Figure 3 Microscopically the tumour revealed a mixture of malignant spindle cell and epithelioid cells (haematoxylin and eosin; magnification $\times 25$).

been reported in the world literature.⁴ The cutaneous pigmentation commonly involves the ophthalmic, maxillary, and occasionally the mandibular division of the trigeminal nerve. Oculodermal melanocytosis occurs most often in orientals and blacks and is rarely seen in the white population.²⁻⁷ In contrast, malignant melanoma transformation associated with ODM and OM is known to occur more often in whites and rarely among blacks and orientals.⁵⁻⁹ The rarity of black patients reported with ODM and choroidal melanoma is supported by only two previous case reports: Nik *et al*⁷ reported a case of a 44-year-old

black woman with a mixed cell type melanoma and ODM. Velazquez⁹ reported a 40-year-old black woman with bilateral ODM with a mixed cell malignant melanoma occurring in the more heavily pigmented eye (right eye).

Diagnosis of ODM in a black patient may be difficult. The dermal pigment may be difficult to detect because of the dark skin pigmentation and the ocular involvement may be confused with racial melanosis. In a situation with unilateral hyperpigmentation of the ocular tissues, the discrepancy between racial melanosis may be easier. With careful history and physical examination, the dermal pigment may be noticed.

- 1 Ota M. Naevus fusco-caeruleus ophthalmo-maxillaris. *Tokyo Med J* 1939; **63**: 1243-5.
- 2 Fitzpatrick TB, Zeller R, Kukita A, Kitamura H. Ocular and dermal melanocytosis. *Arch Ophthalmol* 1956; **56**: 830-2.
- 3 Hulke JW. A series of cases of carcinoma of the eyeball. *Royal London Ophthalmic Hospital Reports* 1861; **3**: 279-86.
- 4 Teekhasaene C, Ritch R, Rutnin U, Leelawongs N. Ocular findings in oculodermal melanocytosis. *Arch Ophthalmol* 1990; **108**: 1114-20.
- 5 Dutton JJ, Anderson RL, Schelper RL, Purcell JJ, Tse DT. Orbital malignant melanoma and oculodermal melanocytosis: report of two cases and review of the literature. *Ophthalmology* 1984; **91**: 497-507.
- 6 Cowan TH, Balistocky M. The nevus of Ota or oculodermal melanocytosis: the ocular changes. *Arch Ophthalmol* 1961; **65**: 483-92.
- 7 Nik NA, Glew WB, Zimmerman LE. Malignant melanoma of the choroid in the nevus of Ota of a black patient. *Arch Ophthalmol* 1982; **100**: 1641-3.
- 8 Wilkes TD, Uthman EO, Thornton CN, Cole RE. Malignant melanoma of the orbit in a black patient with ocular melanocytosis. *Arch Ophthalmol* 1984; **102**: 904-6.
- 9 Velazquez N, Jones IS. Ocular and oculodermal melanocytosis associated with uveal melanoma. *Ophthalmology* 1983; **90**: 1472-6.

British Journal of Ophthalmology 1995; **79**: 192-194

Precautionary note on retrobulbar alcohol injections

Suzanne K Webber, Charles N J McGhee, Paul G McMenamin

Department of
Ophthalmology,
Newcastle General
Hospital, Westgate
Road, Newcastle upon
Tyne NE4 6BE
S K Webber

Sunderland Eye
Infirmary, Queen
Alexandra Road,
Sunderland SR2 9HP
C N J McGhee

Department of
Anatomy and Human
Biology, The
University of Western
Australia, Nedlands,
Perth, Western
Australia 6009
P G McMenamin

Correspondence to:
Professor C N J McGhee.

Accepted for publication
20 October 1994

The retrobulbar injection of alcohol for analgesia is a useful, if infrequently used, tool in our therapeutic armoury for those with blind, painful eyes in which enucleation is refused or inadvisable. It is our practice to perform a preliminary retrobulbar injection with local anaesthetic which allows both the patient and the surgeon to assess the potential benefit of a retrobulbar alcohol injection. We report a case wherein the preliminary anaesthetic block demonstrated a potentially serious complication which we were able to avoid by adapting our injection technique.

Case report

The patient, a 54-year-old woman, was referred with a blind, painful right eye following a course of radiotherapy for a maxil-

lary antrum carcinoma. Conservative treatment with oral analgesia and topical lubricants failed to control the ocular pain and it was concluded that a retrobulbar alcohol injection should be performed. A preliminary injection of 5 ml 0.75% bupivacaine was administered using a 25 gauge 40 mm straight Atkinson retrobulbar needle (code no 1275, Steriseal, Redditch, England). The surgeon noted that the orbital tissues resisted the passage of the retrobulbar needle. The following day the patient reported beneficial ocular analgesia lasting several hours; however, she also observed that the 'whole' of the right side of her face had also been 'numbed'.

The injection was repeated and again the surgeon noted a stiffness of the orbital tissues which was sufficient to prevent the usually smooth unrestricted course of the needle

Figure 1 Anteroposterior and lateral orbital x rays showing the tip of the curved retrobulbar needle in the intraconal space before injection of retrobulbar alcohol.

around the equator of the globe. Again the patient developed associated facial paraesthesia which was confirmed by examination to be restricted to the distribution of the maxillary division of the trigeminal nerve. No other objective neurological signs or symptoms were elicited.

Subsequently, it was postulated that fibrosis of the orbital tissues, related to the radiotherapy, prevented the correct placement of the retrobulbar needle tip within the intraconal space, and that this might be overcome by using a curved retrobulbar needle. The retrobulbar injection was repeated using 3 ml of 2% lignocaine via a 25 gauge, 34 mm curved retrobulbar needle (code no 5019, Visitec (UK) Ltd, Bidford on Avon). The syringe was disconnected but the needle left in position and immediate orbital x ray confirmed the needle tip to be in the retrobulbar space (Fig 1). After 15 minutes the patient reported anaesthesia of the eye but intact facial sensation. A syringe was carefully reattached to the needle and 2 ml of 80% alcohol were injected. On review 1 week and 12 weeks later the patient reported continued ocular analgesia with fully intact facial sensation.

Comment

Many case reports and series have been published demonstrating the range and incidence of complications during regional anaesthesia. In none do the authors mention trigeminal anaesthesia as a common complication of retrobulbar block.^{1,2} In cases of brainstem anaesthesia the presumed route for the anaesthetic agents is along the optic nerve sheath, having reached there by direct injection. However, in the absence of other neurological

signs, this is unlikely to be the route of retrograde anaesthesia in this patient, although it is entirely possible for anaesthetic agents to reach the cerebrospinal fluid without dural puncture and cadaver studies have shown intracranial spread of dye after uncomplicated peribulbar injection.³ We believe that the restrictive orbital fibrosis in this case prevented the straight retrobulbar needle from pursuing a normal course within the orbit to the intraconal space. Instead the needle continued in the same direction as initial insertion – that is, along the orbital floor and into the inferior aspect of the orbital apex where the local anaesthetic may have been injected directly perineurally, or in close proximity, to one of the branches of the maxillary division of the fifth cranial nerve. Permeation of the anaesthetic in a retrograde fashion through the pterygopalatine fossa may have also allowed posterior spread of the anaesthetic into the cavum trigeminale via the foramen rotundum, leading to anaesthesia of all three divisions of the trigeminal nerve and thus explaining the patient's sensory symptoms after the first retrobulbar injection.

Preliminary local anaesthetic injections are occasionally employed by others to alleviate the pain associated with alcohol injection.^{4,5} Rarely is sufficient time allowed for the manifestation of potential neurological complications before the injection of alcohol. Fortunately by performing a preliminary retrobulbar injection with local anaesthetic this patient sustained only a temporary anaesthesia of her trigeminal nerve, whereas, if we had employed retrobulbar alcohol injection as a primary procedure its sclerosant properties might have produced a permanent trigeminal injury. The advantage of a preliminary

injection of local anaesthetic and a short period of observation before the injection of retrobulbar alcohol is highly recommended.

- 1 Ahn JC, Stanley JA. Subarachnoid injection as a complication of retrobulbar anesthesia. *Am J Ophthalmol* 1987; 103: 225-30.
- 2 Hamilton RC, Gimbel HV, Strunin L. Regional anaesthesia

for 12 000 cataract extraction and intraocular lens implantation procedures. *Can J Anaesth* 1988; 35: 615-23.

- 3 Zahl K, Nassif JM, Meltzer MA, Som P. Simulated peribulbar injection of anaesthetic. *Ann Ophthalmol* 1991; 23: 114-7.
- 4 Al-Faran MF, Al-Omar OM. Retrobulbar alcohol injections in blind painful eyes. *Ann Ophthalmol* 1990; 22: 460-2.
- 5 Maumenee AE. Retrobulbar alcohol injections. Relief of ocular pain in eyes with and without vision. *Am J Ophthalmol* 1949; 32: 1502-8.

British Journal of Ophthalmology 1995; 79: 194-195

Intravitreal chemotherapy for recurrent retinoblastoma in an only eye

Stefan Seregard, Erik Kock, Eva af Trampe

Recurrent retinoblastoma in the only remaining eye presents a distressing dilemma to both the patient and physician. After the failure of conventional treatments, enucleation has until now been the only option left. However, some previous results suggest that intraocular chemotherapy using the alkylating agent thiotepea may be beneficial in the treatment of retinoblastoma.¹ Furthermore, an early toxicity study in rabbits indicates that thiotepea may be administered intravitreally in concentrations up to 20 mg per ml before transient vitreal clouding occurs.² In the cases reported here, the rationale included the use of intravitreal chemotherapy to induce tumour death and vitrectomy for subsequent removal of necrotic tissue. The aim was to retain the only remaining eye in recurrent retinoblastoma with extensive vitreous seeding without causing extraocular tumour recurrence or metastatic disease.

Case reports

One boy and two girls aged 2.5, 4.5, and 18 months presented with bilateral retinoblastoma. In all patients, one eye was enucleated and the remaining eye was treated with 4500 cGy external beam radiotherapy (all cases), irradiation with a cobalt-60 applicator (one case), the multicobalt Leksell gamma knife (one case), cryotherapy (two cases), and argon laser photocoagulation (one case). In all patients, multiple tumour recurrences with extensive vitreous seeding eventually suggested that the remaining eye had to be enucleated.

However, after careful evaluation and informed parental consent, repeated injections of 2 mg thiotepea dissolved in 0.5 ml of balanced salt solution were delivered intravitreally through a pars plana approach and a small amount was left subconjunctivally at the injection site. The injections were repeated twice in 2 weeks before standard three port pars plana vitrectomies were

performed. Following surgery, supplemental thiotepea injections were continued on a weekly basis until a total of 10 mg thiotepea (two cases) or 14 mg thiotepea (one case) had been delivered.

No obvious clinical response was noted in any eye before vitrectomy. One of the girls had all vitreous seeding removed, but retained one small tumour in the peripheral retina after vitrectomy. However, this residual growth turned gelatinous during the post-vitrectomy thiotepea injections. After the cessation of intraocular chemotherapy, the same girl underwent an extracapsular cataract extraction with an intraocular lens implant and now experiences 20/20 visual acuity. The other girl had two additional vitrectomies because of initial incomplete tumour removal and cytological examination of her vitreous washings confirmed the presence of retinoblastoma cells. After her final vitrectomy, only a few strands of tumour tissue remained adherent to the optic disc. These small remnants also turned gelatinous following the post-vitrectomy chemotherapy. Her visual acuity is now 20/400 as a result of previous tumour growth of the macula in conjunction with a moderate subcapsular cataract. The boy had more extensive retinal growth as well as considerable vitreous deposits and vitrectomy failed to remove substantial parts. A few days after surgery he suffered a major vitreous haemorrhage and 1 month later the eye was enucleated. Histopathological examination of the globe revealed nearly all tumour tissue to be necrotic, but the vitreous contained some retinoblastoma cells that appeared viable. No mitotic figures were present, but positive immunostaining for the proliferating cell nuclear antigen in a few tumour cells suggests that these cells maintained a proliferative potential. There are no signs of local recurrence or metastatic disease after follow up periods of 14 (girl with 20/20 visual acuity), 70 (boy), and 77 months (girl with

Ophthalmic Pathology and Oncology Service, St Erik's Eye Hospital, Stockholm, Sweden
S Seregard
E Kock
E af Trampe

Correspondence to:
Dr Stefan Seregard, St Erik's Eye Hospital, Flemingsgatan 22, S-112 82 Stockholm, Sweden.

Accepted for publication
20 October 1994