

THE ORTHOPTIC CARE OF THE ELDERLY

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Abstract

A survey of 201 patients aged 65 years and over, representing 3.8% of total referrals to three orthoptic clinics, is presented. The causes of symptoms were mainly found to be related to such orthoptic problems as heterophoria, convergence insufficiency and defective ocular movement, however, 11% of the group had problems such as monocular diplopia from lens opacities or retinopathy. Despite the low expectations of many of the patients, most were able to be given positive help, particularly by the use of prisms.

Key words: Orthoptics, geriatrics, binocular vision.

Several recent studies have advocated that more emphasis should be given to the ocular problems of the ageing population. Clayton and Clayton¹ carried out a survey of 100 geriatric in-patients and found that 39% required intervention management such as referral to the ophthalmologist or optician, or needed orthoptic exercises or prisms. The importance of orthoptic assessment in patients with cerebro-vascular disease prior to rehabilitation has been stressed by Macfarlane and Longhurst.²

This study presents a review of patients aged 65 years and over, seen in the orthoptic clinics of three hospitals in the North Birmingham district, over a period of 10 years, from January 1976 to December 1985. The total number of new cases seen during this period was 5,297: patients aged 65 years and over numbered 201, 3.8% of the total (Figure 1). All these elderly patients were referred by the ophthalmologists for investigation of symptoms which suggested a disturbance of binocular vision.

The aim of the surgery is to analyse the causes of the symptoms, and to discuss the management and outcome of treatment.

There may be several problems encountered when dealing with elderly patients. The patient often has a low expectation of improvement, and is surprised to be referred for orthoptic investigations, and feels that nothing can be done to help. There is an attitude of resignation and acceptance that eye defects are a result of getting older. "I suppose I must expect this and put up with it at my age," is a remark frequently heard. Infirmities associated with ageing such as deafness and restricted mobility may make detailed and prolonged orthoptic examination inappropriate. There may be difficulty in obtaining a reliable case history and description of symptoms. Most elderly patients are anxious, and forgetfulness and mental confusion may mean that an accompanying person will have to be asked to supply what information they can. However, many elderly patients are articulate, co-operative and anxious to benefit by any means to improve their ocular comfort.

The problems encountered were divided into two main groups (Table 1):—

Group A — those associated with a disturbance of binocular vision.

TABLE 1
Showing Incidence and Percentages of Causes of Symptoms Within Each Group

Group A 179 Patients (89%)	
1. Heterophoria and convergence insufficiency	39 (19.5%)
2. Defective ocular movement	79 (39%)
3. Long-standing heterotropia	14 (7%)
4. Distance esotropia (divergence insufficiency)	10 (5%)
5. Aphakia	22 (11%)
6. Symptoms 'cleared'	15 (7.5%)
Group B 22 patients (11%)	
1. Lens opacities	13 (6.5%)
2. Retinopathy	8 (4%)
3. Optical	1 (0.5%)

Group B — 'non-orthoptic' conditions affecting visual acuity, but who were usually referred because of reported diplopia.

GROUP A

1. *Heterophoria and Convergence Insufficiency*

Twenty four patients were found to have decompensating heterophoria, four with esophoria, 10 with exophoria and 10 with hyperphoria. Orthoptic exercises were successful in relieving symptoms in only two patients with exophoria but, after a trial period, prisms were prescribed for permanent wear for 16 patients, and occlusion for one patient with hyperphoria. Three patients with esophoria had symptoms only without glasses and were reassured. Fifteen patients had convergence insufficiency causing difficulty on close work. Seven of these responded to orthoptic treatment, but five patients needed prisms in their reading glasses and one lady of 85 years of age persisted in closing one eye when reading.

2. *Defective Ocular Movement*

This was the largest group and comprised 79 patients, 69 with recent onset and 10 with a long-standing condition.

(a) *Recent Onset*

The types of palsy found in this group can be seen in Table 2.

Vascular causes were judged to be responsible for 38 cases of neurological palsies. Seven of these patients had diabetes, of whom six had sixth nerve palsies and one had a fourth nerve palsy. Trauma was the cause in two cases, and herpes zoster ophthalmicus in two cases. Two

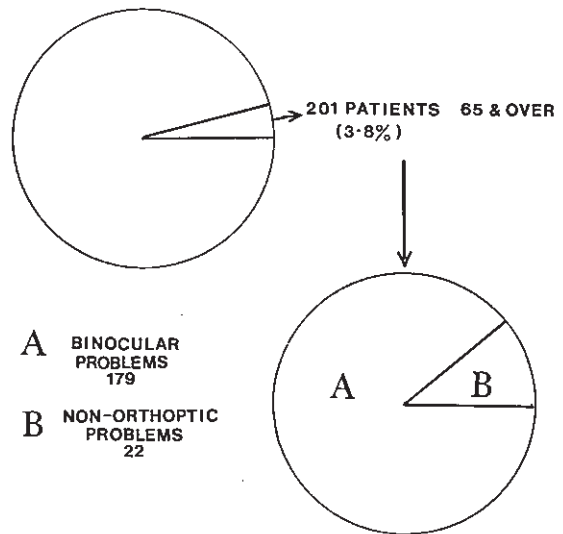


Figure 1: Showing the proportion of elderly patients presenting for orthoptic assessment, and those whose problems were found to be due to defective binocular vision.

patients with gross restriction of ocular movement were referred to the neurosurgeon and underwent surgery to remove invasive intraocular tumours. In the remaining 25 cases the cause was unknown.

Spontaneous resolution of diplopia with complete recovery of ocular movement occurred in 36 patients (55%). The average time taken for recovery to take place was three months, but ranged from 12 days to 12 months. Temporary prisms were used for 38 patients, and eventually prescribed for permanent wear in 16 cases where recovery did not occur or was incomplete. Six patients needed permanent occlusion, either because the deviation was too large to be

TABLE 2
Showing Incidence of each Type of Recently Acquired Palsy

Type of palsy	No. of cases
Third nerve palsy	5
Fourth nerve palsy	10
Sixth nerve palsy	36
Ophthalmoplegia	2
Internuclear ophthalmoplegia	2
Gaze palsy	1
Isolated superior rectus palsy	4
Dysthyroid disease	6
Myasthenia gravis	1

corrected by prisms, or the distortion to vision caused by high-power prisms could not be accepted.

(b) *Long Duration Ocular Palsies*

Seven of the patients with superior rectus palsies, and three with superior oblique palsies were judged to have had the condition for several years. One patient had vertical muscle surgery, five needed prisms, one patient had a compensatory head posture, and three patients complained of diplopia only on extreme positions of gaze.

3. *Long-standing Heterotropia*

Fourteen patients gave a history of squint of long duration of up to 60 years. Unlike younger patients, none of them was concerned about the cosmetic appearance, but several complained of diplopia following a recent illness. Eleven patients had exotropia, some were consecutive squints, and in two cases the deviation was secondary to pathological amblyopia. Orthoptic treatment was successful in relieving symptoms in two cases of intermittent exotropia, but prisms were needed in two cases and occlusion in one case. Two patients had partially accommodative esotropia and had been wearing prisms for some years, but these had been discontinued by the optician in recent glasses. Both patients became symptom free when the prisms were replaced in the spectacles. One patient had a long-standing vertical deviation but no symptoms.

4. *Distance Esotropia*

Ten patients presented with uncrossed diplopia for distance. No problems were present for near vision, although most cases showed exophoria at reading distance. The deviation was concomitant and measured the same on lateroversions, so could not be ascribed to sixth nerve palsy. This condition has been reported as divergence paralysis or divergence insufficiency. Kirkham et al.³ reported three cases associated with raised intracranial pressure, all with sudden onset, but resolving in a few weeks. They suggest the cause may be vascular insufficiency involving the sixth nerve nucleus or infra-nuclear pathway.

Cunningham⁴ reported seven cases, six of whom were thought to have vascular disease involving the brain stem. Six of the patients in his series were over 60 years of age. Krohel and co-workers⁵ describe 11 cases of divergence paralysis followed up for between one and 11 years, and conclude that, despite reports in the literature associating the condition with well-defined organic disease, it is unlikely for such patients to develop further neurological sequelae. Two of our cases recovered spontaneously, but prisms were prescribed for eight patients for permanent wear. Only one patient needed increasingly strong prisms over a period of 10 years, and eventually showed signs of bilateral lateral rectus weakness.

5. *Aphakia*

(i) *Bilateral Aphakia*

It is not unusual for disturbance of binocular vision to occur following cataract surgery on the second eye, particularly if there has been a considerable time lapse since the operation on the first eye. Nineteen patients presented with such problems, nine had exotropia (seven with associated vertical deviations), six had esotropia (four with a vertical deviation), and four patients had heterophoria. Thirteen cases were helped with prisms, and six patients regained comfortable binocular single vision within a few weeks and were able to discard them. Permanent prisms were ordered for four patients. One patient with a vertical deviation had successful muscle surgery, and two patients with exophoria and convergence insufficiency responded to orthoptic exercises.

(ii) *Unilateral Aphakia*

Three patients complained of variable intermittent diplopia following unilateral cataract surgery. One patient became symptom free when his contact lens was changed to a soft lens, but the other two patients could not cope and abandoned their lenses.

With the modern procedures of intraocular lens implants or extended wear contact lenses, post-operative diplopia is rare, and if it does

occur, usually disappears within 7-10 days following surgery.

6. *Symptoms 'Cleared'*

Fifteen patients proved to have normal ocular muscle balance, yet eleven of them gave definite descriptions of diplopia which had recovered within periods varying between three days and four weeks. Four patients complained of intermittent blurring of vision for which no cause could be found.

GROUP B

Twenty two patients (11% of the group) had symptoms which were initially ascribed to possible defective binocular vision. However, the causes were found to be due to the following:—

1. *Lens Opacities*

Thirteen patients (6.5%) complained of diplopia which proved to be unocular, affecting both eyes in seven cases and one eye in six cases. The symptoms were usually intermittent and mildly irritating.

Other causes of unocular diplopia include corneal opacity, astigmatism, sometimes caused by pressure on the cornea from a lid cyst, and subluxation of the lens. None of these conditions were present in our patients. An explanation of the cause of the symptoms reassured the patients.

2. *Retinopathy*

Eight patients (4%) presented with a variety of symptoms, such as 'ghosting', distortion, blurring and diplopia. Pigmentary disturbance or pin-point haemorrhages at the macula were thought to be the cause.

3. *Optical*

One patient complained of blurring and diplopia since new spectacles, but a correction in the axis of the cylinder rectified the problem. Special care should be taken to make sure that elderly patients are wearing the correct glasses with an up-to-date prescription. It is not unusual to find that the glasses are many years old, with scratched lenses and ill-fitting frames. Sometimes patients abandon bifocal spectacles in favour of their old

distance glasses, so have no reading correction, and consequently have great difficulty with shopping and close work. Appropriate glasses will greatly improve their quality of life.

MANAGEMENT

Modifications to normal orthoptic methods of investigation may be necessary when dealing with elderly patients. If possible the examination room should be quiet and private. The orthoptist must listen carefully to the patient's symptoms and worries and show sympathy and understanding, and hopefully, give encouragement about the prognosis.

Orthoptic tests may be limited by the patient's infirmities, and it may not be possible to carry out a synoptophore examination or a Hess chart. Remedial measures should be effected at the first visit, so that the patient leaves the clinic reassured and more comfortable.

Prisms play an important part in the relief of symptoms, particularly in the control of diplopia in recent ocular muscle palsies. The strength of the prism should be chosen in relation to the degree of deviation measured, and with particular consideration of the patient's responses as to which prism gives the most comfortable binocular single vision. In some cases the total amount of deviation needs to be corrected. If horizontal and vertical displacement of images is noticed, a prism rotated to effect control of both elements of the diplopia may be used. It may be appropriate to apply a segmental prism to either the distance or near correction when diplopia is present at only one distance. Patients usually prefer the prism over the affected eye except when the sound eye is amblyopic. Regular review is essential as the prism may be reduced in strength if improvement occurs, or discarded altogether if spontaneous recovery takes place. There seems to be no way of forecasting whether resolution of diplopia will take place, or how long it will take. In the present series 55% of recent ocular muscle palsies recovered completely within an average time of 3 months.

Prisms for permanent wear are prescribed when recovery is incomplete or absent after 6

months. In this series, temporary prisms were used for 95 patients and prescribed for permanent wear for 58 patients.

Occlusion is advised for those situations in which binocular single vision cannot be restored and if surgery is inappropriate.

Ocular muscle surgery is seldom undertaken for elderly patients. It may be inadvisable due to health problems but is usually refused by the patient.

Orthoptic treatment is successful in relieving symptoms in selected cases of heterophoria and convergence insufficiency, but prism glasses seem to be needed more than for younger patients.

It is important that the patient understands the reasons for his symptoms and the procedures to be carried out for their relief. Regular review by the ophthalmologist is continued, and urgent referral is essential if there is a deterioration or significant change in the patient's condition.

CONCLUSIONS

Despite low expectations on the part of the majority of the patients, a high proportion achieved comfortable binocular vision. Of the 179 patients in Group A there were only 21 cases for whom orthoptic management was unable to give positive help. See Figure 2. Some of these patients were too ill to cope with remedial measures, and several others became symptom-free as a pathological deterioration of acuity of one eye reduced the struggle for binocular vision.

In a study of patients attending rehabilitation departments, Pierce⁶ found a high incidence of visual field defects in patients of 65 years and over, and emphasises the need for explanation and advice to nursing staff and other professionals concerning the visual problems of patients in their care. Mitchell⁷ advocates early and regular ophthalmological assessments in order to detect the onset of visually debilitating diseases, followed by early counselling, and suggests that the orthoptist can play a valuable role in the visual screening of adults.

In Great Britain there are at present about 8 million people over the age of 65 years, and by the year 2001 it is likely that one in 65 of the population will be 85 years and over. Projected

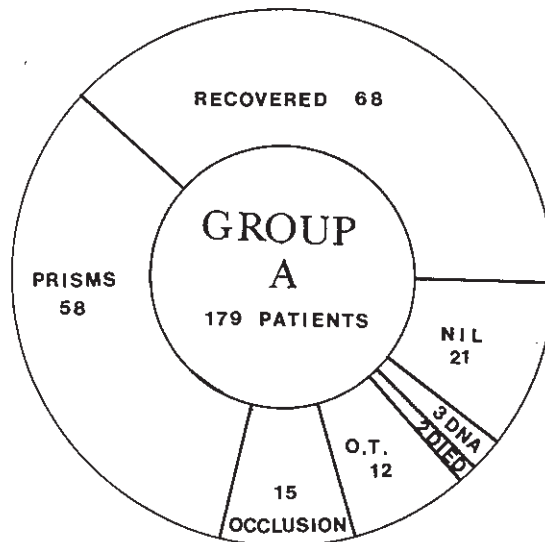


Figure 2: Showing the treatment needed for patients in group A.

population studies estimate that in the North Birmingham district, by the year 1994, there will be an increase of 26% in the population between the ages of 65 and 74, and of 10.5% in people over the age of 75 years.

The care of the elderly is therefore likely to become an increasing part of the orthoptic practice, and the present survey demonstrates that a high proportion of such patients referred to the orthoptic clinic can regain comfortable binocular single vision, and enjoy a significantly improved quality of life.

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