Case Report

Immunoexpression of Ki-67 and Endoglin Corroborating Hamartomatous Nature of Sialoangiolipoma

Abstract

Mesenchymal neoplasms of salivary gland including adipocytes are relatively uncommon entity classified as monophasic and biphasic. Sialolipoma, a biphasic mesenchymal salivary gland neoplasm, with a prominent vascularity designated as sialoangiolipoma (SAL) is a recently discussed entity with debates on the hamartomatous nature of the lesion. We have endorsed the hamartomatous nature through evaluating the immunoexpression of Ki-67 and endoglin in SAL in hard palate of a 60-year-old patient. To the best of our knowledge, this would be the second case of SAL in hard palate in a global platform.

Keywords: *Endoglin, Ki-67, sialoangiolipoma*

Swagatika Panda, Ipsita Mohanty, Alkananda Sahoo, Neeta Mohanty, Santosh Subudhi[1]

Department of Oral Pathology and Microbiology, [1]Department of Oral and Maxillofacial Surgery, Institute of Dental Sciences, Siksha 'O' Anusandhan University, Bhubaneswar, Odisha, India

Introduction

Mesenchymal tumors of the salivary glands are rare accounting for 2%–5% of all salivary gland tumors.[1] Angiomas, lipoma, and neural tumors such as schwannoma and neurofibroma are by far the most frequent benign mesenchymal tumors occurring in the salivary glands, with several distinct variants of each group.[2] Neoplasms of salivary gland including adipocytes are relatively uncommon among mesenchymal neoplasms of the salivary gland. Depending on the microscopic compositions, adipocytes inclusive of salivary gland neoplasms can be divided into monophasic adipocytic neoplasm and biphasic composed of epithelial derivatives admixed with a variable adipocyte component. The biphasic lesion includes sialolipoma and lipoadenoma. The term sialolipoma was coined by Nagao *et al*.[3] in 2001 for biphasic salivary gland tumors that contain normal looking salivary gland elements admixed with a variable but usually prominent adipocytes. We are presenting a unique case of sialolipoma with a prominent vascular component designating as sialoangiolipoma (SAL). To the best of our knowledge, there have been three previous reports[4-6] and the present case would be the fourth one. The microscopic resemblance of SAL to that of normal salivary gland architecture and adipocytes found in the hard palate at young age allowed few authors to suggest the hamartomatous nature.[4-6] We have evaluated the immunoexpression of Ki-67 and endoglin to substantiate the hamartomatous nature of SAL.

Case Report

An otherwise healthy 60-year-old man presented with a median mass of the posterior hard palate for 10 years [Figure 1]. The growth was painless and movable with a soft consistency measuring 3 cm × 2 cm. The mass was resected under local anesthesia. Microscopic evaluation of the specimen shows the lesion consisting of adipocyte lobules of varied size separated from the overlying stratified squamous epithelium by a normal looking band of fibrocollagenous tissue and separated from each other by connective tissue septae. Mucous acini along with newly formed ducts interspersed among the lobules of adipocytes were an obvious finding. There was absence of inflammatory infiltrates and ductal dilatation. There was no area showing hemorrhage, necrosis, or atypical adipocytes. Nerves were seen in close association with adipocyte, acini, and large vessels [Figure 2]. Vascularity was intense with multiple large, branched intratumoral blood vessels in close approximation of both acini and adipocytes and several small-sized peritumoral juxtaepithelial blood vessels. Immunoexpression of

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Address for correspondence:
Dr. Swagatika Panda, Department of Oral Pathology and Microbiology, Institute of Dental Sciences, Siksha 'O' Anusandhan University, Bhubaneswar - 751 030, Odisha, India.
E-mail: dr.swagatika@gmail.com

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Ki-67* and endoglin† (*DAKO, prediluted, † BIOGENEX, prediluted) was studied in the given tissue. Ki-67 was positively expressed in the large intratumoral vessel wall as well as on acinar cytoplasm [Figure 3]. Endoglin was positively expressed in the peritumoral juxtaepithelial vasculature [Figure 4]. The patient was followed-up for 1 year without any sign of recurrence.

Discussion

A thorough literature review has disclosed that three cases of SAL[4-6] have been already reported, of which two occurred in major and one occurred in minor salivary gland in the hard palate. We are reporting the second case of SAL of the minor salivary gland in hard palate and attempting to compare the clinical and microscopic features with those of previously reported cases [Table 1]. The proposition of hamartomatous nature suggested in previous publications[4-6] was supported by young age of the patient at the time of presentation of the lesion in two cases.[4,5] In our case as well as case reported by Mariano,[6] the age of the patient is not supporting this concept. However, young age is not the exclusive feature of hamartomatous growth. Hamartomas are tumor-like malformations characterized by abnormal mixture of tissue indigenous to the part which grows with the body until maturity of the tissue is attained. Neoangiogenesis is an essential step in tumorigenesis and tumor growth which unlikely is a component of hamartoma. Because of the lack of evidences for supporting hamartomatous nature of SAL, we have endeavored evaluating the immunoexpression of endoglin (CD105), a recently discussed neoangiogenic marker and Ki-67, a proliferation marker which substantiated the hamartomatous nature of in SAL.

Endoglin is a 180-kDa transmembrane homodimeric glycoprotein that belongs to the transforming growth factor beta receptor complex [15]and has been demonstrated as a more specific marker for neoangiogenesis in comparison to pan-endothelial markers.[7] In the present case, negative expression of endoglin in intratumoral blood vessels may suggest the nonneoplastic behavior of SAL. However, the positive expression of endoglin in perilesional immature blood vessels in this case may suggest an active role of this protein in vascular remodeling to sustain increased growth of the lesion. Evidences do exist that neoplastic development need not always require prominent angiogenesis[8] in which

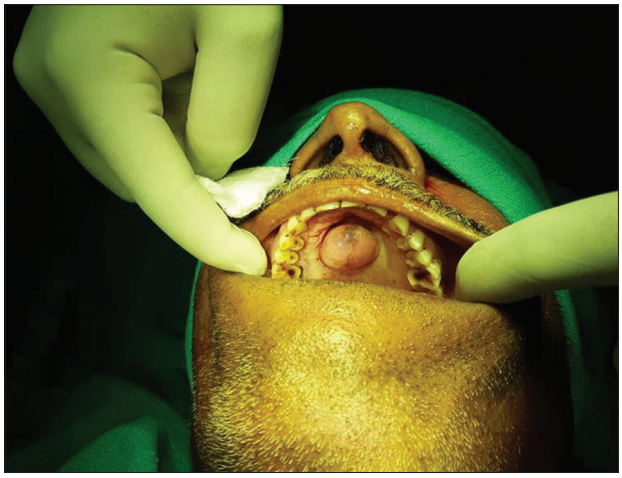

Figure 1: Painless mobile mass in the posterior hard palate

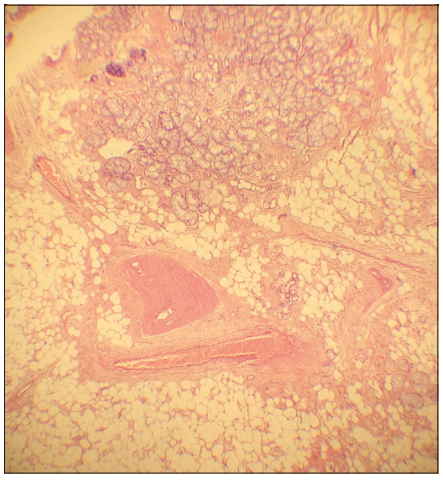

Figure 2: Photomicrograph (×10) showing adipocytes, acini, blood vessels and nerve fibers

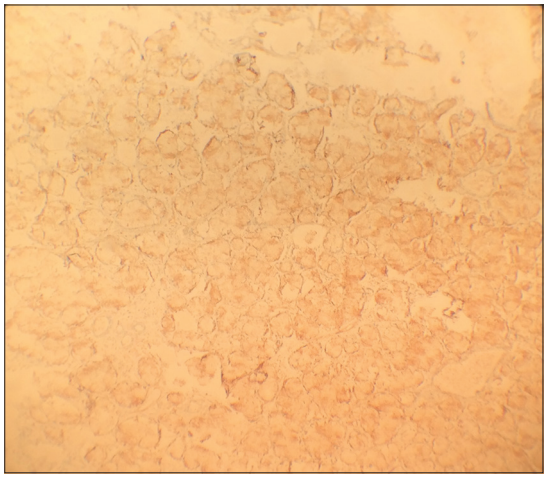

Figure 3: Photomicrograph (×10) showing Ki-67-positive acinar cytoplasm

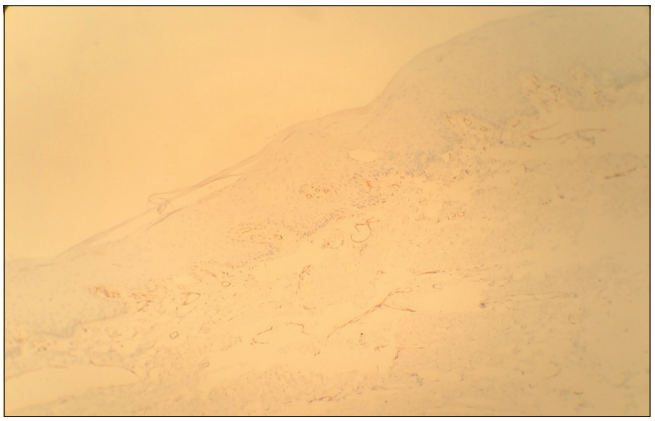

Figure 4: Photomicrograph (×10) showing endoglin-positive peritumoral juxtaepithelial vasculature

Table 1: Clinical features and immunoexpression of the present case and previously reported cases

Site, age/ gender	Macroscopy (cm)	Positive immunoexpression
Submandibular gland, young adult/male[4]	4×2	Immunogenic - skeletal muscle S-100 - nerve and adipocytes CD34 - endothelium Cytokeratin - duct cells
Hard palate, 67/male[5]	1.5	Smooth muscle actin - vessel wall CD31 - endothelial cells
Parotid new born/female[6]	2.7	Muscle actin and calponin - myoepithelial cells and vessel walls Cytokeratin 34βE12 - basal cells within the acini and duct CD 31 - endothelium S-100 - adipocytes
Hard palate, 60/male (present case)	3×2	Ki-67 - occasionally positive in large intratumoral vessel and acinar cytoplasms Endoglin - peritumoral juxtaepithelial capillaries

case tumor metabolic activity may be carried out through the nonoxygen-dependent process. From the above discussions, we may infer that SAL is either a hamartoma or an angiogenesis-independent neoplasm.

Ki-67 is an important proliferation marker required for the synthesis of ribosomes during the cell cycle.[9] Expression of Ki-67 in this case was found to be restricted to few intratumor large blood vessels and few acinar cells in mild intensity. This indicated that the salivary gland tissue was entrapped inside the proliferating adipocytes rather than the neoplastic proliferation of acinar cells and adipocytes.

The expression pattern of Ki-67 and endoglin in normal salivary gland tissue, benign, and malignant salivary gland tumors as studied by Tadbir *et al*.[10] has supported the findings of our investigation by giving the evidence of absence of endoglin-positive vessels in normal salivary gland tissue and expression being increased from pleomorphic adenoma, acinic cell carcinoma to being highest in mucoepidermoid carcinoma. The evidence of significantly higher frequency of endoglin positivity in malignant salivary gland tumors than benign salivary gland tumors[8] has also been supportive to our inference.

Further reporting of such cases with immunohistochemical study should be encouraged to determine the etiopathogenesis. However, with the available evidences, the most striking conjecture focuses on hamartomatous nature of the SAL defying the neoplastic nature.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Nil.

Conflicts of interest

There are no conflicts of interest.

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