COMMUNICATIONS

PATIENT REACTIONS TO DISABILITY

This Journal, in common with its ever-increasing number of contemporaries, devotes itself essentially to describing diseases from the objective point of view of the ophthalmologist rather than giving an appreciation of the reaction of the patient. The three following articles may therefore be of interest in order that the doctor may know what "the other half" feels about it.

Editor

THE ADJUSTMENT TO APHAKIA*†

BY

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It is a matter of common observation that patients with the best possible visual result from cataract extractions show a wide difference in their ability to adapt themselves to their aphakia. A few accept their correction with avidity, step boldly forth in their new world, and their happiness and elation over their restored vision dwarfs any unpleasant symptoms they may experience. A second group, probably a majority, have various difficulties in accepting their correcting lenses and go through a period of readjustment before they finally become reconciled to their new visual status. A third group, fortunately few, are never able to wear their correcting lenses with any comfort or regularity and prefer to grope vaguely through a portion of their lives rather than accept the accurate, but to them startling, aphakic vision. What are the reasons for these varying reactions?

The ease with which an aphakic correction is accepted appears to vary in inverse proportion to the patient's visual needs.

Thus to a patient without the need for fine and accurate perception and who does not perform manual tasks requiring exact precision of movement, the acceptance of an aphakic correction imposes no great hardship. It is also notable that this group of easy acceptors rarely complains of visual loss when they return for a later refraction review, and it is found that with their first glasses their vision has fallen materially due to changes in their refraction.

The second group comprises individuals with more acute visual needs or whose vocation or profession requires manual tasks which can only be performed if accurate vision is present. To this group the peculiarities and limitations of aphakic vision present a real rehabilitation problem which must be met by intelligent efforts toward readjustment on the part of the patients themselves, with the sympathetic co-operation of the ophthalmologist.

In the third group, fortunately small, are usually neurotic or senile individuals who are appalled, overwhelmed, and disappointed by the peculiarities and sharpness of

* Reprinted from the *American Journal of Ophthalmology* (1963), **55**, 1268, by courtesy of the editor and publishers.

† EDITOR'S NOTE: This paper was originally written anonymously. It will be recalled that Dr. Woods had bilateral cataract extractions.

their new vision and who temperamentally are totally unable to adapt themselves to the changed external world. They wear their glasses only occasionally, usually for reading, and prefer to wander around in a mist rather than accept their new status.

From the viewpoint of the patient, what are the problems which face him when he first receives his aphakic correction? What is his readjustment problem?

When an aphakic patient first receives his correcting lenses and finally and expectantly tests his newly acquired vision in the security of his own home among familiar surroundings, he is immediately astounded by the remarkable manner in which his Lares and Penates have suddenly increased in size. If he is aphakic in one eye only and has still some fair residual vision in the second eye, the attempt at binocular vision produces a superimposed diplopia, the large image seen by the aphakic eye having a smaller reproduction as an inset. Useful binocular vision is impossible until the second eye is operated.

Even when the second eye is operated on successfully and tests on the Howard-Dolman apparatus show accurate depth perception, the size difference of familiar objects introduces a spatial element of false orientation. There ensues, therefore, an unpleasant period when tumblers are overturned, when, reaching for the salt, the unfortunate patient puts his fingers in the gravy-boat, flower vases are upset, ink is spilled, and other similar minor domestic tragedies occur, all exasperating to the patient and sorely trying to the members of his household.

It usually takes several weeks for the neophyte in aphakic vision to accustom himself to the magnified aspect of the outside world, forget his previous and now erroneous concepts of the size of objects, and so to overcome the false orientation. Parenthetically, there may be pleasant aspects to this size difference, as in the case of the gentleman who, in his phakic existence, has been surrounded by a group of short and somewhat rotund ladies, and in his aphakic status finds them transformed into Helens of Troy—daughters of the Gods, divinely tall and so divinely fair!

The second, and fortunately transient, unpleasant phenomenon encountered by the new aphakic is spherical aberration. At first it appears almost impossible to live in a world in which all straight lines are transformed into curves and a linear and upright world is suddenly converted into one of parabolas. This difficulty is augmented when he discovers that the movements of his eyes, which were part of his former existence, suddenly cause the curved outside world to squirm like writhing snakes. Thus the newly elected aphakic regards a door through which for years he has been accustomed to pass without misadventure and, to his amazement, he finds the jambs in each side curve in toward the middle and leave an aperture only a few inches wide at the centre, through which all reason tells him it will be impossible to wedge his portly person.

When mature thought finally persuades him that this is an optical illusion, and he timidly advances to make the test, he finds to his delight that as he approaches the opening, the curves recede gracefully and invitingly to his approach and he finds easy and unimpeded passage.

Similarly, when entering a high room with tall columns such as a hotel lobby or a railroad station, he finds the supporting columns bending and waving precariously and he is immediately convinced that by trespassing in such a manifestly shaky edifice, he will accentuate the instability and invite disaster. He fears that he will

emulate Samson at Gaza, where in revenge for the loss of his own eyes, Samson precipitated the entire structure on the heads of jesting Philistines, and incidentally upon his own!

Gradually he learns the secret of persuading the outside world to remain in a properly upright position and abandon its sinuous behaviour. The secret consists in holding his eyes motionless, his gaze fixed through the optical centre of the correcting lens, and to move his head slowly to look at any desired object not in his direct view. When this simple trick is mastered the spherical aberration disappears, and, once gone, can only be elicited and reproduced with difficulty.

With mastery of false orientation and spherical aberration, the next step in the thorny pathway of the new aphakic is the co-ordination of manual movements with the new visual imagery. The most elementary tasks—sharpening a pencil, carving a fowl—are done only with a sense of insecurity and clumsiness. It seems hopeless to the victim of cataract surgery that he will ever recover his former feeling of confidence or achieve again any manual dexterity for a technical procedure. Nothing can restore his confidence except constant practice. Self-assurance and the cajolery of his friends and admirers are unavailing. There is nothing to do except patiently repeat some manual task until confidence is again regained.

For many patients small jig-saw puzzles, Japanese block puzzles, and the like, are of decided value, teaching the individual how to handle objects and at the same time tickling his ego with a sense of accomplishment when the puzzle is solved.

One aphakic surgeon met the problem in a peculiar way. Fortunately, this individual lived during the summer on the water where crabs were plentiful and he himself has a weakness for their succulent meat. The picking of a hard-shell crab can either be a rough-and-ready procedure accomplished with a hammer, a gouge, and one's teeth, or it can be promoted to the level of a surgical operation, carefully removing shell, cartilage, and cell membranes without damage to the underlying meat and excavating each cell thus opened with the same precision a dentist would clean out a cavity.

The industrious pursuit of this latter procedure occupied the surgeon several hours each morning, resulted in a steadily improving co-ordination between manual manipulation and his new visual perception, and provided a steady supply of fresh crab meat far beyond his household's capacity to consume. Thus, when the news spread through the neighbourhood that a daily supply of free and surgically prepared crab meat was available for the asking, the surgeon suddenly found himself enjoying popularity of a degree never before or since attained.

Thus the newly created aphakic can be assured that his three most obvious troubles—false orientation, spherical aberration, and lack of co-ordination—can ultimately be overcome with time and practice.

There remain two other difficulties that no amount of time or practice can ever overcome and which must be endured as perpetual crosses. These are the limitation of the visual field due to the ring-scotoma and the continual but necessary adjustment of the aphakic correction.

It is well known that the magnified central visual field seen through the optical centre of the glass overlaps and blots out a portion of the dimmer peripheral field and so produces a ring scotoma, which at 33 cm. subtends an area from about 33 to

55 degrees depending on the size of the spectacle lens. At ordinary reading distance, with a field of approximately 70 degrees or 40 centimeters in diameter, the aphakic is unconscious of the scotoma. Beyond 20 feet the field is also sufficiently wide to permit driving a car and the scotoma presents no problem. For intermediate distances, especially between two and 10 feet, the presence of the ring scotoma imposes a social handicap which cannot be overcome.

In ordinary group conversation, faces pop in and out of the blind area with the annoying insolence of a jack-in-the-box. Constant collisions with chairs or individuals inconsiderately injecting themselves into the blind field become a matter of course and a string of apologies becomes automatic. Going up and down stairs the aphakic must look at the steps to avoid falling and to learn when to stop ascent or descent, but this is at the expense of colliding with any innocent stranger who is thoughtless or reckless enough to be going in the opposite direction.

Crossing the street with a green light the unfortunate aphakic is at the mercy of any motorist who chooses to turn into his pathway. He can well sympathize with John Hunter who said of his own cardiac pathology, "My life is in the hands of any rascal who chooses to worry me." This infirmity cannot be cured; it must be endured. All the aphakic can do is to throw himself upon the mercy of his friends—but without asking for sympathy!

The second difficulty is the annoyance of cataract glasses. Volumes have been written on the aphakic correction and few have contributed materially to the solution of the problem. With each individual, within certain limits, the selection of the best lens for his individual needs is largely a trial-and-error procedure. There are certain general principles which unfortunately are learned only through bitter personal experience.

First, the greater the base-curve of the correcting lens the larger the visual field, but the greater and more troublesome the peripheral spherical aberration and the less useful the enlarged field. Within the average + 10.0 D sph. to + 13.0 D sph. range, a - 3.0 D spherical base curve affords the best compromise.

Second, for the bifocal addition, ignoring all arguments over indices of refraction, the flat or square top segment is vastly preferable to a spherical or rounded addition. The aphakic invariably prefers the upper portion of his add, avoiding use of the lower portion on account of prismatic deviation and peripheral spherical aberration incident to the strong plus lens. For this reason, the trifocal lens is of little value, the lower and stronger add is so low it is almost useless.

Third, the glasses must be accurately centred and adjusted. Since the optically active aphakic uses only the optical centre of his lens, any maladjustment of the pupillary distance introduces at once a prismatic error which greatly reduces visual efficiency. Similarly, a fraction of a millimeter in the vertical adjustment produces a similar error and, since the aphakic uses only the upper portion of his add, if one lens is a fraction of a millimeter lower than the other, the aphakic may suddenly find he is using only monocular vision for his close work.

Lastly, the difference of less than a millimeter in distance of the lens from the anterior surface of the cornea may make a difference of almost a diopetre in the refraction depending on the strength of the aphakic correction. After the correcting prescription is filled and adjusted by the optician, the patient must again be seen by the

ophthalmologist to determine if the finished and adjusted glasses give the maximum of vision, or if one lens must be set in or set out.

And so at long last the aphakic's refraction correction has become stabilized, his glasses have been properly fitted and adjusted, he has overcome the difficulties of false orientation, spherical aberration, and manual co-ordination. He is now launched forth on his aphakic career for the remainder of his days, and, barring his difficulty with his visual field limitation, all is supposed to be well. But alas, he has one more constant worry. His glasses do not stay adjusted. He puts them down every time he bathes or washes his face, he gropes for them, often in an unaccustomed place, to put them on again. Frequently they are knocked into the wash bowl or off the bathroom shelf in his efforts to recapture them. They rarely or never break, but they constantly become bent out of adjustment.

When this happens, his only resource is to have on hand a supply of spares and, when reduced to his last pair of adjusted lenses, to seek the aid of a friendly and skilful optician, have the entire works readjusted, and then begin all over again. By following this procedure, provided the bridge of his nose and the back of his ears can tolerate the weight of his correcting lenses, he can win through to a life of comparative activity and visual comfort.

From the viewpoint of the ophthalmologist, the postoperative troubles of an aphakic present a duty and an interesting problem. The duty of the ophthalmologist is to advise the new aphakic of the difficulties which lie in store for him and how best to meet the readjustment problem. The problem concerns the elderly individual without great visual requirements whose vision is reduced only to the 20/70 or 30/100 level. Is it proper to subject him to the visual and physical reorientation incidental to aphakia for the sake of the improved central visual acuity? The question is a pertinent one and cannot be answered yes or no. It is an individual question with every patient and should be carefully considered by the ophthalmologist on the basis of the individual's visual requirements and his physical and mental status before surgical interference is advised.