravulvar subcutaneous cellular angiofibroma. J Cutan Pathol 1998;25:327–32.

[14] Val-Bernal JF, Rubio S, Garijo MF, *et al*. Extragenital subcutaneous cellular angiofibroma. Case Report APMIS 2007;115:254–58.

[15] Vargas PA, Alves FA, Lopes MA, *et al*. Solitary fibrous tumour of the mouth: report of two cases involving the tongue and cheek. Oral Dis 2002;8:111–15.

[16] Alves FA, Vargas PA, Coelho Siqueira SA, *et al*. Benign fibrous histiocytoma of the buccal mucosa: case report with immunohistochemical features. J Oral Maxillofac Surg 2003;61:269–71.

[17] Hameed M, Clarke K, Amer HZ, *et al*. Cellular angiofibroma is genetically similar to spindle cell lipoma: a case report. Cancer Genet Cytogenet 2007;177:131–34.

[18] Kerwan A, Al-Jabir A, Mathew G, *et al*. Revised Surgical CAse REport (SCARE) guideline: an update for the age of Artificial Intelligence. Prem J Sci 2025;10:100079.

[19] Batsakis JG. Tumors of the Head and Neck: Clinical and Pathological Considerations. 2nd ed. Williams & Wilkins; 1979:291–312.

[20] Eversole LR. Cellular angiofibroma of oral mucosa: report of two cases. Head Neck Pathol 2009;3:136–39.

[21] Patil S, Rao RS, Sharath S, *et al*. True fibroma of alveolar mucosa. Case Rep Dent 2014;2014:904098.

[22] Tidke P, Agarwal MC, Kini VV, *et al*. Peripheral ossifying fibroma of maxillary gingiva with calcification: a case report. J Pharm Bioallied Sci 2024;16:S963–S965.

[23] Tandon PN, Gupta SK, Gupta DS, *et al*. Peripheral giant cell granuloma. Contemp Clin Dent 2012;3:S118–21.

[24] Lomeli Martinez SM, Carrillo Contreras NG, Gómez Sandoval JR, *et al*. Oral pyogenic granuloma: a narrative review. Int J Mol Sci 2023;24:16885.

[25] Barrón-peña A, Martínez-borras MA, Benítez-cárdenas O, *et al*. Management of the oral hemangiomas in infants and children: scoping review. Med Oral Patol Oral Cir Bucal 2020;25:e252–e261.

[26] Thakur RK, Madan E, Tomar A, *et al*. Angiofibroma on cheek mucosa: a rare entity and its management with laser. J Cutan Aesthet Surg 2014;7:227–28.

[27] Khalig MIU, Shah AA, Dar N. A rare case of angiofibroma of the mandible: a case report. J Oral Biol Craniofac Res 2016;6:246–49.

[28] Folpe AL, Kwiatkowski DJ. Perivascular epithelioid cell neoplasms: pathology and pathogenesis. Hum Pathol 2010;41:1–15.

[29] Martignoni G, Pea M, Reghellin D, *et al*. PEComas: the past, the present and the future. Virchows Arch 2008;452:119–32.

[30] Fletcher CD, Tsang WY, Fisher C, *et al*. Angiomyofibroblastoma of the vulva: a benign neoplasm distinct from aggressive angiomyxoma. Am J Surg Pathol 1992;16:373–82.

[31] Laskin WB, Fetsch JF, Tavassoli FA. Angiomyofibroblastoma of the female genital tract: analysis of 17 cases including a lipomatous variant. Hum Pathol 1997;28:1046–55.

[32] Liang J, Yi Z, Liang P. The classification and management of juvenile nasopharyngeal angiofibroma. Acta Otolaryngol 2015;135:1048–53.

[33] Dillard DG, Cohen C, Muller S, *et al*. Immunolocalization of activated transforming growth factor beta1 in juvenile nasopharyngeal angiofibroma. Arch Otolaryngol Head Neck Surg 2000;126:723–25.

[34] Alawi F, Stratton D, Freedman PD. Solitary fibrous tumor of the oral soft tissues: a clinicopathologic and immunohistochemical study of 16 cases. Am J Surg Pathol 2001;25:900–10.

[35] Doyle LA, Vivero M, Fletcher CD, *et al*. Nuclear expression of STAT6 distinguishes solitary fibrous tumor from histologic mimics. Mod Pathol 2014;27:390–95.

[36] Enzinger FM, Harvey DA. Spindle cell lipoma. Cancer 1975;36:1852–59.

[37] Fletcher CD, Martin-bates E. Spindle cell lipoma: a clinicopathological study with some original observations. Histopathology 1987;11:803–17.

[38] Maggiani F, Debiec-rychter M, Vanbockrijck M, *et al*. Cellular angiofibroma: another mesenchymal tumour with 13q14 involvement, suggesting a link with spindle cell lipoma and (extra-)mammary myofibroblastoma. Histopathology 2007;51:410–12.

[39] Fetsch JF, Laskin WB, Tavassoli FA. Superficial angiomyxoma (cutaneous myxoma): a clinicopathologic study of 17 cases arising in the genital region. Int J Gynecol Pathol 1997;16:325–34.

[40] Allen PW, Dymock RB, MacCormac LB. Superficial angiomyxomas with and without epithelial components: report of 30 tumors in 28 patients. Am J Surg Pathol 1988;12:519–30.

[41] Jafarzadeh H, Sanatkhani M, Mohtasham N. Oral pyogenic granuloma: a review. J Oral Sci 2006;48:167–75.

[42] Epivatianos A, Antoniades D, Zaraboukas T, *et al*. Pyogenic granuloma of the oral cavity: comparative study of its clinicopathological and immunohistochemical features. Pathol Int 2005;55:391–97.

[43] Flucke U, van Krieken JH, Mentzel T. Cellular angiofibroma: analysis of 25 cases emphasizing its relationship to spindle cell lipoma and mammary-type myofibroblastoma. Mod Pathol 2011;24:82–89.