LETTERS TO THE EDITOR

Behavioural disturbance as a manifestation of ocular disease in children

EDITOR.—Ocular disease in young children may present with behavioural changes and psychological disturbance. We highlight two examples to provide insight into the difficulties faced in the diagnosis and management of these cases, and to emphasise the importance of meticulous clinical examination and appropriate investigation to exclude any organic visual disorder before a case is erroneously labelled 'functional' in origin.¹

CASE REPORTS

Case 1

A 5-year-old boy presented with a history of increasing clumsiness. His parents also commented on worsening behaviour with frequent temper tantrums and episodes of intense rage. Family history and neonatal history were negative. Visual acuity was 6/24 right, 6/36 left and there were no abnormalities detected in either eye. Electrodiagnostic tests were normal and it was thought that the problem was probably functional in nature. He was transferred to the Children's Hospital in Birmingham for further assessment when it was found that his vision had decreased to 4/60 in each eye and both optical discs were pale. Aryl sulphatase levels were normal as was magnetic resonance image scanning, ruling out metachromatic leucodystrophy. Visual evoked responses (VER) were now reduced and pattern VERs showed marked delays in both eyes. Electoretinograms (ERG) were normal. These findings were consistent with an optic neuropathy and mitochondrial DNA analysis revealed a mutation at nucleotide position 3460, confirming the diagnosis of Leber's hereditary optic neuropathy (LHON).^{2,3}

Case 2

A 7-year-old boy was seen at the Birmingham and Midland Eye Hospital with difficulties at school and deteriorating near vision. He was aggressive, badly behaved, and was threatened with expulsion from school. He had initially been seen elsewhere at 4 years of age with a left convergent squint, bilateral hypermetropia, and astigmatism in the left. Glasses and occlusion therapy were given and best corrected vision at that time was 6/6 right and 6/18 left. An abnormal macula reflex was also noted but it was felt that the squint and anisometropia were sufficient to explain his vision. When seen 3 years later, his best corrected vision had deteriorated to 6/36 right and 6/12 left but there was no manifest squint with glasses. Near vision was N8 bilaterally. Macular abnormalities were noted in both eyes consisting of a pale yellow lesion in the left and some localised pigmentary disturbance in the right. Electro-oculogram (EOG) was grossly abnormal at 102% right and 100% left. ERGs were normal. This was consistent with Best's vitelliform dystrophy.^{4,5}

COMMENT

The cases reported are two examples of young children with behavioural disturbance and reduced visual acuity. In each case, the child

was otherwise healthy, there was neither intellectual deterioration nor any obvious ocular pathology on initial examination. Their family histories did not raise any suspicion of a visual handicap. This clinical scenario is usually encountered in preschool or school age children and is a diagnostic challenge. There is the temptation to attribute the visual defect to emotional and psychological factors, dismissing the problem as non-organic in origin. There is little literature on cases like these but we believe that they may be more common than is suggested by the lack of reports. A further two cases with X linked retinoschisis who presented similarly were seen in Birmingham over the past year (Fielder AR, personal communication). Our report draws attention to the fact that it is essential that these children are examined and investigated in order to identify any underlying pathology.

Our first patient is the youngest case of LHON reported. This is a maternally inherited disease caused by a specific mitochondrial DNA mutation that presents typically in adolescent and young adult males with central visual loss.² Our case presented atypically as the child was too young to complain of visual loss and his visual disability and subsequent frustration manifested in temper tantrums and rages. The only abnormal finding was pallor of both optic discs. Electrodiagnostic testing was informative in this case, but the diagnosis was established using mitochondrial DNA analysis. In our second case, the EOG and ERG were indispensable in confirming the diagnosis of Best's vitelliform dystrophy. Several clinical presentations have been described,⁴ but unless the patient is examined during the vitelliform phase where the lesion is characteristic, the diagnosis may be missed. Both cases underscore the importance of electrodiagnostic testing in children as an excellent objective test that is independent of the patient's cooperation, intelligence, and literacy. Mitochondrial DNA analysis was performed to make a definitive diagnosis of LHON and the type of mutation found has implications for visual prognosis and counselling.^{2,3} Aryl sulphatase levels were also checked to exclude metachromatic leucodystrophy which presents in young boys with behavioural changes, intellectual deterioration, and optic atrophy.

Visual disorders in children can present in different, sometimes obscure ways. We should always be aware that behavioural disturbance may be one. The absence of a family history or typical clinical features can at times be misleading. It is imperative that the child undergoes adequate ophthalmic investigation, and the responsibility lies with the clinician to differentiate between organic and non-organic disease.¹

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Misleading aspiration biopsy in combined intraocular pathology

EDITOR.—Occasional misinterpretations of aspiration biopsy in presumed intraocular malignancies are mainly due to sampling errors.¹⁻³ The presence of two different pathological processes within the same globe is a pitfall of the sampling error that has not been emphasised in the literature but is reported here.

CASE REPORT

A 59-year-old woman presented to her local ophthalmologist with a 3 day history of deteriorating vision and a 2 week history of flashing lights in her left eye. The visual acuity was hand movements and the intraocular pressure was 13 mm Hg. On examination a large inferior exudative detachment, that did not transilluminate nasally, was noted. The patient was referred to the Tennent Institute of Ophthalmology 9 days later. On ultrasound an inferior mass 7.8 mm in thickness with a basal diameter of 16.5 mm was identified. The reflectivity of the tumour was not typical of a choroidal melanoma and a possible metastatic origin was suggested. The systemic examination was negative, and a diagnosis of a presumed choroidal melanoma was retained. Thus, the patient was taken to the operating theatre for a local resection. Despite intraoperative transillumination the examination of the choroid after the preparation of the scleral flap showed no evidence of a tumour. Subretinal fluid was aspirated for histology and the sclera was closed.

Two smears and cytospin preparations revealed the presence of lysed and intact red blood cells, haemomacrophages (Fig 1a), a few inflammatory cells, and a population of histiocytoid cells containing neuromelanosomes (Fig 1b). The latter cells were felt to be retinal pigment epithelial (RPE) cells or RPE derived macrophages. Thus, an organising haemorrhage arising in a disciform degeneration was indicated in the report.

A vitreous haemorrhage developed. A magnetic resonance image was inconclusive, but a vitrectomy revealed an extensive central disciform lesion (Fig 1c), a similar lesion in the periphery (Fig 1d), and a large inferotemporal exudative retinal detachment. A fluorescein angiogram confirmed these findings. The vitreous aspirate obtained at surgery contained red blood cells only.

The patient ignored her follow up appointment but returned 4 months later with an enlarging superonasal tumour. The ultrasound was now diagnostic of choroidal

Figure 1 (a) Subretinal aspirate. Large foamy macrophages containing lysed erythrocytes are seen against the background of intact red blood cells. (b) Subretinal aspirate. A clump of presumed RPE cells containing elongated neuromelanin granules. (c) A large disciform lesion at the posterior pole as seen after vitrectomy, 4 months after the initial presentation. (d) A peripheral disciform lesion superimposed over the area of retinal detachment observed at the same time of examination.

Figure 2 (a) Macrograph of the enucleated eye (horizontal section) demonstrates a large amelanotic tumour and the detached retina. A white fibrous band (arrowhead), which is a disciform reaction on histology, is seen adjacent to the tumour. (b) Micrograph of the inferior part of the globe shows the edge of the melanoma (M) and a haemorrhagic exudative detachment of the retina (R). The site of the biopsy (arrowheads point to the sutures) is in the proximity of a disciform strand (D).

melanoma and an enucleation was performed. Histopathological examination revealed a predominantly spindle B cell malignant melanoma (18×12×18 mm), occupying the nasal calotte from the ciliary body to the optic nerve (Fig 2a). A remarkable feature was the presence of a prominent disciform scar at the posterior pole with an extension into the temporal and nasal mid periphery (Figs 2a and 2b). The site of the choroidal biopsy, identifiable by an intrascleral suture was in opposition to the disciform lesion, but at a considerable distance to the anterior edge of the melanoma (Fig 2b).

COMMENT

Despite the initial intention of local resection of the presumed melanoma, the intraoperative visualisation of an unaffected choroid left an aspiration biopsy the only reasonable mode of action. Negative cytological results in conjunction with an extensive clinical examination failed to establish the diagnosis of melanoma. Moreover, the vitrectomy which disclosed a central disciform and a similar peripheral lesion was even more misleading, since the presence of a central disciform lesion is more commonly associated with

disciform lesions elsewhere than choroidal melanomas.⁴

To our knowledge, comprehensive studies on the accuracy of subretinal fluid aspiration in presumed intraocular tumours do not exist. However, in fine needle aspiration biopsy a 100% sensitivity rate in cases with adequate cytological material decreased to 84% when insufficient material was included.³ Conceivably, this limitation also applies to the subretinal fluid aspiration. To our knowledge the implications of two different pathological processes within the same globe have not been stressed yet.

The following reasons might explain the sampling error in our case. Migration of RPE cells into the subretinal fluid was described in cases of choroidal melanoma,⁵ but their presence is unhelpful for the distinction between melanoma and benign processes with RPE cell proliferation. Similar observations were made by Augsburger *et al*¹ and by Reese.⁶ Our case also demonstrates that a vitreous aspirate is useless, unless the tumour has perforated the retina.

Histologically the biopsy site, identified by intrascleral sutures, was in close proximity to the disciform scar, but far from the tumour. Presumably, it was this disciform scar that misled the surgeon during the operation and

was the source of the RPE cells and haemomacrophages in the cytopathological specimen. Therefore, the statement of Augsburger *et al*,¹ that a negative cytological diagnosis is not unequivocal proof of the absence of a malignancy, is particularly important in cases where a combined pathology is anticipated.

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Bilateral sudden visual loss due to sphenoid mucocoele in Albright's syndrome

EDITOR.—Fibrous dysplasia, the replacement of bone by abnormal fibrous tissue, may occur in association with endocrine abnormalities and cutaneous pigmented patches as Albright's syndrome or without such manifestations as isolated fibrous dysplasia. With craniofacial involvement, visual loss may be caused by compression of the optic nerves¹ or chiasm,² by dysplastic bone or haemorrhage into dysplastic bone.³ We report the first reported case of visual loss due to sphenoid mucocoele in Albright's syndrome.

CASE REPORT

Three weeks before presentation a 20-year-old woman experienced pain around the right eye followed by deterioration of vision in the right eye. A week later, painless visual loss occurred in the left eye. Direct questioning elicited a history of spontaneous right sided long bone fractures and precocious puberty. Albright's syndrome had been diagnosed at the age of 8 years.

On examination, she was of short stature and had a flat pigmented lesion on her buttock; no other abnormality was found. The vision in the right eye was perception of light and in the left eye, counting fingers. Using a 30/1000 white target the visual field in the right eye was unrecordable and in the left eye was restricted to an island of 15°. There was minimal temporal pallor of both