CASE REPORT

# Cellular Angiofibroma of Oral Mucosa: Report of Two Cases

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**Abstract** Cellular angiofibroma is a benign vascular neoplasm that typically arises in the vulva, perineal, and paratesticular region. Microscopically the lesions exhibit multiple small, non-dilated capillary channels, many of which contain erythrocytes. The endothelial lining cells are prominent, with monomorphic oval nuclei. Interposed among the vessels are both delicate and mature collagen fibers with fibroblastic hypercellularity that is variable in older lesions where sclerosis is prominent. The lesions usually do not recur following simple excision. Recent evidence indicates that cellular angiofibromas may be cytogenetically related to spindle cell lipoma. This represents the first reported instances of cellular angiofibroma in the oral cavity.

## Introduction

Vascular and fibrous lesions are common in the head and neck area including both benign and malignant subtypes. Angiofibromas are typically encountered in the nasopharynx among teenage males, accounting for the appellation "juvenile nasopharyngeal angiofibroma". Recently another fibrovascular lesion has been described in the genital/perineal region among females that is distinctly different from juvenile nasopharyngeal angiofibroma both histologically and behaviorally [1–8]. The term cellular angiofibroma has been applied to this

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lesion which has also been found in the paratesticular region among males and in skin [3, 9–12]. These benign fibrovascular tumors do not have a tendency to recur after simple excision. No instances of cellular angiofibroma have been reported in the head and neck area. Two instances are reported herein. One case appears to represent an early cellular stage while the second case is hypocellular with sclerosis.

## Case Reports

Case 1: A 38 year old female presented with a submucosal nodule in the soft palate thought to represent a salivary neoplasm. The patient's past medical history was non-contributory. The lesion was removed by surgical biopsy. The excised lesion measured 1.4 × 1.0 mm. Microscopically, surface stratified squamous epithelium was present with an underlying well demarcated and partially encapsulated mass of fibrovascular connective tissue (Fig. 1a, b). The fibrous tissue is cellular with adipocytes scattered in small clusters. Coursing throughout are prominent vascular channels with plump endothelial cells.

Case 2: A solitary submucosal mass was detected on the dorsal tongue of a 74 year old female. The lesion was stated to be painful, appearing as a dome shaped nodule with surface ulceration. The clinical impression was traumatic fibroma versus granular cell tumor. The lesion was excised and submitted for microscopic examination. The excised specimen measured 1 × 7 × 4 cm and on hemisection a well defined nodule was seen in the submucosa. Microscopically, a single lobule of fibrovascular tissue was well delineated and partially encapsulated. The endothelial element was found to be prominent with plump conspicuous endothelial cells. Adipocytes were present as isolated
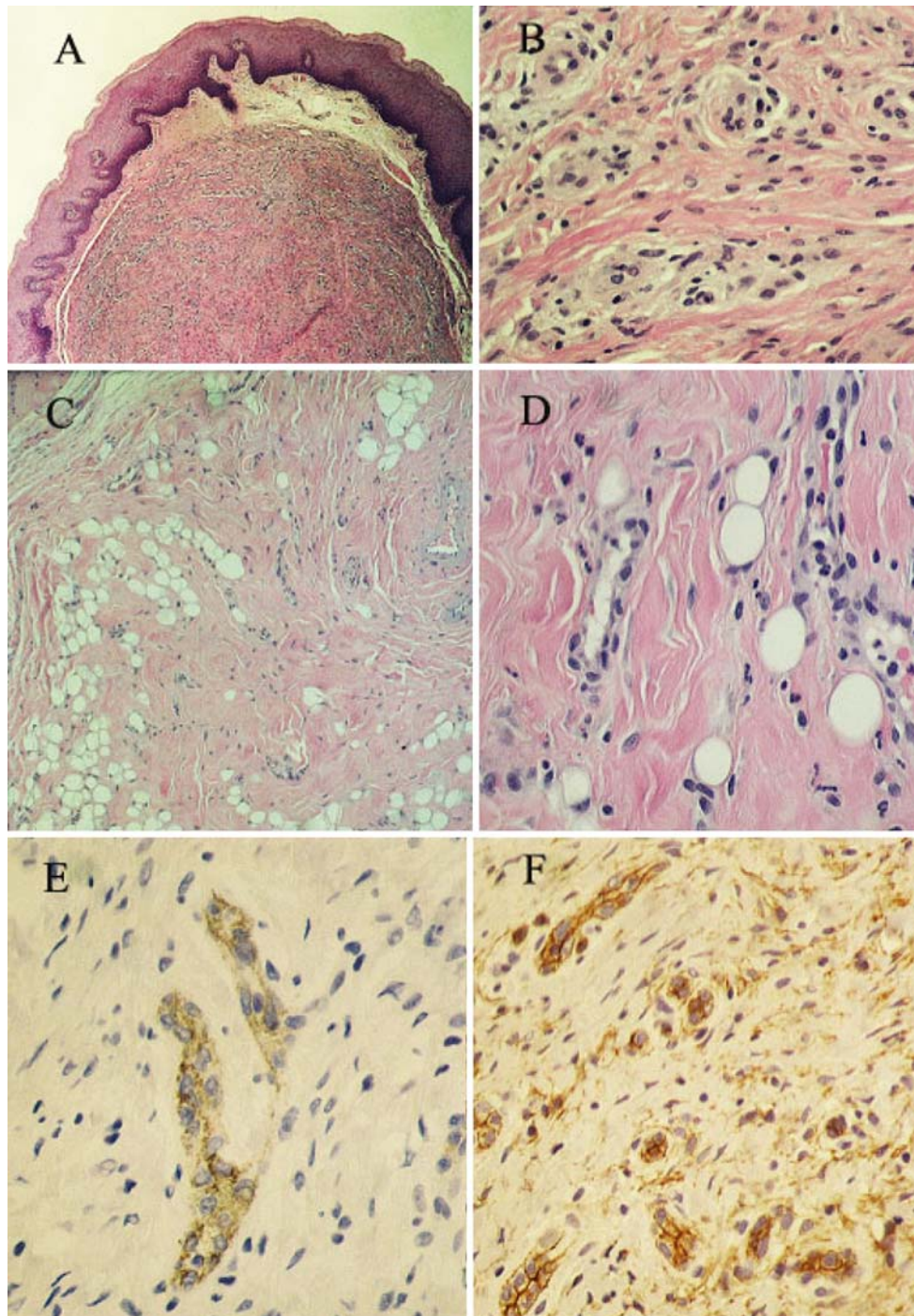
**Fig. 1** Case 1. **a** Submucosal well demarcated, partially encapsulated mass is comprised of fibrovascular tissue (H&E, 50×), **b** Numerous prominent, plump endothelial cells line vessels in the background of a bland hypercellular fibroblastic element (H&E, 200×). Case 2. **c** Demarcated mass comprised of multiple small prominent vessels, zones of fibroblastic cellularity with desmoplasia and pockets of adipocytes (H&E, 50×). **d** Higher magnification showing vascularity, sclerosis and adipocytes (H&E, 200×). **e** Factor VIII immunoreactivity in vessels (IHC/DAB, 200×). **f** CD34 immunoreactivity in both endothelial cells and fibroblasts (IHC/DAB, 200×)

cells for small conglomerates. Unlike case 1, the fibrous element was hypocellular with mature sclerotic collagen fibers. (Fig. 1c, d).

Immunostaining demonstrated reactivity for factor VIII in endothelial cells (Fig. 1e) and CD 34 was found in both endothelial cells and fibroblasts (Fig. 1f). S-100 protein

and smooth muscle actin were negative in the fibroblastic cell population (IHC/DAB).

## Discussion

The microscopic differential diagnosis for CAF includes angiomyolipoma, angiomyofibroblastoma, juvenile nasopharyngeal angiofibroma, solitary fibrous tumor, spindle cell lipoma, and superficial angiomyxoma [13–19]. All of these lesions are vessel rich with a fibroblastic or myofibroblastic element, variable sclerosis and harbor focal aggregates of adipocytes. Angiomyolipoma is a fatty tumor with prominent muscular arterioles while angiomyofibroblastoma is a fibrovascular neoplasm with a loose, somewhat myxoid fibroblastic element. Juvenile nasopharyngeal angiofibroma is uniquely confined to the nasopharynx and has a very distinct histology with a homogeneous fibroplasia and delicate immature collagen with interposed sinusoidal-like vascular channels that lack prominent endothelium. Solitary fibrous tumors, comprised of CD34 fibroblasts are typically hypercellular, fasiculated and do not exhibit prominent endothelial elements, although some variants do in fact manifest a hemangiopericytoma-like pattern. Angiomyxomas of deep tissues are aggressive neoplasms while superficial lesions are non-aggressive, may arise in the head and neck region as subcutaneous nodules comprised of myxoid tissue with prominent vascularity. These lesions may occur as a component of the Carney complex. Whereas lipocytes are commonly encountered in CAF, and were prominent in case 2 reported here, they are compartmentalized and not intimately interspersed with spindle cells as seen in spindle cell lipoma. CAF shows a spectrum of histologic patterns which may represent progressive stages of development with more highly vascular and fibrocellular lesions representing an early stage and less vascular more sclerotic lesions being older. CAFs are well demarcated or partially encapsulated, show hyperplastic vessels with prominent, plump endothelial cells, and fibroblastic hypercellularity. The fibrous element may also show mitotic activity with typical mitotic figures.

Differentiation from reactive lesions such as pyogenic granuloma or sclerosing pyogenic granuloma is usually not problematical because these reactive lesions are diffuse or multilobular, lacking the demarcation and encapsulation of cellular angiofibroma. Furthermore, CAF is not infiltrated by inflammatory cells unless superficially ulcerated yet the inflammation does not pervade the tumor stroma; rather leukocytes are zonal, in continuity with the area of ulceration. CAF represents a unique lesion, common in the gentital regions yet may occur in other sites including skin and the head and neck area. In the series reported by Iwasa and Fletcher [3], the fibroblastic component of CAF may be immunoreactive with antibodies to smooth muscle actin and/or CD34. In the two cases reported here, CD34, yet not SMA was positive in the fibroblasts. Genetic studies disclose a relationship to spindle cell lipoma [17–21]. Simple excision is the treatment of choice.

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