Nasopharyngeal Carcinoma Invading the Lacrimal Apparatus—A Case Report

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ABSTRACT

Although ocular symptoms are not infrequently seen in patients with nasopharyngeal carcinoma (NPC), direct tumor invasion into the orbital cavity is uncommon. Orbital invasion confined to the lacrimal apparatus is even rarer. We report a patient with recurrent NPC with anterior orbit/lacrimal apparatus invasion, who developed an anteromedial orbital mass at the medial canthus 5 years after the diagnosis of NPC. Epiphora occurred before the palpable orbital mass. Pathologic study proved the recurrence of NPC, and the patient subsequently underwent radiotherapy. The route of invasion remains obscure. We proposed the possibility of tumor invasion by means of tumor implantation via the nasolacrimal duct. The presence of epiphora or a mass at the medial canthus in a patient with previously treated NPC should prompt further study unless tumor recurrence in the nasal cavity or lacrimal apparatus is excluded. (***Tzu Chi Med J*** 2005; **17**:349-352)

Key words: nasopharyngeal carcinoma, orbit, lacrimal apparatus

INTRODUCTION

Nasopharyngeal carcinoma (NPC), one of the most-common malignancies in Taiwan, can present a variety of symptoms caused by direct invasion of the tumor into adjacent structures or regional lymphatic metastasis [1]. However, anterior orbital invasion confined to the lacrimal apparatus is rarely seen in NPC and has received little attention [2,3]. We report on a case of recurrent NPC with anterior orbit/lacrimal apparatus invasion. The route of invasion and treatment modality are discussed.

CASE REPORT

A 50-year-old man, who had been treated for NPC (T2N1M0, 1997 AJCC classification) with radiotherapy in 1997 and selective neck dissection for submental recurrence in 1999, presented with a right anteromedial orbital mass at the medial canthus in January 2002. Right epiphora had also been noted for 2 years. MRI and CT studies disclosed a soft-tissue lesion at the anteromedial aspect of the right orbit with displacement of the right eyeball and enlargement of the right nasolacrimal canal (Fig. 1). There was no evidence of tumor recurrence in the nasopharynx, nasal cavity, or neck. CT-guided biopsy of the orbital mass revealed an undifferentiated carcinoma, compatible with the previous pathology. In situ hybridization of Epstein-Barr virus-encoded RNA (EBER-1) was positive (Fig. 2). Under the impression of anterior orbit/lacrimal apparatus invasion by NPC,

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A B

Fig. 1. (A) CT, axial view. A soft tissue lesion occupies the medial aspect of the right anterior orbit and has expanded the lacrimal fossa (arrow). (B) CT, axial view. The diameter of the right nasolacrimal canal (arrow) is relatively larger than that on the left.

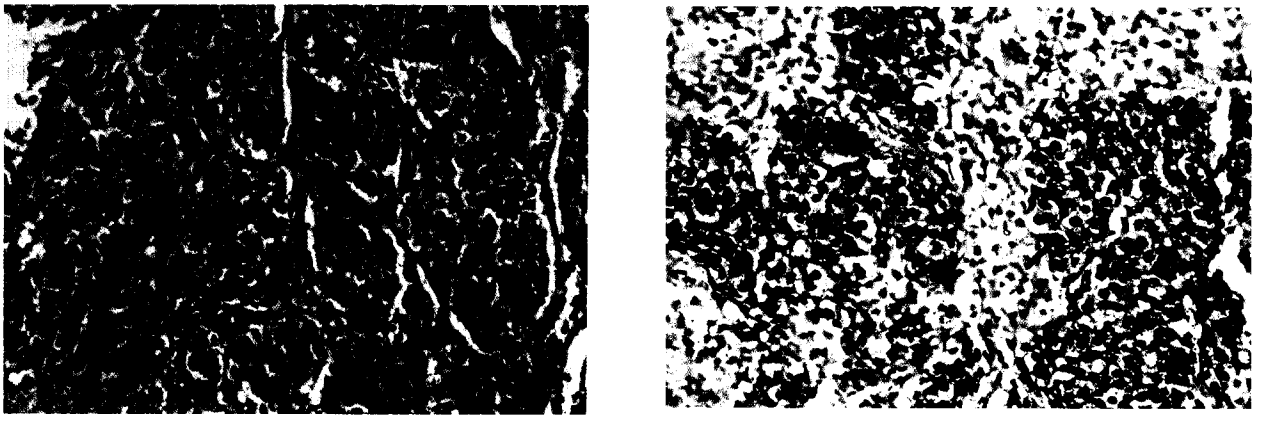

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Fig. 2. (A) Biopsy of the orbital mass revealing a metastatic carcinoma (H&E, original magnification × 100). (B) EB viurs-encoded RNA expression presenting in the nuclei of undifferentiated tumor cells of the orbital mass (arrow) (in situ hybridization, original magnification × 100).

he received 1 full course of radiotherapy (6800 cGy). The tumor completely responded to radiotherapy.

Unfortunately, a recurrent tumor in the right inferior nasal meatus presenting with nasal bleeding was noted in December 2002 (Fig. 3). Another course of radiotherapy (5040 cGy) to the nasal cavity was given. The tumor completely remitted. The right epiphora improved after final radiotherapy, and there has been no evidence of tumor recurrence to date.

DISCUSSION

Although ocular symptoms are not infrequently seen in patients with NPC, direct tumor invasion into the orbital cavity is uncommon. Luo et al found the pterygopalatine fossa and inferior orbital fissure to be the most-common routes of orbital invasion in NPC patients, followed by invasion via the ethmoid and/or sphenoid sinuses [4]. Extension of the tumor to the cavernous sinus and further anteriorly to the superior orbital fissure is another alternative pathway [5]. Orbital invasions by these routes present with posterior orbital masses on imaging studies. In contrast, anteromedial orbital masses due to NPC invasion are extremely rare, indicating the possible involvement of the lacrimal drainage apparatus (lacrimal canaliculi, lacrimal sac, and nasolacrimal duct). To our knowledge, only 3 patients with detailed

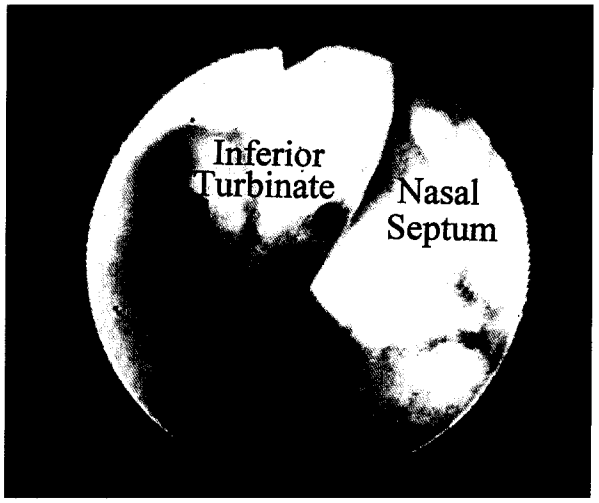

Fig. 3. Bulging tumor completely filling the right inferior nasal meatus 6 months after radiotherapy to the anteromedial orbit.

clinical manifestations have been reported in the English literature to date [2,3]. Shu et al [2] reported a 38-year-old man with NPC, who was found to have a recurrent tumor at the anterior border of the initial radiation portals in the nasal cavity 24 months after radiotherapy. The recurrent tumor further extended into the lacrimal sac. Amrith [3] reported a 33-year-old man with NPC, who was found to have a recurrent tumor at the bilateral anteromedial orbit and nasolacrimal ducts 4 years later. The nasopharynx and nasal cavity were normal on the CT scans. Amrith also reported a 59-year-old woman with NPC, who was found to have a recurrent tumor in the nasal cavity, which had extended to the bilateral nasolacrimal ducts and left anteromedial orbit 18 months later.

The possible routes of tumor invasion into the anterior orbit/lacrimal apparatus, postulated in the previous literature [2,3], include metastasis and direct invasion through the nasal cavity into the nasolacrimal duct. In our patient, it was difficult to explain why the hematogenous spread invaded the lacrimal apparatus but spared the visceral organs predisposed to distant metastases. In another aspect, no associated tumor was found in the nasal cavity. Therefore, the above 2 mechanisms seem inadequate to explain the invasion route in our patient. Another mechanism of cancer spread, implantation [6], has been postulated to be associated with metastasis to the percutaneous gastrostomy, tracheostomy, and thumb from head and neck cancer [7-9]. We propose that implantation of cancer cells is another possibility for lacrimal apparatus invasion by NPC, because reflux through the nasolacrimal duct can occur [10], especially when a patient blows his/her nose.

NPC patients with lacrimal apparatus involvement usually presented with epiphora and an anteromedial orbital mass [2,3], consistent with the common manifestations of lacrimal sac tumors (epiphora, recurrent dacryocystitis, and lacrimal sac mass) [11]. The presence of epiphora can provide an opportunity for early suspicion of tumor recurrence, because it usually occurs before an orbital mass becomes palpable. CT scanning is a good tool for thoroughly delineating the orbit, lacrimal fossa, and nasolacrimal canal, resulting in an early diagnosis of lacrimal sac neoplasms and nasolacrimal relapse of NPC [12,13].

Radiotherapy is the mainstay of treatment for NPC. Surgery is reported to have successfully cured residual or recurrent neck lymph node metastasis or the primary tumor in the nasopharynx [14,15]. However, effective treatments for lacrimal apparatus invasion by NPC are not well established. Shu et al [2] demonstrated good local control with salvage surgery for the anterior marginal recurrence of NPC after radiotherapy, including 1 patient with lacrimal sac invasion who received a partial maxillectomy plus postoperative radiotherapy. We selected radiotherapy as the main treatment because of the radiosensitive nature of NPC, the high risk of eyeball injury during surgery, and the relatively limited radiation exposure of the anteromedial orbit during previous radiotherapy in this patient. Radiation injury to the eye is a potential complication. The entire lacrimal system and inferior nasal meatus should be included in the surgical excision or irradiation field, because the tumor may grow along the lacrimal drainage system. Otherwise, subclinical tumor invasion in a portion of the lacrimal drainage system may result in treatment failure.

In conclusion, the presence of epiphora or a mass at the medial canthus in a patient with previously treated NPC should prompt further study unless tumor recurrence in the nasal cavity or lacrimal system is excluded. CT scanning can provide early diagnosis of tumor recurrence. Open biopsy or CT-guided biopsy can confirm the final result.

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鼻咽癌侵犯淚器一病例報告

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摘要

雖然鼻咽癌患者具有眼部症狀的情形並不罕見，然而腫瘤很少直接侵犯眼窩，而淚器單獨受侵犯的情形更是少見。我們經驗一位病患，於診斷鼻咽癌5年後發現內眼眥處腫塊，切片證實為鼻咽癌復發併前眼窩/淚器侵犯。在腫塊發現前，病患已具有溢淚現象。此病患隨後接受放射線治療。雖然腫瘤侵犯淚器的途徑仍不明，我們提出一種可能性：經鼻淚管藉由腫瘤細胞轉植的形式侵犯。對於已治療的鼻咽癌病患若產生溢淚或內眼眥處腫塊，必須進一步評估是否鼻腔或淚器有腫瘤復發。(**慈濟醫學** 2005; **17**:349-352)

關鍵語：鼻咽癌，眼窩，淚器

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鼻咽類澱粉沉積症一病例報告

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摘要

發生在頭頸部的局限性類澱粉沉積症為罕見的良性疾病，上呼吸消化道類澱粉沉積症以喉部最為常見。文獻記載的局限性鼻咽部類澱粉沉積症只有極為少數，臨床症狀為反覆性鼻血、鼻塞、鼻涕倒流、耳咽管功能不良，治療上可以選擇觀察或手術切除，術後易有局部復發的現象，出血是手術治療最常見的併發症。本院於2003年2月經歷一名80歲女性病患，主訴經常性鼻涕伴有血絲，鼻咽內視鏡檢查顯示一黃色臘狀均質腫塊佔據左側上鼻咽部，鼻咽切片病理診斷證實為類澱粉沉積症，於是病患接受內視鏡摘除手術，術後至今20個月尚無復發現象。(**慈濟醫學** 2005; **17**:353-355)

關鍵語：類澱粉沉積，鼻咽，喉部

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第二型第一鰓裂異常一病例報告

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摘要

第一鰓裂異常是頭頸部罕見的缺陷疾病，被認為是來自胚胎發育時期外耳道的複製物。由於病例數少，臨床表現又容易被誤認為其它頭頸部疾病，病患常因此而接受不適當的治療。本文提出一例第二型第一鰓裂異常之中年男性病患，從年輕時即發現有反覆左耳漏病史，因主訴左上頸部腫塊合併膿瘍來就診，病患接受腮腺及瘻管切除並保留顏面神經，術中發現瘻管道自腫塊通至左外耳道底部軟硬骨部交界處開口。病患術後一年情況良好，無復發現象。(**慈濟醫學** 2005; **17**:357-360)

關鍵語：第一鰓裂異常，鰓裂瘻管，鰓裂囊腫，頸部淋巴上皮囊腫

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