Basal cell adenoma in the deep portion of the parotid gland: a case report

Woo-Yeol Chung, Chul-Hwan Kim
Department of Oral and Maxillofacial Surgery, Dankook University Dental Hospital, College of Dentistry, Dankook University, Cheonan, Korea

Abstract (J Korean Assoc Oral Maxillofac Surg 2015;41:352-356)

Basal cell adenoma (BCA) is a rare, benign neoplasm that most frequently arises in the parotid gland. We treated a 54-year-old female patient with BCA that had developed in the deep portion of the left parotid gland. The patient presented with gradual facial swelling with no other symptoms. We performed a total parotidectomy to excise the mass, but we preserved the facial nerve. Histopathology revealed a well-encapsulated mass. The tumor was composed of islands of comparatively uniform, small, dark, basaloid epithelial cells in the stroma. Histologic and immunohistochemical studies concluded that the BCA tumors were mostly trabecular. Postoperatively, there was no facial nerve weakness, and the tumor did not recur during the 24-month follow-up period.

Key words: Basal cell adenoma, Parotid gland, Facial nerve preservation

[paper submitted 2015. 8. 7 / revised 2015. 10. 14 / accepted 2015. 10. 30]

I. Introduction

Basal cell adenoma (BCA) is an uncommon benign salivary gland tumor that accounts for 1% to 3% of all salivary gland neoplasms1. It is characterized by the basaloid appearance of the tumor cells and the absence of the myxochondroid tissue that is usually found in pleomorphic adenomas. The tumors have been classified into solid, trabecular, tubular, and membranous types2, and the treatments of choice are surgical excision, superficial parotidectomy, and total parotidectomy. Total parotidectomy is preferred over superficial parotidectomy for tumors in the deep portion of the parotid gland or for membranous types of BCA that tend to be multicentric, have multiple recurrences, and occasionally undergo malignant transformation3.

Here, we report a case of total parotidectomy to excise trabecular BCA in the deep portion of the parotid gland, with facial nerve preservation.

II. Case Report

A 54-year-old Korean woman presented to the outpatient oral and maxillofacial surgery clinic at Dankook University Dental Hospital (Cheonan, Korea) in 2013 because of a six-month history of painless swelling of her left parotid gland. On physical examination, the patient showed a 1.5-cm nodule in the left pre-auricular region and a mobile mass over the deep portion of left parotid gland that had not adhered to the skin. No pathologic lymph nodes or masses were observed or palpated in the cervicofacial regions. Based on the history and physical exam, a suspected diagnosis of benign parotid gland tumor was made. Enhanced neck computed tomography images were obtained and revealed a 1.7×1.5 cm, well-defined, heterogeneously enhancing mass in the deep portion of the left parotid gland(Fig. 1)

With both a clinical and radiological diagnosis of benign tumor in the deep portion of the left parotid gland, a total parotidectomy with facial nerve preservation under general anesthesia was scheduled. A modified Blair incision4 was made in the pre-auricular region (Fig. 2), and the facial nerve trunk was identified using an antegrade approach5. After the superficial portion of the parotid gland was carefully dis-
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The patient was discharged without any complications such as facial nerve weakness or Frey syndrome, and there was no recurrence during the 24-month follow-up period.

Patients provided written informed consent for the publication of this case report along with the accompanying images.

III. Discussion

BCA is a rare, benign epithelial neoplasm of the salivary glands that most frequently arises in the parotid gland. It is composed of relatively isomorphic basoloid epithelial cells, an abundant basal cell layer, and a distinctive basement membrane-like material. Notably, BCAs lack the myxochondroid tissue that is present in pleomorphic adenomas. Clinically, the tumor tends to be an asymptomatic, slowly enlarging, freely mobile mass with a maximum diameter of less than 3 cm. Most authors report a greater prevalence in women, but other authors report no differences between the sexes.

At the cellular level, the predominant tumor cell arrangement determines the type of BCA. The tumors are divided into four types by histologic pattern: solid, trabecular, tubular, and membranous. The most common type is the solid BCA, in which round or oval tumor cells show a solid proliferation and form cell nests of various sizes. The peripheral nest cells are lined with a palisading row of tumor cells. In the tubular type of BCA, bilayered tubular structures consisting predominantly of inner eosinophilic luminal cells and outer cuboidal cells are featured. In the trabecular type, the tumor

Fig. 1. Computed tomography scan; 1.7×1.5 cm sized well-encapsulated enhancing mass on left parotid gland. A. Axial. B. Coronal.

Fig. 2. Incision design has been made. Dotted line, swelled region; narrow line, incision line; wide line, contour of angle of mandible.

Histologically, the mass in this case was shown to be a mostly trabecular type BCA tumor. Immunohistochemical examination showed that the mass was positive for p63 and high-molecular weight cytokeratine. (Fig. 4)
Fig. 3. A. The superficial part of the parotid gland has been excised. B. Excision of tumor with preserving the facial nerve and the branches. C. Excised tumor. D. The facial nerve and the branches have been preserved.

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Fig. 4. A. Fibrous capsule of the tumor is surrounding trabecular tumor cell nests (H&E staining, ×40). B. Trabecular tumor cells and tumor cell nest formation (H&E staining, ×200). C. The basal cells are expressed by p63 (immunohistochemical staining, ×200). D. The luminal cells of tubular structure are stained by HMK-CK (immunohistochemical staining, ×200).

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cells are arranged in trabecular cords and occasionally form tubular lumens or intercellular canalicular slits within the trabeculae\(^1\). Membranous BCAs are composed of peripheral cell layers arrayed in a palisade fashion, and the cell layers are surrounded by excessive hyaline basal membrane material\(^2\). In this case, the tumors are mostly of the tubular and trabecular types.

For BCAs, the primary treatment is surgical excision by means of a superficial or total parotidectomy. Total parotidectomy is performed in cases in which the tumor affects the parotid gland because BCA can be unencapsulated. However, in the minor salivary glands of the oral mucosa, extracapsular excision is performed to treat BCAs\(^3\). Total rather than superficial parotidectomy is preferred in the membranous type of BCAs because the membranous type tends to be multicentric, have multiple recurrences, and occasionally undergoes malignant transformation\(^12\)\(^13\).

When performing a total parotidectomy, surgeons endeavor to preserve the facial nerve, which is challenging because the deep lobe of the parotid gland is beneath the facial nerve and its branches\(^14\). Thus, many surgeons perform superficial rather than total parotidectomies in patients with potential malignant transformation or primary superficial cancer of the parotid gland. However, Kidd\(^15\) reported a series of 105 patients with pleomorphic adenoma that were treated with total conservative parotidectomy, and no cases of permanent paralysis were seen. In addition, Laccourreye et al.\(^16\) studied 229 cases of primary benign pleomorphic adenoma of the parotid gland and found facial nerve dysfunction to be no more common after total conservative parotidectomy than after superficial parotidectomy. Although Gaillard et al.\(^17\) reported that total parotidectomy was associated with a significantly higher incidence of temporary facial nerve dysfunction than was superficial parotidectomy, there was no permanent facial nerve dysfunction in either total or superficial parotidectomy.

Thus, in the absence of a preoperative biopsy, conservative total parotidectomy with facial nerve preservation is recommended for suspected BCA because membranous BCAs can occasionally become malignant.

Conflict of Interest

No potential conflict of interest relevant to this article was reported.

Acknowledgements

Authors’ contributions: CHK performed the surgeries in this case and provided the clinical follow-up care. WYC was the patient’s primary care doctor and gave final approval for this version of the manuscript to be published.

ORCID

Woo-Yeol Chung, http://orcid.org/0000-0001-8031-1711
Chul-Hwan Kim, http://orcid.org/0000-0002-5199-2420

References

1. Vicandi B, Jiménez-Hefferman JA, López-Ferrer P, González-Peramato P, Patrón M, Viguer JM. Fine needle aspiration cytology of basal cell adenoma of the salivary gland: a cytohistological correlation study of 35 cases. Cytopathology 2012;23:315-9.
2. Nakabayashi M, Shomori K, Kiyi S, Shiomi T, Nosaka K, Ito H. Tubular-trabecular type basal cell adenoma of the parotid gland: a patient report. Yonago Acta Med 2010;53:65-9.
3. González-Garcia R, Nam-Cha SH, Muñoz-Guerra MF, Gamallo-Amat C. Basal cell adenoma of the parotid gland: case report and review of the literature. Med Oral Patol Oral Cir Bucal 2006;11:E206-9.
4. Wasson J, Karim H, Yeo J, Panesar J. Cervicofacial versus modified facelift incision for parotid surgery: a patient feedback comparison. Ann R Coll Surg Engl 2010;92:40-3.
5. Saha S, Pal S, Sengupta M, Chowdhury K, Saha VP, Mondal L. Identification of facial nerve during parotidectomy: a combined anatomical & surgical study. Indian J Otolaryngol Head Neck Surg 2014;66:63-8.
6. Kudoh M, Harada H, Sato Y, Omura K, Ishii Y. A case of basal cell adenoma of the upper lip. Case Rep Med 2014. doi: 10.1155/2014/795356.
7. Chaudhry AP, Cutler LS, Satchidanand S, Labay G, SunderRaj M. Ultrastructure of monomorphic adenoma (ductal type) of the minor salivary glands. Arch Otolaryngol 1983;109:118-22.
8. Fantasia JE, Neville BW. Basal cell adenomas of the minor salivary glands: a clinicopathologic study of seventeen new cases and a review of the literature. Oral Surg Oral Med Oral Pathol 1980;50:433-40.
9. Kim CW, Kim SG. Basal cell adenoma misdiagnosed as an adenoid cystic carcinoma in the parotid gland. J Korean Assoc Oral Maxillofac Surg 2012;38:314-7.
10. Nagao K, Matsuoka O, Saiga H, Sugano I, Shigematsu H, Kaneko T, et al. Histopathologic studies of basal cell adenoma of the parotid gland. Cancer 1982;50:736-45.
11. Ogawa I, Nikai H, Takata T, Miyauuchi M, Ito H, Ijuhin N. The cellular composition of basal cell adenoma of the parotid gland: an immunohistochemical analysis. Oral Surg Oral Med Oral Pathol 1990;70:619-26.
12. Yu GY, Uhmüller J, Donath K. Membranous basal cell adenoma of the salivary gland: a clinicopathologic study of 12 cases. Acta Otolaryngol 1998;118:588-93.
13. Junquera L, Gallego L, de Vicente JC, Fresno MF. Bilateral parotid basal cell adenoma: an unusual case report and review of the literature. J Oral Maxillofac Surg 2010;68:179-82.
14. Olsen KD, Moore EJ. Deep lobe parotidectomy: clinical rationale in the management of primary and metastatic cancer. Eur Arch Otorhinolaryngol 2014;271:1181-5.
15. Kidd HA. Diseases of the parotid gland and the Frey syndrome. Br J Hosp Med 1969;2:1513-22.
16. Laccourreye H, Laccourreye O, Cauchois R, Jouffre V, Ménard M, Brasnu D. Total conservative parotidectomy for primary benign pleomorphic adenoma of the parotid gland: a 25-year experience with 229 patients. Laryngoscope 1994;104:1487-94.
17. Gaillard C, Périé S, Susini B, St Guily JL. Facial nerve dysfunction after parotidectomy: the role of local factors. Laryngoscope 2005;115:287-91.