Journal of Cancer Research and Practice xxx (2018) 1–4

Contents lists available at ScienceDirect

Journal of Cancer Research and Practice

journal homepage: http://www.journals.elsevier.com/journal-of-cancer-research-and-practice

Case Report

A parotid gland mass as an initial metastatic manifestation of nasopharyngeal carcinoma

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ARTICLE INFO

Article history:
Received 20 January 2018
Received in revised form
22 March 2018
Accepted 27 March 2018
Available online xxx

Keywords:
Nasopharyngeal carcinoma
Parotid gland metastasis

ABSTRACT

Purpose: 80% of salivary gland tumors are of parotid origin; of these, 80% are benign and 20% are malignant. Metastases are rarely found in the parotid gland. Nasopharyngeal carcinoma (NPC) metastasis to the parotid gland is even rarer. We present a case of a parotid mass as an initial manifestation of NPC metastasis.

Material and methods: A 68 year-old male patient suffered from a tender, firm and palpable mass and numbness in right infra-auricular region for one month. Contrast-enhanced computed tomography (CT) showed diffuse contrast enhancement of the right parotid gland, bilateral neck level II enlarged lymph nodes, and a subtle bulging lesion at the nasopharynx. Ultrasonography (US) demonstrated hypoechoic lymph nodes in right parotid gland and right neck level II area. Endoscopy disclosed a bulging lesion in the nasopharynx.

Results: US-guided fine-needle aspiration biopsy (FNAB) for the lymph node in right intraparotid region showed positive malignant cells. Excision of the right parotid gland mass revealed lymphoepithelial carcinoma. Biopsy of the nasopharyngeal mass demonstrated undifferentiated nasopharyngeal carcinoma. Therefore, NPC metastasis to the parotid gland was confirmed.

Conclusion: A preoperative FNAB of the parotid mass plays a key role in the treatment decision-making process. When associated with a subtle bulging nasopharyngeal lesion on CT, the possibility of NPC with parotid gland metastasis, although rare, should be kept in mind because such findings may have a major impact on the patient management

1. Introduction

A wide variety of primary and metastatic tumors can present as masses in the parotid gland. Approximately 80% of salivary gland tumors are of parotid origin, of which 80% are benign and 20% are malignant.[1] About a quarter of malignant parotid tumors are metastases originating from head and neck malignancies such as the scalp, face, oral cavity, and oropharynx.[2–4] Parotid gland metastases mostly originate from skin squamous cell carcinoma (SCC) and melanoma of the head and neck. Nasopharyngeal carcinoma (NPC) is one of the most common cancers of the head and neck region, and cervical lymph node metastasis is present in nearly 90% of patients at the time of diagnosis.[5] However, NPC metastasis to the parotid gland is very unusual. In rare cases, a metastatic deposit in the salivary gland may manifest initially as a salivary mass, which may mimic a primary salivary gland tumor clinically.[6] Herein, we present a case of a parotid mass as an initial presentation of NPC metastasis.

2. Case report

A 68-year-old male patient suffered from a tender, firm and palpable mass with numbness in the right infra-auricular region for 1 month. No history of nasal obstruction, epistaxis, serous otitis, or enlarged cervical lymph node was noted, however he had hypertension and diabetes mellitus with regular treatment. He had undergone surgery for a right parotid gland abscess (with acute and

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Peer review under responsibility of Taiwan Oncology Society.

https://doi.org/10.1016/j.jcrpr.2018.03.004

chronic inflammation, granulation tissue and necrosis shown in the pathological examination) 7 months before the present admission. The laboratory data were unremarkable except for elevated blood glucose (208 mg/dL). Contrast-enhanced computed tomography (CT) showed diffuse contrast enhancement of the small, post-surgical right parotid gland ($2.4 \times 3.1 \times 4.9$ cm in size) and minimal periparotid infiltration, a subtle protruded lesion in the right torus tubarius, and enlarged lymph nodes with the largest short-axis diameters of 1.3 cm and 1.2 cm in the right neck level II region and left retropharyngeal space, respectively (Fig. 1). Ultrasonography (US) demonstrated enlarged hypoechoic lymph nodes with the largest short-axis diameters of 1 cm and 1.7 cm in the tail of the right parotid gland and right neck level II area, respectively (Fig. 2). Endoscopy disclosed a protruded submucosal lesion with intact mucosa in the right torus tubarius of the nasopharynx (Fig. 3).

US-guided fine-needle aspiration biopsies (FNABs) for the lymph nodes in the right intraparotid and right neck level II regions showed positive malignant cells in the intraparotid lymph node and negative findings in the neck lymph node. Excision of the right parotid gland mass was performed. Hematoxylin and eosin (HE) staining revealed that the tumor mass had neoplastic epithelial cells displaying moderately to markedly pleomorphic nuclei (Fig. 4A to D). Immunohistochemical (IHC) studies revealed strong positive staining for cytokeratin AE1/AE3, CD45RO, and Epstein-Barr virus (EBV)-encoded RNA (EBER). Therefore, a pathological diagnosis of lymphoepithelial carcinoma of the parotid gland was made.

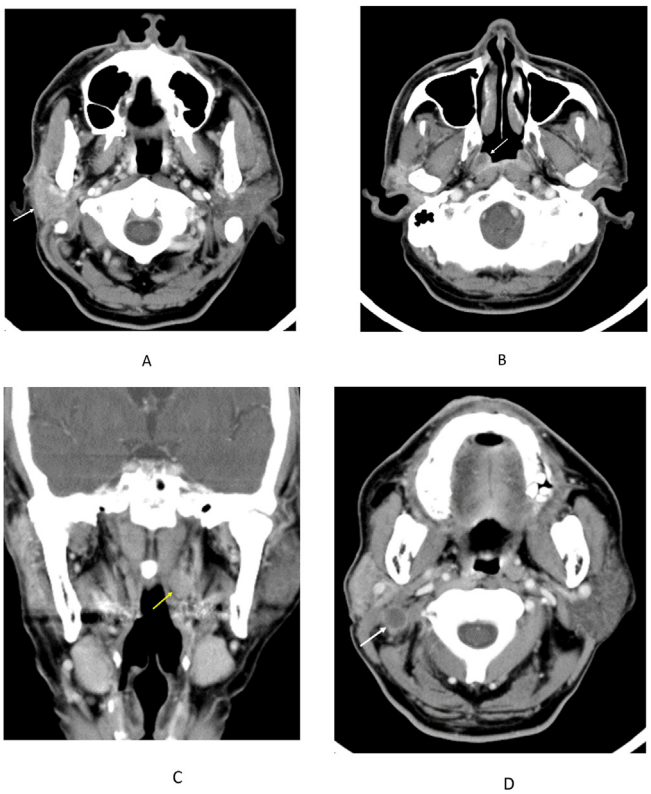

Fig. 1. (A) Contrast-enhanced axial computed tomography (CT) showed diffuse contrast enhancement of the small, post-surgical right parotid gland (arrow). (B) Contrast-enhanced axial CT revealed a subtle and protruded lesion in the right torus tubarius (arrow). (C) Contrast-enhanced coronal reformatted CT demonstrated an enlarged lymph node in the left retropharyngeal space (arrow). (D) Contrast-enhanced axial CT indicated an enlarged and necrotic lymph node in the right neck level II region (arrow).

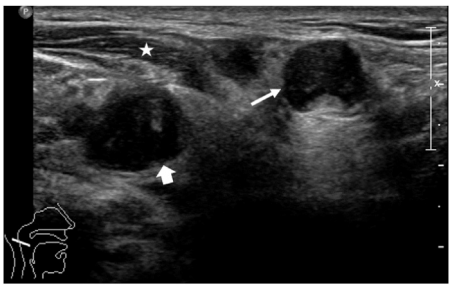

Fig. 2. Transverse ultrasonography (US) showed enlarged hypoechoic lymph nodes in the tail of the right parotid gland (arrow) and right neck level II region (arrowhead), which were separated by the sternocleidomastoid muscle (asterisk).

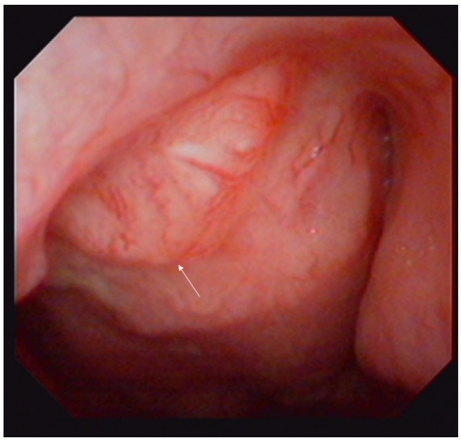

Fig. 3. Endoscopy demonstrated a protruded submucosal lesion with intact mucosa in the right torus tubarius of the nasopharynx (arrow).

A biopsy of the nasopharyngeal mass demonstrated a non-keratinizing, undifferentiated type of nasopharyngeal carcinoma, consistent with the type III World Health Organization (WHO) histological classification. HE staining showed neoplastic, epithelial cells with moderately to markedly pleomorphic nuclei, and IHC staining was strongly positive for cytokeratin AE1/AE3, CD45RO, and weakly positive for EBER (Fig. 4E to H). Because of the pathological consistency of both the parotid and nasopharyngeal tumors, NPC metastasis to the parotid gland was confirmed.

Whole body (chest and abdomen) CT and a recommended treatment plan (concurrent chemotherapy and radiotherapy, CCRT) were suggested to the patient. However, he wanted to receive further examinations and treatment at another hospital. At the time of the patient's last visit to our hospital, the staging of the NPC was at least stage II (T1N1M0) or possibly higher, according to the 7th edition of the American Joint Committee on Cancer (AJCC) guidelines, depending on the presence of distant metastasis.

3. Discussion

A wide variety of primary and metastatic tumors can present as masses in the parotid gland. Salivary gland tumors constitute about 5%–10% of head and neck tumors,[1] and approximately 80% of salivary gland tumors are of parotid origin; of which 80% are benign and 20% are malignant. About 25% of malignant parotid tumors are metastases originating from head and neck malignancies such as the scalp, face, oral cavity, and oropharynx.[2–4] Parotid lymph node metastasis is rare, with an incidence rate of less than 3.4%.[3,5,7] Parotid gland metastases mostly originate from skin SCC and

Please cite this article in press as: Yeung K-W, et al., A parotid gland mass as an initial metastatic manifestation of nasopharyngeal carcinoma, Journal of Cancer Research and Practice (2018), https://doi.org/10.1016/j.jcrpr.2018.03.004