

Case Report

Polymorphous low grade adenocarcinoma in oral cavity: a case report

Mostafa Mahfuzul Anwar¹, AKM Sahabuddin Khan²

Abstract:

Polymorphous low grade adenocarcinoma is a slow growing tumor mainly arises in minor salivary glands in oral cavity. The frequency of regional lymph node and distant metastasis are very low in this tumor. Careful examination of histopathological specimen is necessary as features frequently overlap with that of pleomorphic adenoma and adenoid cystic carcinoma. Local excision is the treatment of this condition. Recurrences and distant metastasis were reported in literature many years after surgery. So, long term regular follow up is required in this group of patients.

Introduction:

Polymorphous low grade adenocarcinoma (PLGA) is a distinctive salivary gland neoplasm with an almost exclusive propensity to arise from minor salivary glands. It was first described by Freedman and Lummerman, and by Batsakis et al. in 1983, who used the terms "lobular carcinoma" and "terminal duct carcinoma"¹, respectively. The term PLGA was suggested by Evans and Batsakis 1 year later¹. The preferential location of PLGA is the palate, although more locations have been described. Recently, the entity is being diagnosed more properly, due to the careful analysis of histologic specimens and the use of the

immunohistochemistry². Report of new cases of PLGA has improved our knowledge about clinical and histological features. Here we present a case of PLGA and discussed the different aspects of management. Also, we perform a review of literature about this rare condition.

Case report:

A 50-year-old male patient from suburban area of the city presents with a slow growing nodular swelling inside the oral cavity for the last 2 years. There was no history of sore throat or difficulty in swallowing. He was non smoker and non alcoholic. He had habit of chewing betel leaf for the last 10 years. He was mild hypertensive and non diabetic. On examination, there was a nodular swelling about 1 cm in size on the anterior pillar of right tonsil with intact mucosa. Regional lymph nodes were not palpable. Clinically he was diagnosed as a case of minor salivary gland tumour. He underwent surgery in a private hospital of the city. The nodular swelling along with affected tonsil on the same side and adjoining anterior pillar were excised. Post operative recovery was uneventful.

1. Assistant Professor, Department of Otolaryngology and Head Neck Surgery, Chittagong Medical College, Chittagong
2. Associate Professor, Department of Pathology, Comilla Medical College, Comilla

Address of Correspondence: Dr. Mostafa Mahfuzul Anwar, Assistant Professor, Department of Otolaryngology and Head Neck Surgery, Chittagong Medical College, E mail- dipro2001@yahoo.com

Patient was discharged from hospital on 2nd postoperative day. Histopathology of the resected nodule revealed polymorphous low grade adenocarcinoma. He was followed up regularly and found to be disease free 6 months after surgery when he last followed up 2 months ago.

Discussion:

Since the original description of these tumors, PLGA has been recognized as a distinct salivary gland tumor that has a predilection to occur in the minor salivary glands and is associated with slow growth and indolent biology. PLGA occurs over a wide age range but does not seem to occur in the first or second decades of life. The highest incidence was noted in 50-60 years. There is a nearly 2:1 female to male ratio for the patients².

PLGA accounts for 7–11% of all neoplasms in minor salivary glands. The typical clinical presentation of PLGA is that of an asymptomatic mass located within the oral cavity¹. The palate is the most frequent location of PLGA, but it has been described also in other locations, such as the lip, tongue, buccal mucosa, floor of the mouth, pharynx, parotid, submandibular gland and sublingual gland^{3,4,5,6}. The appearance of PLGA in major salivary glands is extremely rare, and it has only been referred in a few reports, with similar clinical features as PLGA of minor salivary glands^{7,8}. The frequency of regional lymph node metastasis is 6–10%⁹. Distant metastasis may occur in less than 1% of the cases². Patients who presented with pain, bleeding, or ulceration did not have more aggressive disease nor were they more prone to develop recurrences¹. Local recurrence and distant metastasis may occur many years after primary surgery¹⁰.

Histologically, it is characterized by a low grade, infiltrating tumor with uniform cytological features but different growth

patterns: solid, trabecular, ductal, tubular, cribriform, cystic and papillary-cystic patterns present in varying proportions^{1, 2}. Cytologically, PLGA is composed of small cuboidal luminal cells and polygonal or round, and oval or spindle nonluminal cells. Cells have eosinophilic cytoplasm, with fusiform, ovoid or round nuclei. Mitotic figures are observed in rare occasions and necrosis does not occur. Whether or not a tumor with a papillary growth pattern should be included within the spectrum of PLGA or should be classified separately as papillary cystadenocarcinoma has been debated in the literature^{1,2}. The cytologic features in the foci of papillary growth were similar to the nonpapillary foci. A true papillary tumour presents with more aggressive clinical course with lymph node metastases and a higher frequency of local recurrence. This biologic behavior is distinctly contrary to that of PLGA¹.

As PLGA demonstrates a wide variety of growth patterns, use of immunohistochemical studies assist in the diagnosis of the tumor. It is always positive to vimentin, cytokeratin, S-100 protein, CEA and CK7, occasionally positive to CK8 and CK14, epithelial membrane antigen (EMA) and smooth muscle actin (SMA) and it is always negative to CK13^{1,2,7,11}.

In general, the diagnosis of PLGA is not difficult. However, diagnostic difficulties due to histopathologic overlap may occur with mixed tumor (pleomorphic adenoma) and adenoid cystic carcinoma (ACC)^{1,2,12}. These diagnostic difficulties often occur during frozen section examination or when the biopsy is small. Furthermore, because mixed tumors of minor salivary glands most often are unencapsulated, differentiation from PLGA based on that feature is not reliable. The distinction between PLGA and pleomorphic adenoma usually can be made by identifying

the presence of infiltrative growth with stromal invasion and absence of mesenchyme like cells of benign mixed salivary gland tumours².

ACC can mimic the growth patterns identified in PLGA. However, in contrast to PLGA, the cells in ACC tend to be smaller, with hyperchromatic nuclei, less cytoplasm, a higher nuclear-to-cytoplasmic ratio, and coarser nuclear chromatin. The differences in nuclear morphology are particularly striking and are nearly pathognomonic¹. Use of immuno- histochemical studies also assist in the differentiating these tumors.

A correct diagnosis is particularly important because treatment and prognosis of salivary gland tumors are different. Imaging techniques, such as CT and MRI, may be helpful in determining the extension of the tumor, in order to provide an adequate management.

The most appropriate initial treatment for PLGA is wide local excision with a close evaluation of surgical margins^{2, 10, 12}. Prophylactic neck dissection is not necessary unless metastatic lymph nodal involvement was evident in the clinical examination. The use of radiotherapy after the surgery has been proposed by some authors. It has been suggested in cases in which lymph-node involvement has been discovered in the primary surgical intervention. Some authors have suggested the use of concomitant radiotherapy or chemotherapy. If microscopic involvement of surgical margins were present in the histopathologic study, radiotherapy may be beneficial in local control of the disease².

The overall prognosis of PLGA is good. About 97% patients survived more than 10 years after presentation. Metastases are rare and recurrences tend to occur more than 5 years after treatment. Recurrences can be successfully salvaged in most cases. It is

necessary to follow-up the patient for a long time after surgery^{9, 10, 12}.

References:

1. González GR, Rodríguez CFJ, Muñoz GMF, Nam CSH, Sastre PJ, Naval GL. Polymorphous low-grade adenocarcinoma of the palate: report of cases. *Auris Nasus Larynx* 2005; 2(3): 275-80.
2. Castle JT, Thompson LD, Frommelt RA, Wenig BM, Kessler HP. Polymorphous low grade adenocarcinoma: a clinicopathologic study of 164 cases. *Cancer*.1999; 86(2): 207-19.
3. Wei1 YC, Huang CC, Chien CY, Hwang JC, Chen WJ. Polymorphous low-grade adenocarcinoma of the nasopharynx: a case report and brief review. *Journal of Clinical Pathology* 2008; 61(10): 1124-1126.
4. Yih WY, Kratochvil FJ, Stewart JC. Intraoral minor salivary gland neoplasms: review of 213 cases. *J Oral Maxillofac Surg*. 2005; 63(6): 805-10.
5. Toida M, Shimokawa K, Makita H, Kato K, Kobayashi A, Kusunoki Y, Hatakeyama D, Fujitsuka H, Yamashita T, Shibata T. Intraoral minor salivary gland tumors: a clinicopathological study of 82 cases. *Int J Oral Maxillofac Surg*. 2005; 34(5): 528-32.
6. Tincani AJ, Altemani A, Martins AS, Barreto G, Valério JB, Del Negro A, Araújo PP. Polymorphous low-grade adenocarcinoma at the base of the tongue: an unusual location. *Ear Nose Throat J*. 2005; 84(12): 794-5.
7. Nagao T, Gaffey T A, Kay P A, Minato H, Serizawa H & Lewis J E. Polymorphous low-grade adenocarcinoma of the major salivary glands:

- report of three cases in an unusual location. *Histopathology*. 2004; 44(2): 164–171.
8. O'Rourke AK, Gourin CG, Wade ZK, Hessler RB. Polymorphous low-grade adenocarcinoma of the parotid gland. *Ear Nose Throat J* 2006; 85(10): 669-71.
 9. Hannen EJM, Bulten J, Festen J, Wienk SM, De Wilde PCM. Polymorphous low grade adenocarcinoma with distant metastases and deletions on chromosome 6q23–qter and 11q23–qter: a case report. *J Clin Pathol* 2000; 53(12): 942-945.
 10. Pogodzinski MS, Sabri AN, Lewis JE, Olsen KD. Retrospective study and review of polymorphous low-grade adenocarcinoma. *Laryngoscope*. 2006; 116(12): 2145-9.
 11. Kawahara A, Harada H, Yokoyama T, Kage M. Cytomorphologic Features of a polymorphous low grade adenocarcinoma of the palate: a report of 2 cases with immunocytochemistry. *Acta Cytol* 2003; 47(6): 1127-1130.
 12. Paleri V, Robinson M, Bradley P. Polymorphous low-grade adenocarcinoma of the head and neck. *Curr Opin Otolaryngol Head Neck Surg*. 2008; 16(2): 163-9.