Sebaceous Carcinoma of the Nose with a Regional Metastasis Following False-negative Sentinel Lymph Node Biopsy

Shin-Ichi Osada[1], Takashi Ueno[1], Shunta Inai[2], Yayoi Niimi[1], Munenaga Nakamizo[2], Shin-ichi Ansai[1] and Seiji Kawana[1]
Departments of [1]Dermatology and [2]Head and Neck Surgery, Nippon Medical School, 1-1-5, Sendagi, Bunkyo-ku, Tokyo 113-8602, Japan.
E-mail: osada0130@nms.ac.jp
Accepted October 18, 2010.

A recent large-scale retrospective study has revealed that the frequency and aggressiveness of extraocular sebaceous carcinoma is comparable with that of the periocular counterpart (1) and a significant number of extraocular sebaceous carcinomas show regional and widespread metastases (2). However, sentinel lymph node (SLN) biopsy has seldom been used for identifying regional nodal metastasis in extraocular sebaceous carcinoma. We report here the case of a nasal sebaceous carcinoma which was excised in combination with SLN biopsies showing no tumour cells. However, 6 months after surgery, a metastasis to the submental lymph node was detected. The efficacy of SLN biopsy in extraocular sebaceous carcinoma is discussed.

CASE REPORT

A 59-year-old man presented with a nodule on the tip of his nose. The nodule increased in size gradually over a few months and occasionally bled when the patient was washing his face. He had no remarkable medical history. Physical examination demonstrated a 10 × 8 mm soft red nodule with surface telangiectasia (Fig. 1a). A punch biopsy from the centre of the nodule revealed that the lesion was composed of highly mitogenic basaloid cells and clusters of clear cells with vacuolated cytoplasm scattered among the basaloid cells. Immunohistological studies demonstrated that the neoplastic cells were strongly positive for cytokeratin 7, CAM5.2 and Ki-67, weakly positive for epithelial membrane antigen, Ber-EP4 and adipophilin, but negative for carcinoembryonic antigen (3). Based on these clinical and histopathological findings, sebaceous carcinoma was diagnosed in this patient. Computed tomography (CT) scans of the head and chest regions and 67Ga scintigraphy revealed no obvious metastatic lesions or lymph node enlargements. Gastrointestinal endoscopy detected no internal malignancies.

To investigate the presence of subclinical regional nodal metastases, we performed an intraoperative SLN biopsy. A dose of tecnetium^{-99m} stannous phytate was injected around the site of the original neoplasm, followed by an injection of 2% patent blue dye. A hand-held gamma probe detected four SLNs with increased radioactivity: one from the right parotid gland region and three from the left submandibular gland region, all of which were stained weakly blue. The original neoplasm was excised with a 1 cm margin and the defect was resurfaced with a full-thickness skin graft from the right cervical region. Histopathologically, the excised tumour was composed of nests of basaloid cells, among which cells with sebaceous differentiation were scattered (Fig. 1b, c). Immunohistological studies confirmed the results obtained from biopsy specimens. No tumour cells were detected in the excised SLNs.

Six months after surgery, although no local recurrence was observed in the nose, a bulky tumour was palpable in the patient's submental region. CT scans of the neck region revealed that the tumour was 16 × 12 mm in size with a high density (Fig. 2). We speculated that the tumour could be a lymph node metastasis, lymphoma, or secondary to periodontal disease. For diagnostic purposes and to minimize the risk of missing any malignant cells, we excised the tumour to find that the normal lymph node structure was compressed by nests of highly-mitotic basaloid cells with sebaceous differentiation. The patient underwent a right neck dissection of levels I–V, and a histological study revealed the presence of metastatic cells in one of 13 level III lymph nodes.

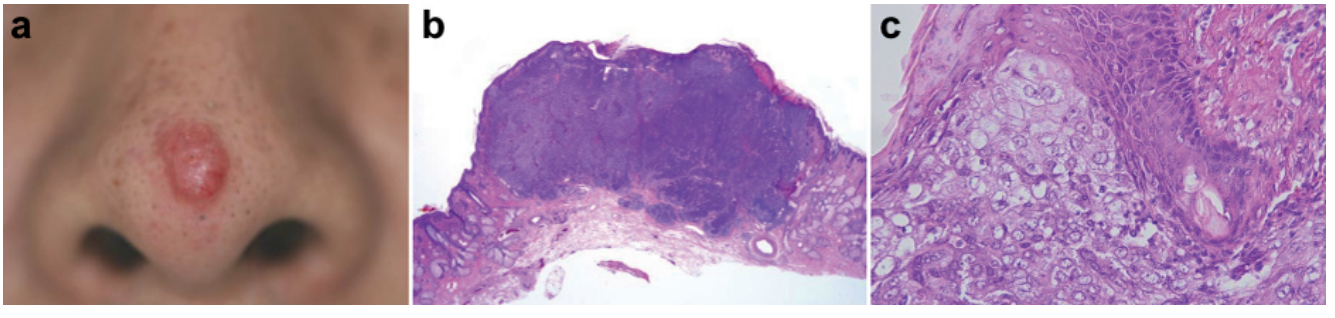

Fig. 1. (a) Red nodule on the tip of the nose. (b) The neoplasm was composed of basaloid cells (haematoxylin and eosin (H&E) ×2). (c) A cluster of clear cells with vacuolated cytoplasm in the neoplasm (H&E ×40).

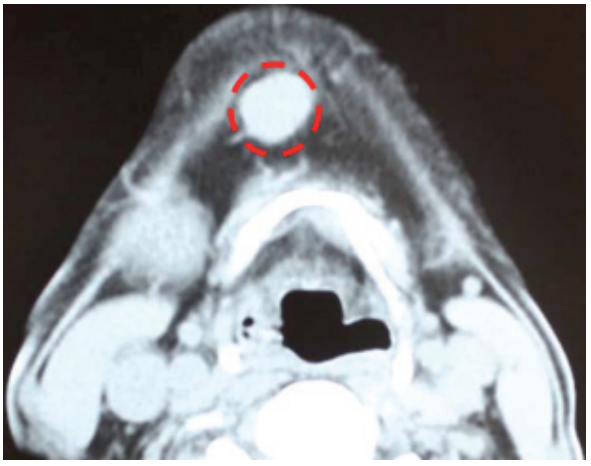

Fig. 2. A computed tomography scan of the neck. The red circle indicates submental lymph node metastasis.

The patient received two cycles of chemotherapy with 5-fluorouracil (800 mg/m^2 of body surface area on days 1 through 5) and cisplatin (80 mg/m^2 of body surface area on day 1) at a 1-month interval (4, 5). The patient has been recurrence- and metastasis-free for 20 months.

DISCUSSION

Although extraocular sebaceous carcinoma is traditionally regarded as less frequent and aggressive than the periocular form (6), a recent large-scale study has shown that extraocular sebaceous carcinoma accounts for approximately two-thirds of all cases and that its 5-year overall survival rate is rather worse than the periocular counterpart (68% and 75.2%, respectively) (1). A significant number of extraocular sebaceous carcinomas are consistently associated with regional and distal metastases. Twenty-five cases of metastasizing extraocular sebaceous carcinoma have been reported, including this one (2). Although SLN biopsy for periocular sebaceous carcinoma has been reported (7, 8), SLN biopsy has seldom been performed for the extraocular form. Sawyer et al. (2) reported the first case of extraocular sebaceous carcinoma with SLN biopsy in which three carcinoma-free SLNs were detected and the patient was metastasis-free for 3 years. Our case is only the second report of extraocular sebaceous carcinoma with SLN biopsy. We identified four SLNs, all of which were positive for both technetium uptake and dye staining and devoid of metastatic cells. However, in contrast to the report by Sawyer et al., a regional metastasis to the submental node was detected 6 months after surgery, suggesting that the submental lymph node was false-negative when the SLN biopsy was performed.

Identification of a metastatic SLN from cervical lymphadenectomy implies that microscopic "in-transit" neoplastic cells were already present in the cervical lymphatic drainage when the SLN biopsy was performed, but were not detected in the submental node because of lack of uptake of radioactivity or dye. We presume that these neoplastic cells blocked the lymphatic channels to cause re-routing of lymphatic drainage to non-relevant SLNs. Alternatively, the lack of preoperative lymphoscintigraphy in this patient might have been the reason for failing to identify the submental node. In our case, the tumour cells were poorly differentiated and highly mitogenic. Although there is no comprehensive study on the relationship between the degree of differentiation and the rate of metastasis in sebaceous carcinoma, the aggressiveness in our case can be attributed to the low grade of differentiation.

Sebaceous carcinoma frequently occurs in the head and neck region and regional nodal involvement is not uncommon. Nijhawan et al. (7) reported that the rate of regional nodal involvement in periocular sebaceous carcinoma is 10–15% and Ho et al. (9). reported that the false-negative rate of SLN biopsy in periocular sebaceous carcinoma and melanoma was 30%. These significantly high rates of regional nodal involvement could be attributed to the higher complexity and variability of the lymphatic flow in the head and neck region than in other anatomical sites.

REFERENCES

1. Dasgupta T, Wilson LD, Yu JB. A retrospective review of 1349 cases of sebaceous carcinoma. Cancer 2009; 115: 158–165.
2. Sawyer AR, McGoldrick RB, Mackey S, Powell B, Pohl M. Should extraocular sebaceous carcinoma be investigated using sentinel node biopsy? Dermatol Surg 2009; 35: 704–708.
3. Ansai S, Mitsuhashi Y, Kondo S, Manabe M. Immunohistochemical differentiation of extra-ocular sebaceous carcinoma from other skin cancers. J Dermatol 2004; 31: 998–1008.
4. Ando N, Iizuka T, Ide H, Ishida K, Shinoda M, Nishimaki T, et al. Surgery plus chemotherapy compared with surgery alone for localized squamous cell carcinoma of the thoracic esophagus: a Japan Clinical Oncology Group Study – JCOG9204. J Clin Oncol 2003; 21: 4592–4596.
5. Murthy R, Honavar SG, Burman S, Vemuganti GK, Naik MN, Reddy VA. Neoadjuvant chemotherapy in the management of sebaceous gland carcinoma of the eyelid with regional lymph node metastasis. Ophthal Plast Reconstr Surg 2005; 21: 307–309.
6. Rulon DB, Helwig EB. Cutaneous sebaceous neoplasms. Cancer 1974; 33: 82–102.
7. Nijhawan N, Ross MI, Diba R, Ahmadi MA, Esmaeli B. Experience with sentinel lymph node biopsy for eyelid and conjunctival malignancies at a cancer center. Ophthal Plast Reconstr Surg 2004; 20: 291–295.
8. Wilson MW, Fleming JC, Fleming RM, Haik BG. Sentinel node biopsy for orbital and ocular adnexal tumors. Ophthal Plast Reconstr Surg 2001; 17: 338–344.
9. Ho VH, Ross MI, Prieto VG, Khaleeq A, Kim S, Esmaeli B. Sentinel lymph node biopsy for sebaceous cell carcinoma and melanoma of the ocular adnexa. Arch Otolaryngol Head Neck Surg 2007; 133: 820–826.