Nasopharyngeal carcinoma presenting with no light perception vision

We report a case of a 61-year-old female visiting from Hungary with undifferentiated nonkeratinizing nasopharyngeal carcinoma (NPC). She presented to the ophthalmology clinic with no light perception in her right eye. She reported a 2-month history of right eye protrusion and swelling, right-sided hearing loss, and right temporal pain. Her past medical history was significant for a hysterectomy. She did not take any medications and did not have any drug allergies. There was no family history of head or neck cancer. She was a nonsmoker and did not have a history of radiation exposure.

Her visual acuity (VA) was no light perception OD and 20/20 OS. She had a grade 3+ right relative afferent pupillary defect. She had approximately 50% restriction in supraduction of her right eye, and her other extraocular movements were full. She had 7 mm of proptosis of her right eye with resistance to retropulsion. Slit lamp examination was within normal limits. Dilated funduscopic exam showed mild superior right disc edema with minimal pallor.

A computed tomography scan of the orbits showed a mildly homogenous enhancing mass centred within the right superior orbital fissure measuring up to 5.5 × 2.3 × 2.4 cm (Fig. 1A, B). There was expansion into the right superior orbital fissure with no frank bony destruction. The mass extended along the right optic foramen to the right cavernous sinus, which displaced the right optic nerve superiorly. The mass also partially abutted the right medial, lateral, and inferior rectus muscles, resulting in anterior displacement of the right globe. No frank invasion of the globe was seen. There was extension of the mass into the right parapharyngeal space, pterygopalatine fossa, and infratemporal fossa. Superiorly, the tumour extended into the right sphenoid sinus and along the right vidian canal and foramen rotundum.

An otolaryngology consultation was obtained and otoscopic and endoscopic examinations were performed. The patient's oral cavity was unremarkable. Otoscopy showed a right middle ear effusion. Palpation of the neck revealed a palpable, mobile, and firm 4-cm lymph node in the right level II region. Endoscopic examination revealed a large exophytic mass within the nasopharynx, centred in the right fossa of Rosenmuller. The remainder of the fibreoptic examination was unremarkable, including the oropharynx and larynx.

A transnasal biopsy using a 0-degree endoscope and topical anesthesia was performed. The specimen was sent in formalin along with Epstein–Barr virus-encoded ribonucleic acid (EBER) in situ hybridization and a separate specimen for lymphoma protocol. The final pathology revealed a nonkeratinizing, undifferentiated NPC composed of cells with round, ovoid, and pleomorphic nuclei. The malignant cells

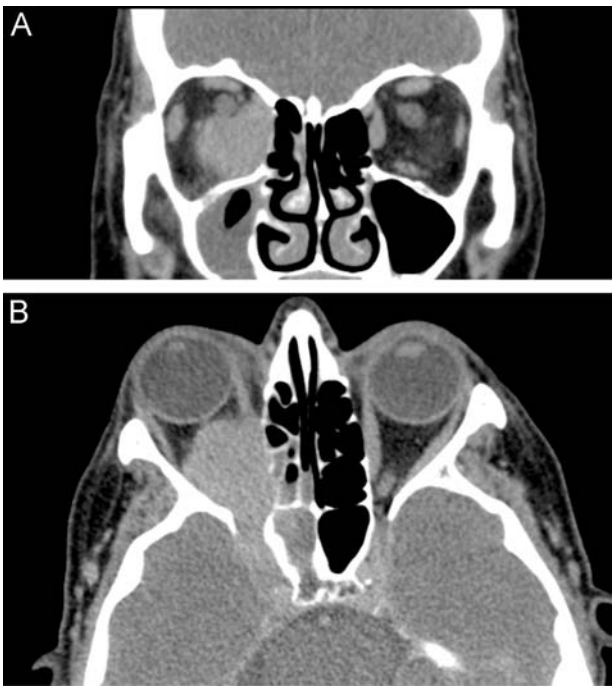

Fig. 1—Computed tomography (CT) orbits. A, Coronal image of CT orbits demonstrating a mildly homogenous enhancing mass in the right orbit with superior displacement of the right optic nerve. B, Axial image of CT orbits demonstrating a mildly homogenous enhancing mass centred within the right superior orbital fissure with extension of the mass along the right optic foramen to the right cavernous sinus. The mass also partially abuts the right medial, lateral, and inferior rectus muscles, resulting in anterior displacement of the right globe.

showed prominent nucleoli present in an indistinct eosinophilic cytoplasm, growing in a syncytial pattern in a dense lymphoplasmacytic infiltrate. Immunohistochemical staining was positive in the tumour cells for keratins (pan keratin AE1/AE3, K903, and CK5) and p63. Staining for CD45 was positive in inflammatory cells in the lesion, and staining for CD3 and CD20 were positive in lymphocytes in the lesion with negative staining for CD30. No evidence of B-cell lymphoproliferative disorder was seen. In situ hybridization for EBER was positive in the tumour cells. The patient elected to return to Hungary for further investigations and treatment.

NPC is a relatively rare cancer that has a higher incidence in southern China, southeast Asia, northern Africa, and Alaska.[1] NPC arises in the epithelial lining of the nasopharynx and is commonly associated with the presence of Epstein–Barr virus.[1] The World Health Organization histologic classification of NPC has 3 categories: keratinizing squamous cell carcinoma (type I), differentiated nonkeratinizing carcinoma (type 2), and undifferentiated nonkeratinizing carcinoma (type 3).[1] Patients with NPC can present with a variety of symptoms including neck mass, nasal and aural dysfunction, headache, diplopia, facial numbness, weight loss, and trismus.[1,2] A retrospective analysis of 4768 patients with undifferentiated or nonkeratinizing NPC identified that a neck mass (76%) was the most common presenting

symptom, followed by ipsilateral nasal obstruction (73%) and aural dysfunction (62%).[2] Cranial nerve palsies were found in 20% of patients with NPC.[2] When a cranial nerve palsy is present, the trigeminal nerve (12.5%) or abducens nerve (10.5%) are typically involved, although involvement of each cranial nerve has been reported.[2] Optic nerve involvement, with subsequent decreased VA, is a very rare presentation of NPC. There have been only 6 reports of decreased VA as the initial presenting feature of NPC, in either the primary or recurrent setting, in which only 2 of these cases presented with no light perception vision loss.[3–8] In contrast to the previously published case reports, this patient was from Hungary, an area not generally recognized as having a high incidence of NPC. This case further highlights that ophthalmic signs and symptoms may occasionally be the initial manifestation of NPC.

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References

1. Wei WI, Sham JST. Nasopharyngeal carcinoma. *Lancet*. 2005;365:2041-54.
2. Lee AW, Foo W, Law SC, et al. Nasopharyngeal carcinoma: presenting symptoms and duration before diagnosis. *Hong Kong Med J*. 1997;3:355-61.
3. Kao LY, Chuang HC, Liang YS. Visual loss as the initial presentation of nasopharyngeal carcinoma. *J Clin Neuroophthalmol*. 1993;13:24-6.
4. Bernardini FP, Croxatto JO, Orcioni GF, Bianchi S. Visual loss secondary to orbital apex invasion as the first manifestation of recurrent nasopharyngeal carcinoma. *Ophthal Plast Reconstr Surg*. 2009;25:248-50.
5. Park K-A, Oh SY. Nasopharyngeal carcinoma presenting with rapidly progressive severe binocular optic neuropathy and periocular pain in a young man. *J Neuroophthalmol*. 2010;30:150-2.
6. Kamio Y, Sakai N, Takahashi G, et al. Nasopharyngeal carcinoma presenting with rapidly progressive severe visual disturbance: a case report. *J Med Case Rep*. 2014;8:361.
7. Belin PJ, Mehendale RA, Shinder R. Nasopharyngeal carcinoma invading the orbit in a young African American male. *Ophthal Plast Reconstr Surg*. 2015;31:e117.
8. Hsu W-M, Wang A-G. Nasopharyngeal carcinoma with orbital invasion. *Eye (London)*. 2004;18:833-8.

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Advanced unilateral retinoblastoma: a case of sparing enucleation treatment failure

Over the last few years, intra-arterial chemotherapy (IAC) has become an effective alternative for treatment of intraocular retinoblastomas (RB), allowing improved globe salvage and reducing systemic chemotherapy toxicities.[1–3] IAC may occult extraocular tumour cells and this risk represents the main criticism concerning its use.[4] We report a case of a child with unilateral heavily pretreated RB who developed a relatively small intraocular recurrence with a massive postlaminar optic nerve invasion after IAC.

A 30-month-old male was admitted for left eye (LE) leukocoria. The patient was examined under anaesthesia with clinical evaluation, indirect ophthalmoscopy, fundus photography, ultrasonography, and fluorescein angiography. The right eye was normal. A large tumour overhanging the optic disc and macula with diffuse vitreous seeding and moderate subretinal seeding was detected in LE and classified as group D (Fig. 1A), according to the International Intraocular Retinoblastoma Classification (IIRC).[5] Magnetic resonance imaging (MRI) confirmed an LE intraocular tumour without extraocular involvement. Cerebrospinal fluid cytology was negative for tumour cells, and family history was also negative. Molecular analysis of *RB1* using Next-Generation Sequencing and Multiple Ligation-dependent Probe Assay (MLPA) combined approach revealed nither point mutation nor intragenic rearrangement on blood sample.

The patient underwent 4 cycles of etoposide (300 mg/m^2) and carboplatin (560 mg/m^2), and 2 carboplatin courses combined with focal treatments (chemothermotherapy and thermotherapy). Partial response at the main posterior pole mass with incomplete remission of vitreous seeding and subretinal fluid was achieved (Fig. 1B). MRI routinely performed after intravenous chemoreduction (IVC) and focal therapies confirmed the absence of tumour involvement in optic nerve, orbit, and brain. The patient received 5 intravitreal injections of melphalan (30 µg/0.1 mL dose) every 7 to 10 days and 3 IAC administrations of melphalan (4 mg) at monthly intervals, achieving a regression of both vitreous seeding and solid tumour. Four months later, a relapse with solid tumour at posterior pole was diagnosed and the patient received 3 further IAC treatments with melphalan (4 mg) and topotecan (1 mg), achieving complete tumour response (Fig. 1C).

After 1 month, recurrent tumour localized in the papillary area was detected (Fig. 1D). MRI showed an enhancement area of 8 mm in length of the optic nerve behind the lamina cribrosa. Enucleation was performed with inclusion of the optic nerve stump as long as possible. Histopathological findings confirmed postlaminar optic nerve invasion involving the surgical cut end (Fig. 2A, B). According to the International Retinoblastoma Staging