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Choroid metastasis of undifferentiated nasopharyngeal carcinoma

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Abstract
Choroid metastasis of primary nasopharyngeal carcinoma is an infrequent event. Here, we report a case of nasopharyngeal carcinoma with metastases to the choroid successfully treated by external beam radiotherapy.

Key words: Nasopharyngeal neoplasms; Neoplasm metastasis; Choroid

Introduction

The most common malignant tumours of the eye are metastatic tumours rather than primary uveal malignant melanoma (Ferry *et al.*, 1974). Incidence of metastatic eye tumours are estimated to be between 4–12 per cent in patients with different cancers (Ferry *et al.*, 1974; Brady *et al.*, 1982). The commonest metastatic sites are in the choroid, iris, ciliary body and retina in descending order (Ferry *et al.*, 1974). Metastasis to the choroid occurs most commonly from the breast and lung although many other sites (skin cancers, malignant melanoma, gastrointestinal malignancies and renal cancers) are reported to involve the choroid (Ferry *et al.*, 1974; Brady *et al.*, 1982; Sham and Choy, 1991). To our knowledge, only one case of nasopharyngeal cancer (NPC) with metastasis to the choroid has been reported in the literature (Sham and Choy, 1991). Here, we present a second case that was successfully managed by external beam radiotherapy.

Case report

An 18-year-old male was admitted to our hospital with the complaint of swelling in the left neck in April 1995. On physical examination, a nasopharyngeal mass was found and the biopsy revealed undifferentiated carcinoma of the nasopharynx. A nasopharyngeal mass with invasion to the sphenoid sinus was found on computed tomography (CT) scan beside bilateral enlarged cervical lymph nodes. The patient was staged as $T_4N_{2c}M_0$ (Stage IV) nasopharyngeal cancer according to the 1992 AJCC Staging System. Two cycles of cisplatin-based combined chemotherapy regimen (cisplatin, bleomycin, methotrexate) were given prior to radiotherapy but no response was obtained neither at the primary site nor in the neck nodes. The patient was irradiated with 6 MV photons between June 1995 and August 1995. The nasopharynx and regional lymphatics were treated to a total dose of 62.7 Gy with accelerated hyperfractionated (concomitant boost technique) radiotherapy regimen. Two cycles of the same chemotherapy regimen were given following radiotherapy.

In March 1996, bilateral pulmonary metastases were detected in a follow-up chest radiograph. Another cisplatin-based combined chemotherapy regimen of (cisplatin, fluorouracil, folinic acid) was initiated as a second line treatment but bone and liver metastases were detected shortly after.

In March 1997, paclitaxel was started as a third line chemotherapy regimen but during the second cycle of paclitaxel, the patient complained of gradual clouding of his vision in the right eye. His best corrected visual acuity was 20/400 in the right eye and 20/20 in the left. Anterior segments were normal in both eyes. Intraocular pressures were 14 mmHg. Fundal examination of the right eye revealed a solitary, partially amelanotic choroid mass in the supero-temporal quadrant. The lesion measured 9×9 mm in basal diameters. There was surrounding shallow subretinal fluid which extended to the fovea. The surface of the lesion was mottled with retinal pigment epithelial clumps. Ophthalmic ultrasonography showed a well-circumscribed choroid tumour that measured 4.9 mm in thickness (Figure 1). On A-mode, the tumour displayed homogeneous high internal reflectivity. Examination of the left fundus was unremarkable. The diagnosis of choroid metastasis was made and the patient was offered iodine-125 plaque brachytherapy. However, because of his poor systemic status, it was opted not to subject the patient to general anaesthesia twice but instead external beam radiotherapy was started. He was treated with 10 MeV electron beam using a single lateral oblique field to a total dose of 30 Gy in 10 fractions.

Three months following the completion of the treatment, his best corrected visual acuity in the right eye improved to 20/30. The tumour disappeared completely leaving a large retinal pigment epithelial atrophy. There was no subretinal fluid. B-mode ultrasonogram confirmed total regression of the metastatic lesion (Figure 2). No other ocular metastatic foci developed in the meantime and no acute side-effects were observed during the same period of follow-up. The patient expired in December 1997 due to disseminated disease.

Discussion

Various ocular symptoms may be present at diagnosis and during follow-up of patients with NPC (Özyar *et al.*, 1994; Altun *et al.*, 1995). While diplopia may be present at diagnosis due to cranial nerve palsy, other symptoms such

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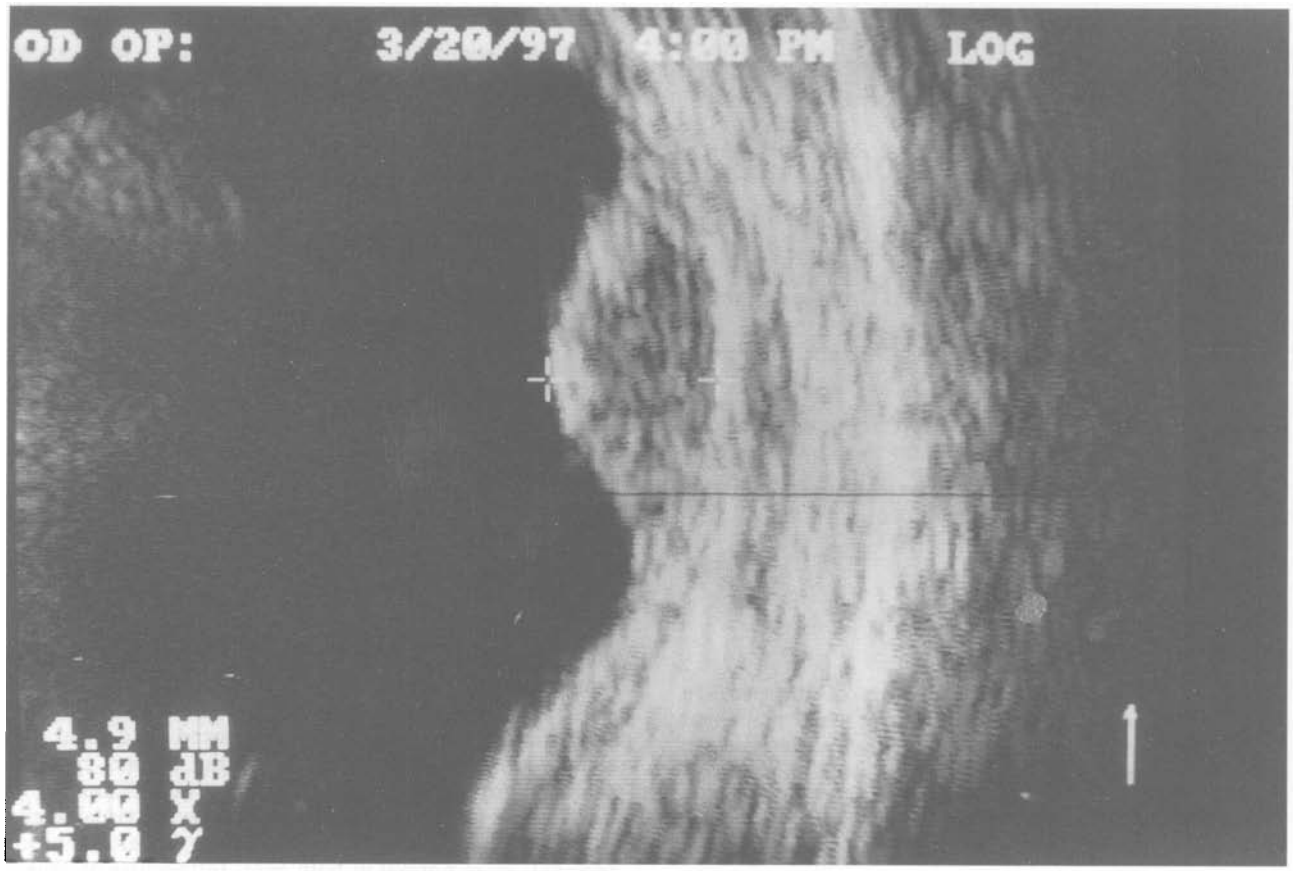

FIG. 1
Ophthalmic ultrasonography showing a well circumscribed choroid tumour measuring 4.9 mm in thickness.

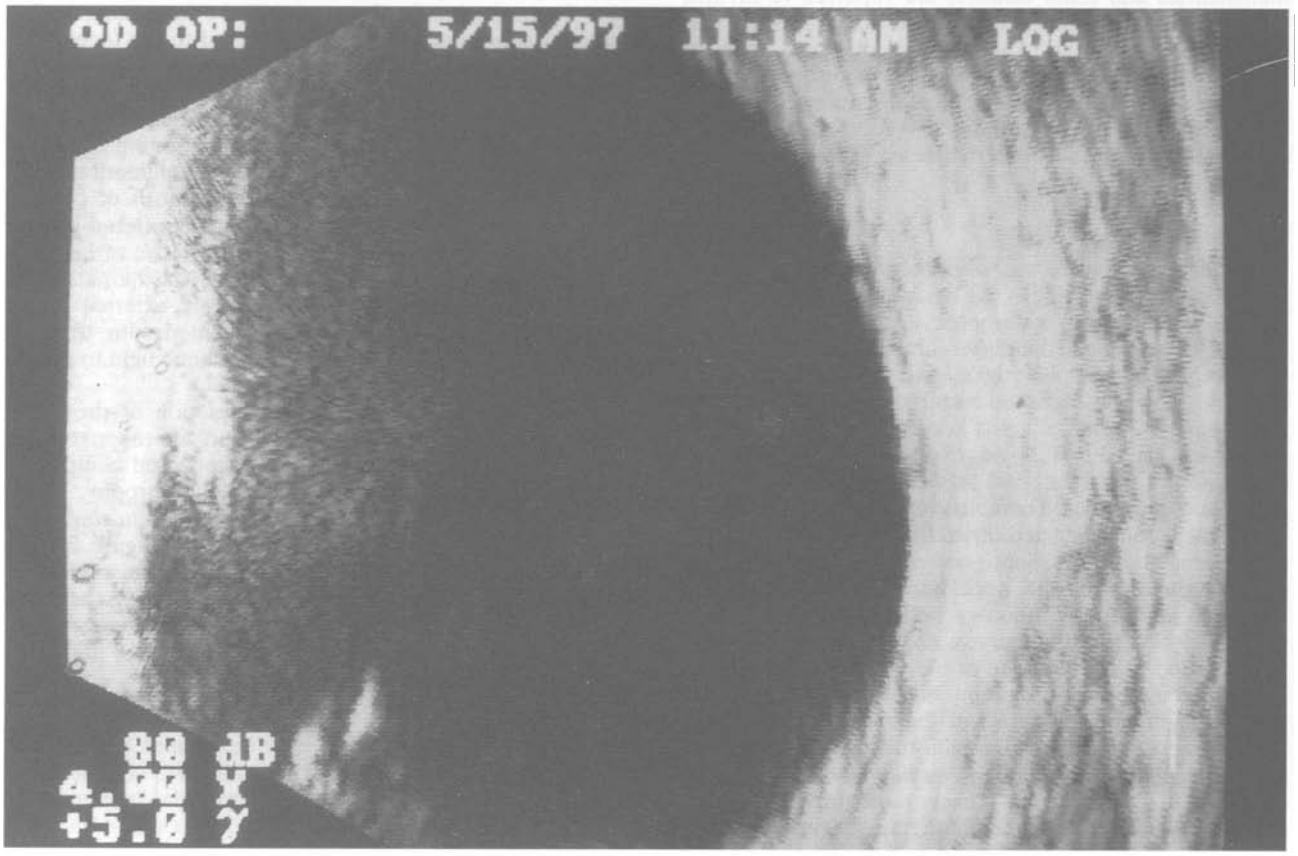

FIG. 2
B-mode ultrasonogram showing the total regression of the metastatic lesion.

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as impairment of visual acuity and proptosis may be related to either local progression/recurrence or distant metastasis of the tumour (Özyar *et al.*, 1994; Altun *et al.*, 1995). Visual field defects and unilateral/bilateral blindness can be seen as late sequelae of radiotherapy following the treatment of NPC (Altun *et al.*, 1995). Impairment of visual acuity due to choroid metastasis is the least frequent ocular symptom encountered in patients with NPC (Brady *et al.*, 1982; Sham and Choy, 1991).

Observation, photocoagulation, cryotherapy, enucleation, exenteration, systemic chemotherapy and radiotherapy are different therapeutic options in the management of metastatic tumours of the eye (Ferry *et al.*, 1974; Brady *et al.*, 1982; Rudoler *et al.*, 1997). Due to the progressive visual impairment, treatment should be initiated as early as possible. Radiotherapy is the most appropriate and effective treatment modality as it can result in dramatic regression of tumour and return of vision preventing the need for enucleation due to intractable glaucoma pain (Ferry *et al.*, 1974; Brady *et al.*, 1982; Rudoler *et al.*, 1997). The status of the primary tumour, evidence of disseminated disease, performance status of the patient, treatment modalities already applied to the patient, histopathology of the tumour, and symptoms related to choroid metastases are factors affecting the therapeutic management.

As most of the patients with metastasis to the choroid have accompanying widespread systemic disease, systemic therapy can be a good treatment option affecting all metastatic disease in the body. But the chance of effect from further systemic therapy is limited as most of the patients have already been treated with chemotherapy. Radiotherapy can be of value in patients who have received chemotherapy without response.

Late sequelae related to radiotherapy may not be experienced, as the median life expectancy is between three to nine months in these patients (Ferry *et al.*, 1974; Brady *et al.*, 1982; Sham and Choy, 1991; Rudoler *et al.*, 1997). In a recent article by Rudoler *et al.*, severe complications of radiotherapy have been reported to be infrequent in patients treated with the diagnosis of intraocular metastatic disease (Rudoler *et al.*, 1997). The authors concluded that the potential benefits of vision outweighs the small risk of long-term sequalae of radiotherapy.

The association of lung metastases with development of choroid metastasis was shown in 85 per cent of patients with eye and orbit metastases by Ferry *et al.* (1974). This association suggests the haematogenous route of occurrence in the majority of metastases to the eye. It is important to mention that both reported NPC patients with eye metastasis had had pulmonary and liver metastases before developing choroid metastases. Taking this association into consideration, the oncologists should be more cautious of eye symptoms in patients with lung and liver metastases and to consider radiotherapy early in the course of choroid involvement in order to reduce the visual morbidity.

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