Rapid superselective high-dose cisplatin infusion with concomitant radiotherapy for squamous cell carcinoma of the nasal vestibule : a report of two cases.

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ABSTRACT

Squamous cell carcinoma of the nasal vestibule (SCC-NV) is rare among head and neck malignancies. It behaves differently from cancers arising in the nasal cavity and paranasal sinuses, and skin cancer of the external nose. Prognosis is more favorable than nasal cavity tumors and less favorable than skin cancers. We experienced two cases of SCC-NV who were treated with rapid superselective high-dose cisplatin infusion with concomitant radiotherapy (RADPLAT). A 56-year-old male and a 68-year-old female with SCC-NV, classified as T4aN0M0 according to UICC and T2 according to Wang classification, were given superselective intra-arterial infusions of cisplatin, with simultaneous intravenous infusions of thiosulfate to neutralize cisplatin toxicity, together with conventional radiotherapy. In both cases, the internal maxillary artery and the facial artery were considered to be feeders of the tumor. No serious adverse events have been observed in either patient to date during follow up of 7.3 and 5.3 years, respectively. Both patients are alive without disease and show excellent cosmetic results. RADPLAT is considered to be useful for the treatment of patients with SCC of the nasal vestibule.

Key words: head and neck cancer, intra-arterial, nasal vestibule, squamous cell carcinoma, chemoradiotherapy

Introduction

Squamous cell carcinoma of the nasal vestibule (SCC-NV) is a rare disease. Agger reported the annual incidence as 0.32 per 100,000 habitants in Denmark [1]. However, it has a significant impact on the quality of life, even in early localized disease, when treated surgically [2]. Therefore, despite the existing belief that more advanced tumors are best treated with primary surgery and radiotherapy, radiotherapy is often given instead of surgery [3].

The intra-arterial infusion of chemotherapy agents for cancer of the head and neck has been used for several decades [4,5]. Subsequent advances in vascular radiology techniques have enabled superselective arterial infusion to head and neck structures, and a specific concomitant chemotherapy protocol for head and neck cancer that employs the pharmacologic principles of IA cisplatin, while capitalizing on the cisplatin-neutralizing agent sodium thiosulfate, has shown promising results [6,7].

Here we report two cases of SCC-NV treated with rapid superselective high-dose cisplatin infusion with concomitant radiotherapy (RADPLAT).

Case 1

A 56-year-old male patient was initially examined by a nearby otolaryngologist due to swelling of the left nose. Biopsy showed squamous cell carcinoma and he was referred to

our hospital. The nasal apex was swollen, diffusely reddened, and elastic-hard on palpation. A tumor was seen on the left medial nasal vestibule and the left nasal septum (Figure 1a,b). CT scan showed a soft tissue mass mainly around the left nasal apex (Figure 1c). From these findings, the tumor was classified as cT4aN0M0 according to the 2002 Union Internationale Contrele Cancer (UICC, 6th edition) staging system and as T2 according to the classification system described by Wang [8].

He was given weekly superselective intra-arterial infusions of cisplatin, with simultaneous intravenous infusion of thiosulfate to neutralize cisplatin toxicity, and concomitant conventional external-beam radiotherapy, as he rejected radical surgery. The radiotherapy dose of 65 Gy was given in 26 fractions with wedged pair technique as a daily dose of 2.5 Gy four times a week (Figure 2). Angiography was performed to identify the arteries feeding the tumor for subsequent cisplatin infusion. Bilateral external carotid artery angiography suggested that the bilateral internal maxillary and bilateral facial arteries were feeding the tumor. Digital subtraction angiography and CT angiography was performed for each artery (Figure 3). Results indicated that the left internal maxillary artery was the main artery supplying the tumor, although and bilateral facial arteries also contributed in part. In addition, the tumor was also partially supplied from the right internal maxillary artery. Cisplatin was infused into these arteries at a total dose of 120mg/m^2 each procedure (once a week for a total of three weeks). No serious adverse events have been observed to date. The follow-up

period is currently 7.3 years and there is no evidence of disease and excellent cosmetic results (Figure 1d,e,f).

Case 2

A 68-year-old female experienced bleeding from her nose followed by pain and swelling in her nasal ala. She visited a nearby hospital and was referred to our hospital. The nose appeared asymmetrical due to the swollen and tightened left nasal ala. The skin and mucosa of the left nasal vestibule were swollen and erosion was present. Extensive induration was noted in her left nasal ala, left nasal root, left cheek, tip of nose and philtrum (Figure 2a). There was an ulcer in her left nasal vestibule, and a biopsy taken from there revealed squamous cell carcinoma (Figure 2). She was diagnosed as cT4aN0M0 according to UICC classification and as T2 according to Wang classification. She also presented with poorly controlled diabetes.

The patient did not want to receive surgery due to cosmetic considerations. Therefore, RADPLAT was indicated. Her tumor was supplied by the bilateral facial and bilateral internal maxillary arteries. Cisplatin was infused into these arteries at a total dose of 100mg/m^2 each procedure (once a week for a total of four weeks). Simultaneously, external-beam radiotherapy of 65Gy was performed according to the schedule described above for case 1. The patient is alive without disease or any severe sequelae after a follow-up of 5.3 years to date (Figure 2b,c).

Discussion

SCC-NV is an uncommon head and neck malignancy. Agger reported that 174 cases of SCC-NV were recorded during a 10-year period in Denmark, with an annual incidence of 0.32 per 100,000 habitants [1].

Most previous reports used the classification systems of the UICC for the nasal cavity and paranasal sinuses or skin, or those of Wang, although there is no universally recognized staging system for SCC-NV. The Wang system was reported to have a significantly higher prognostic value [1,2].

SCC-NV behaves differently from cancers arising in the nasal cavity, paranasal sinuses or skin cancer of the external nose. Prognosis is more favorable than nasal cavity tumors and less favorable than skin cancers [9]. Jeannon reported that patients with Wang T1 tumors had a 5-year overall survival of 72%, compared with T2: 45% and T3: 32% (p=0.0098) [10]. Kummer reported that all of three patients classified as T3 according to the Wang system died from the disease (2: local, 1: distant) [2]. Agger reported that T2 and T3 Wang tumors had poor prognoses, with a 5-year disease-specific survival of 63% and 39% and an overall survival of 43% and 0%, respectively [1].

In early SCC-NV, radiation therapy and surgery achieve more or less equal treatment results. Because of the extent of an adequate resection and difficulties

associated with the reconstruction, radiotherapy is often the treatment of choice in early nasal vestibule carcinoma, with surgery reserved for salvage. For advanced disease, such as T2-3 Wang tumors, combined therapy with surgery and postoperative radiotherapy is generally recommended [1]. However, this results in significant cosmetic sequale. Agger reported that only 2 of 18 patients with T3 Wang tumors received surgery. Most patients appear not to have desired radical surgery [1].

This study showed the efficacy of RADPLAT for SCC-NV. In these cases, the SCC-NV was expected to be supplied by a branch of the external carotid artery, particularly the facial and internal maxillary arteries. Therefore, RADPLAT was indicated [11]. Indeed, angiography showed the internal maxillary and the facial arteries were supplying the tumor. CT angiography was very useful in evaluating the perfused area of each artery. We consider the key to the successful application of RADPLAT is careful superselective catheterization. No serious adverse events were observed during or after treatment to date, and the tumors are well controlled in both patients with excellent cosmetic results. In conclusion, our results suggest that RADPLAT is useful for the treatment of patients with SCC-NV.

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Conflict of interest

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

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Figure legends

Figure 1. Case 1 (a,b) A tumor was seen on the left medial nasal vestibule and the left nasal septum. (c) A CT scan showing a soft tissue mass in the left nasal apex (Arrow). (d,e) Excellent cosmetic results were seen at 2 years after RADPLAT. (f) A CT scan showing the absence of any tumor.

RT field

CTangio

Pathology

Figure 2. Case 2 (a) The nose appeared asymmetrical due to swelling and tightening of the left nasal ala. (b,c) Excellent cosmetic results were seen at 5 years and 2 months after RADPLAT.

Figure 1

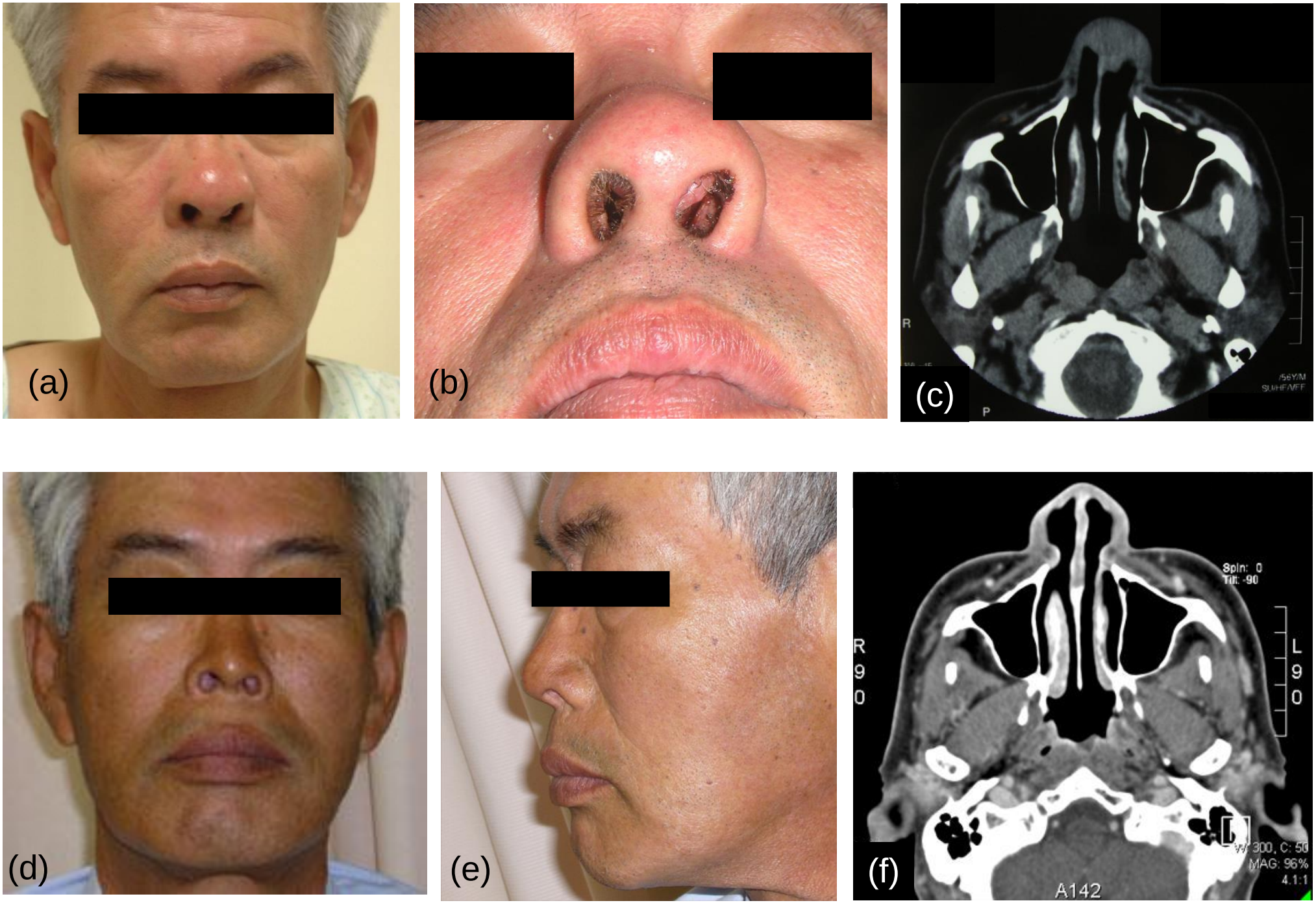

Figure 2