Successful Treatment of Anisometropic Amblyopia with Spectacles Alone

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Background: The efficacy of treating anisometropic amblyopia with occlusion therapy is well known. However, this form of treatment can be associated with risks. Spectacle correction alone may be a successful and underutilized form of treatment. ***Methods:*** The records of 28 patients treated successfully for anisometropic amblyopia with glasses alone were reviewed. Age, initial visual acuity and stereoacuity, and nature of anisometropia were analyzed to assess associations with time required for resolution, final visual acuity, and stereoacuity. Incidence of amblyopia recurrence and results of subsequent treatment, including patching, were also studied. ***Results:*** Mean time to amblyopia resolution (interocular acuity difference $\leq$1 line) was 5.8 months (range 2 to 15 months). Worse best corrected initial visual acuity was associated with longer time to resolution (Spearman's rho $= 0.37$, $P = 0.05$), while age, initial stereoacuity, amount, and type of anisometropia were not ($P = 0.43$, 0.68, 0.26, 0.47, respectively). None of the astigmatic or myopic patients achieved visual acuity of 20/20 in the amblyopic eye, while seven (39%) of the hyperopic patients did. This difference was significant ($P = 0.03$). Better initial stereoacuity predicted good final stereoacuity ($P = 0.01$). Only four (14%) patients developed amblyopia recurrence over an average follow-up period of 1.7 years. All were successfully treated with updated spectacles or patching. ***Conclusions:*** Treatment of anisometropic amblyopia with spectacles alone can be a successful option. Patients treated with spectacles alone may experience a lower amblyopia recurrence rate than those treated with occlusion therapy. (J AAPOS 2006;10:37-43)

Anisometropic amblyopia is a decrease in best corrected visual acuity in one eye as a result of significantly different refractive errors between a patient's two eyes. The eye that provides a more blurred image to the retina, and subsequently the brain, develops amblyopia. Appropriate refractive correction is a necessary component of treatment for this condition. Occlusion therapy, or penalization of the preferred eye, is frequently used in conjunction with glasses. Patching and optical penalization have been shown to be effective, but not without risks. Numerous authors have reported cases of induced strabismus related to patching in patients with previously straight eyes.[1-6] One author reported eight cases of occlusion amblyopia in the patched eye of patients being treated for anisometropic amblyopia; all cases were reversible.[1] Patching also contributes to significant social anxiety, especially in older children. When patching is stopped, the rate of visual decline in the amblyopic eye has been reported to be between 24 and 75%.[1,7,8] Recently, attention has turned toward atropine penalization as an effective treatment modality.[9] However, pharmacologic treatment carries the risk of medication side effects and is not indicated for all types of refractive error.

One often overlooked option is treating patients with anisometropic amblyopia with spectacles alone. Many physicians are hesitant to delay patching these children. This is likely due to the serious nature of this condition and the fact that it often goes undetected until school age when vision screening is performed. Late presentation often compels ophthalmologists to institute patching immediately out of concern that the window during which amblyopia can be effectively treated may be closing. Recent reports have suggested that glasses alone can be effective in fully treating some patients with anisometropic amblyopia.[10,11] The purpose of this article is to provide a retrospective review of our successful experiences with this treatment approach and to describe the characteristics of those patients who achieved amblyopia resolution with spectacles alone.

PATIENTS AND METHODS

The medical records of all patients diagnosed with anisometropic amblyopia at the University of Wisconsin Pedi-

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atric Ophthalmology clinic between 1996 and 2003 were retrospectively reviewed. Our routine policy is to treat patients with anisometropic amblyopia with appropriate spectacle correction and to assess visual acuity at follow-up visits spaced approximately 1 to 2 months apart. The patients are observed as long as improvement in visual acuity continues. They may also be observed with spectacle correction only if visual acuity does not improve at a particular visit, but there is a possible explanation for the plateau. Such explanations may include a change in visual acuity testing method, change in refractive error, poor compliance wearing glasses, etc. If a patient does not show improvement in linear acuity testing but does show improvement with isolated optotypes, we may also continue to observe, as this may precede linear improvement.[12] If a patient does not show improvement in visual acuity at two consecutive visits and the aforementioned circumstances do not apply, then patching is instituted.

The study group for this particular investigation consists of consecutive patients with anisometropic amblyopia treated successfully with spectacles alone, subject to certain exclusion criteria. These criteria included concurrent presence of strabismus, history of patching or optical penalization, history of prior spectacle correction, and existence of organic eye disease that could contribute to decreased visual acuity. The presence of any manifest strabismus that could be detected on cover test resulted in exclusion; patients with heterophorias but without heterotropias were included. Strabismic patients were excluded because in such patients the amblyopic eye is most likely also being suppressed. It is intuitive that in patients with strabismus and amblyopia the preferred eye may need to be patched or penalized to prompt the amblyopic eye to realign to pick up fixation. Patients who showed initial improvement in visual acuity with spectacle correction alone but who eventually required patching because visual acuity improvement stabilized prior to amblyopia resolution were also excluded from the study.

Patient records were reviewed to obtain age at presentation, type and degree of anisometropia, initial and subsequent refractive error, sensory status, initial and subsequent visual acuity, and incidence of amblyopia recurrence. Anisometropia was defined as $\geq$1.00D difference in myopic, hyperopic, or astigmatic refractive error between eyes. Patients were classified into one of these three groups based on the type of anisometropia with the highest degree if more than one type was present. For example, a patient in whom cycloplegic refraction revealed refractive error of $+3.00 + 0.50 \times 090$ in the right eye and $+4.50 + 1.00 \times 090$ in the left eye would be classified into the hyperopic anisometropia group even though there was mild asymmetry of the astigmatic error between the two eyes. There were three patients who had $\geq$1.00D difference in both hyperopic and astigmatic refractive error; all three had a greater degree of astigmatic anisometropia and were therefore placed in the astigmatic anisometropia group.

Cycloplegic refractions were performed after the instillation of 1 or 2% cyclopentolate eye drops. Full myopic and astigmatic refractive errors were corrected in each case. In hyperopic patients the difference in refractive error between the two eyes was always preserved and patients were originally prescribed their full hyperopic correction. In a few cases the patients complained of blurred vision at follow-up appointments and were unable to tolerate the full amount of plus. In those cases the amount of plus was decreased, usually to reflect 1 diopter less plus sphere than the full cycloplegic correction in each eye. Prior to starting treatment with appropriate spectacles, each patient had his or her best corrected visual acuity checked while wearing appropriate optical correction either in a trial frame or by using the phoropter. Testing methods included sweep visual evoked potential (sweep VEP) testing, Allen pictures, linear and crowded HOTV, and Snellen visual acuity testing. The most difficult visual acuity test that the child could perform was used. Visual acuity testing was performed by an orthoptist, resident, fellow, or faculty physician. Twenty-foot lanes were used. Linear symbols were used for optotype testing. Acuities were recorded as the smallest line that the child could read at least 50% correctly. Nonverbal patients had visual acuities measured using sweep VEP testing which were reported in cycles/degree and translated into approximate Snellen acuities; this method is regularly used in our clinic at the University of Wisconsin. Four patients were tested using sweep VEP. Amblyopia was defined as a difference of $\geq$2 lines in visual acuity between eyes. Stereoacuity was measured using the Titmus stereo test (Stereo Optical Co., Inc., Chicago, IL).

Parents were instructed to obtain the prescribed glasses within 1 week and to have their child begin full-time wearing of the lenses immediately. Most patients were followed on a monthly or bimonthly basis until amblyopia resolved, with consequent appointments occurring less frequently. At each follow-up appointment best corrected visual acuity and stereoacuity were recorded. At the physician's discretion repeat cycloplegic refractions were performed and appropriate changes in glass prescriptions were made. Amblyopia resolution was defined as a difference of $\leq$1 line in visual acuity between eyes.

Visual acuity was converted from Snellen to logMAR values for statistical analysis. *P* values for comparisons of continuous variables were based on the Wilcoxon rank sum test. *P* values for comparisons of proportions were based on Fisher's exact test. *P* values of $\leq$0.05 were considered significant.

RESULTS

One hundred sixty-three patients with anisometropia and amblyopia were identified, some of whom had concurrent strabismus. One hundred thirty-five patients were excluded from the study because they did not meet inclusion criteria. The study group consisted of 28 children: 14

TABLE 1 Mean ± SD and Range of Refractive Error between Eyes by Category of Anisometropia

Type of Anisometropia	Number of Patients	Mean Amount of Anisometropia (D)	Range of Anisometropia (D)
Hyperopic	18 (64%)	1.97 ± 1.20	1.00–6.00
Astigmatic	9 (32%)	1.58 ± 0.06	1.00–2.50
Myopic	1 (4%)	4.00	N/A

males and 14 females. Approximately twice that number of patients showed initial visual acuity improvement with glasses alone but only those who achieved complete resolution of amblyopia with spectacle correction alone were included in the study. Age at presentation ranged from 0.8 to 7.9 years (mean 4.8, SD ± 1.7). Patients were classified according to type of anisometropic refractive error. Table 1 shows the mean difference in refractive error between the two eyes of the patients in each group and the range. The mean amount of anisometropia for the group as a whole was 1.92 ± 0.82D.

The mean ± SD initial best corrected visual acuity in the amblyopic eye for all patients was 0.44 ± 0.24 or approximately 20/60 Snellen acuity. The amblyopic eyes had a mean final visual acuity of 0.08 ± 0.05 or 20/25. This difference was significant ($P < 0.0001$). The mean initial best corrected visual acuity in the nonamblyopic eye for all patients was 0.08 ± 0.11 or approximately 20/25. The nonamblyopic eyes had a mean final visual acuity of 0.02 ± 0.04 or approximately 20/20. This difference was also significant ($P = 0.004$). The mean time to resolution of amblyopia for all patients was 5.8 ± 3.9 months with a range of 2 to 15 months. Table 2 summarizes the mean initial and final visual acuity and duration to resolution for patients with each type of anisometropia and the patient group as a whole. Because there was only one patient with myopic anisometropia, that group was excluded from statistical analysis. There was no significant difference in mean age at presentation between patients in the hyperopic and astigmatic anisometropic amblyopia groups (4.9 and 4.4 years, respectively; $P > 0.05$). Follow-up time was also similar for the two groups (1.9 and 2.4 years, respectively; $P > 0.05$). The patients with astigmatic anisometropia had better mean initial visual acuity than those with hyperopic anisometropia, yet they took longer to achieve resolution. However, these differences were not statistically significant ($P = 0.26$). None of the patients with astigmatic anisometropia achieved a best corrected final visual acuity of 20/20 in the amblyopic eye, while 39% of the hyperopic anisometropic patients did ($P = 0.05$).

Stereoacuity was assessed with the Titmus test in 21 patients before treatment and after resolution of amblyopia. Mean initial and final stereoacuity levels were 103 ± 87 and 69 ± 39 seconds of arc, respectively. This difference did not reach statistical significance ($P = 0.08$). Predictors of achievement of fine stereoacuity, defined as 50 seconds of arc or better, were older age at presentation ($P = 0.03$) and better initial stereoacuity ($P = 0.01$). Initial visual acuity in the amblyopic eye ($P = 0.24$), amount ($P = 0.37$), and type ($P = 0.66$) of anisometropia was not significant predictors of achieving fine stereoacuity.

Best corrected initial visual acuity in the amblyopic eye was the only presenting characteristic found to be significantly associated with time to resolution ($P = 0.05$). Worse initial visual acuity was associated with longer time to resolution (Figure 1). Age at presentation ($P = 0.43$), initial stereoacuity ($P = 0.68$), amount of anisometropia ($P = 0.47$), and type of anisometropia ($P = 0.26$) were not significant predictors of time to resolution.

Mean follow-up period after resolution of amblyopia was 1.7 years (range, 0 to 7.3 years). Nineteen (68%) of the patients were followed for at least 1 year subsequent to resolution. Only 4 (14%) of the 19 patients showed a decline in best corrected visual acuity of ≥1 line in the amblyopic eye. Table 3 summarizes the characteristics of these patients. All four patients were effectively treated for amblyopia recurrence.

Patients 1 and 4 were found to have a significant change in refractive error by repeat cycloplegic refraction. Visual acuity did not improve immediately when retested using the new prescription in trial frames or the phoropter, so a recurrence of amblyopia was suspected. However, at subsequent visits the best corrected visual acuity returned to within one line of the nonamblyopic eye and patching was not required. Patients 2 and 3 were treated with patching for recurrence of amblyopia. Neither exhibited a significant change in refractive error at the time the recurrence was noted. Patient 2 did not actually show a decrease in visual acuity in the previously amblyopic eye. In this patient, visual acuity in the nonamblyopic eye improved from 20/25 to 20/20 and visual acuity in the amblyopic eye remained stable at 20/30. This resulted in a difference of ≥2 lines difference in visual acuity between the two eyes, so it was considered a recurrence of amblyopia. Part-time patching was prescribed and the amblyopia recurrence resolved. Patient 3 showed a decline of two lines in visual acuity in the previously amblyopic eye when visual acuity testing method was changed from HOTV to Snellen letters. Part-time patching was instituted and the recurrent amblyopia resolved.

DISCUSSION

Anisometropic amblyopia develops when a difference in refractive error between a patient's two eyes causes disparate images to project upon the two foveas. The eye projecting the clearer image is believed to be "favored" by the brain. The eye that projects the blurred image can suffer a decrease in visual acuity that does not initially normalize after the refractive error is corrected. This visual acuity loss has been shown to be reversible, most easily during the childhood years up to about age seven.

TABLE 2 Visual Acuity and Amblyopia Resolution by Category of Refractive Error and as an Entire Group

Type of Anisometropia	Mean Initial VA (logMAR ± SD and Snellen)	Mean Final VA (logMAR ± SD and Snellen)	Mean Time to Resolution and Range (months)	Final VA of 20/20 or Better *n* (%)
Hyperopic (N = 18)	0.46 ± 0.29 (20/60)	0.06 ± 0.05 (20/25)	5.2 ± 3.2 (1–15)	7 (39%)
Astigmatic (N = 9)	0.40 ± 0.10 (20/50)	0.11 ± 0.03 (20/25)	7.3 ± 5.0 (2–12)	0
Myopic (N = 1)	0.48 (20/60)	0.10 (20/25)	4.0	0
All patients	0.44 ± 0.24 (20/60)	0.08 ± 0.05 (20/25)	5.8 ± 3.9	7 (25%)

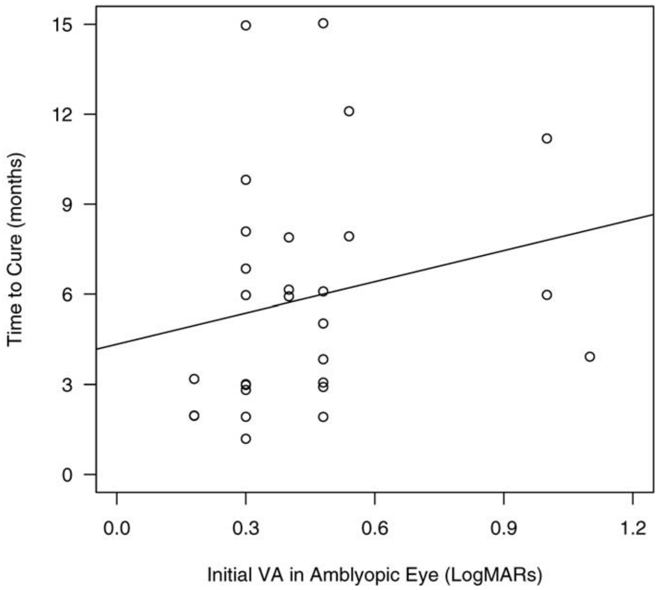

FIG 1. Worse visual acuity at presentation is significantly correlated with longer time to cure in the treatment of anisometropic amblyopia with spectacles alone (P = 0.05).

Mitchell and Gingras[13] recently reported that visual recovery after experimentally induced monocular deprivation in animals may be based upon restoring the ability of the deprived eye to transmit a clear visual image in an absolute sense, not relative to the normal eye. In other words, the important action may be to clear the image projected upon the fovea in the amblyopic eye, not necessarily to blur or occlude the image formed by the dominant eye. This proposes a mechanism that can explain our findings and those of others who have described treating anisometropic amblyopia with glasses alone, without impeding the "competitive advantage" of the nonamblyopic eye.[2,10,14-17] Our study comprises the largest series of such patients to date (n = 28), as well as the longest follow-up period (mean 1.7 years after resolution). The mean time to resolution in our study was 5.8 ± 3.9 months with a range of 2 to 15 months. This is in contrast to a prospective study published by Moseley et al, which described a series of 10 patients with anisometropic amblyopia (2 with concurrent strabismus) successfully treated with "spectacle adaptation."[15] Those patients were evaluated at weekly intervals until visual acuity reached 20/20 or stabilized. The time to cure ranged from 3 to 22 weeks and no significant improvement (>0.10 logMAR) was seen after 18 weeks. One reason their findings differed from ours is likely due to the retrospective nature of our study; the follow-up visits were more variably spaced than those of a prospectively designed study. In our study it is impossible to know exactly when improvements occurred and resolution of amblyopia was achieved. However, it is important to note that eight (29%) of our patients showed improvement of ≥1 Snellen acuity line at two consecutive visits both taking place more than 4 months after initiation of spectacle wear. Therefore, we would not advocate instituting occlusion therapy after 18 weeks, particularly in a patient who is continuing to improve with spectacle correction alone.

We analyzed age, best corrected initial visual acuity in the amblyopic eye, initial stereoacuity, type, and amount of anisometropia to assess which of these presenting characteristics are significantly associated with time to cure. Worse initial visual acuity was significantly associated with longer time to resolution (P = 0.05). Surprisingly, age at presentation was not correlated with time to resolution (P = 0.43). Perhaps this is because none of our patients were over 8 years of age at presentation. The other presenting features we analyzed were also not associated with time to resolution. This is the first study to our knowledge to analyze these relationships in this particular patient population (patients successfully treated for anisometropic amblyopia with glasses only). However, other studies have indicated that in patients treated for anisometropic amblyopia with occlusion therapy age at presentation does not significantly affect time to cure[16,17] or final visual acuity.[16-21] We analyzed the same presenting characteristics to assess correlation with achievement of fine stereoacuity, defined as 50 seconds of arc or better. Better initial stereoacuity was significantly associated with achievement of fine stereoacuity (P = 0.01). The older a patient was at presentation, the more likely he or she was to achieve fine stereoacuity (P = 0.03). It is intuitive that better initial stereoacuity would predict good final stereoacuity but it is not clear why children who presented at an older age, and were therefore treated at an older age, would have better final stereoacuity. We believe this finding may be due to testing artifact. It is possible that older children understood the Titmus stereoacuity test better than younger

TABLE 3 Characteristics of Four Patients who Experienced a Decline in Best Corrected Visual Acuity ≥1 Line in the Previously Amblyopic Eye after Resolution of Amblyopia

Case number	1	2	3	4
Age at presentation	2.4	6.0	6.3	2.1
Initial VA	8/100	20/50	20/70	20/40
Type of anisometropia	Hyperopic	Hyperopic	Astigmatic	Astigmatic
Amount of anisometropia	6.00 D	2.00 D	1.25 D	2.50 D
Time to cure	4 months	6 months	8 months	7 months
VA after cure	20/25	20/25	20/25	20/30
Time after cure to decline	6 months to 1st recurrence	6 months	2 months	5 months
VA decrease (Snellen lines)	2	1	1	1
Retreatment type	New glasses	Patched 3 hours/day	Patched 3 hours/day	New glasses
Retreatment time to cure	N/A	6 weeks	3 months	2 months
Follow-up after re-resolution	3 years (unstable)	6 months (stable)	1.1 years (stable)	1.5 years (stable)

children. It is also possible that older children presenting with anisometropic amblyopia developed good stereoacuity at a younger age, prior to amblyopia development.

Alternatively, we do not believe that age was a factor in the assessment of the presence of amblyopia in our study. One can conclude that as children become older, they perform better at visual acuity testing. Therefore, the visual acuity in the nonamblyopic eye may improve over time merely due to age. Because we defined amblyopia as a difference of ≥2 lines of visual acuity between eyes, this may be seen as a cause for artifact in determining amblyopia in our study. We do not believe this to be true for a few reasons. First, better performance with age should not be limited to the nonamblyopic eye. The rate of visual development should be equal in both eyes over time. Better cooperation and testing ability should improve the visual acuity in both eyes. Second, children in our study were given the most rigorous vision test they could perform at their age. In our experience, visual acuity in both eyes often remained the same or decreased by one line when switching to progressively more difficult tests. Therefore, we do not believe the presence of amblyopia was overestimated.

Ours is the first study analyzing this patient population to divide patients based on type of amblyopia. Both the hyperopic and the astigmatic anisometropia groups showed statistically significant improvement in visual acuity in the amblyopic eye ($P < 0.0001$ in both cases). Of interest, 39% of the patients in the hyperopic group achieved final visual acuity of 20/20 in the amblyopic eye, while none of the patients in the astigmatic group did ($P = 0.03$). We are uncertain of the significance of this finding. It may be that different types of anisometropic refractive errors lead to different changes in the visual cortex and that those induced by asymmetric astigmatic error are more refractory to this form of treatment. It may be that those patients just needed more time than our recorded follow-up period to achieve 20/20 visual acuity. We are unaware of any published reports comparing the likelihood of patients with different types of anisometropic amblyopia reaching 20/20 visual acuity after patching.

Only four (14%) patients in this study showed visual acuity regression of one Snellen acuity line or more of best corrected vision in the amblyopic eye over a mean follow-up duration of 1.7 years. Table 3 summarizes the clinical courses of these patients. Patients 1, 2, and 3 presented with initial visual acuity in the amblyopic eye and degree of anisometropia that were average in this study. Patient 1 continued to have an unstable course with visual acuity in the amblyopic eye fluctuating between 1 and 2 Snellen acuity lines below previous best corrected visual acuity over 3 years of follow-up. That patient presented with the lowest initial visual acuity in the amblyopic eye and the highest degree of anisometropia in this series. Both of these presenting features have been correlated with an increased risk of amblyopia recurrence over time.[7,8] No patient regressed more than 2 Snellen acuity lines at any time in this series.

There are few published reports of long-term visual stability in patients with anisometropic amblyopia without strabismus who were successfully treated with occlusion therapy. Kutschke et al reported visual decline in 24.2% of such patients, but only included patients who slipped two or more lines and did not state the follow-up period.[1] Levartovsky et al reported visual deterioration in 36% of a similar group of patients who were examined an average of 6.4 years after cessation of patching.[7] The Pediatric Eye Disease Investigator Group (PEDIG) reported a 24% amblyopia recurrence rate over a 1-year follow-up period in patients successfully treated for anisometropic amblyopia with either patching or atropine; however, their series included patients with and without strabismus.[22] Long-term stability in patients with anisometropic amblyopia and strabismus is significantly worse with various authors reporting 26 to 53% of such patients showing visual decline over time,[7,23-25] but these patient populations are not comparable to ours. The 14% incidence of long-term visual deterioration, with loss entailing only 1 to 2 Snellen acuity lines, is the first reported for any group of patients successfully treated for anisometropic amblyopia with spectacle correction alone. Comparison to visual deterioration rates reported in similar patients after occlusion

TABLE 4 Comparison of our Study with Other Published Series of Patients Successfully Treated for Anisometropic Amblyopia with Spectacles Alone

	Number of Patients	Amount of Anisometropia (D)	Initial Best Corrected VA* (Snellen)	Mean Age at Presentation (years)
Steele et al (current study)	28	1.92	20/60	4.8 ± 1.7
Stewart et al[10]	18	1.97	20/100	5.5 ± 1.4
Moseley et al[11]	11	1.86	20/60	5.1 ± 1.5
Kivlin and Flynn[2]	14	1.25	20/70	Not reported

*The Snellen acuities are approximate from original logMAR acuities in some cases.

therapy indicates that spectacle correction may provide a more stable long-term visual result than patching. One possible explanation may be that, after resolution of amblyopia is achieved with spectacle correction alone, the treatment is not terminated as it is in occlusion therapy. Further studies are indicated to investigate this possibility. Recently reported findings that amblyopia recurrence rates are lower when patching is weaned before being discontinued are compatible with this hypothesis.[22]

One weakness of our study is that it includes only patients who were successfully treated with spectacle correction; we do not report a comparison group which failed treatment with glasses and required patching. Therefore, we are unable to discern which characteristics made our patients good candidates for spectacle-only treatment or report the percentage of patients with anisometropic amblyopia that can be treated successfully without patching. Based on approximate numbers ascertained during our medical record review, about one-half of the patients who showed initial visual acuity improvement with spectacle correction alone achieved resolution of amblyopia with glasses only. However, we did not analyze the characteristics of the group that showed improvement but did not reach resolution. The purpose of our study is to report our successful experiences with treating a group of patients with anisometropic amblyopia with spectacles alone and to describe the characteristics of these patients. We did not believe it would be useful to compare this group of patients to those who improved partially and were then switched to an alternate treatment modality without a randomized, prospective study design.

Kivlin and Flynn published a retrospective review which included a subset of 28 patients with anisometropic amblyopia who were treated with spectacle correction only for 3 months.[2] Following that period, 14 patients had achieved ≥20/40 Snellen acuity with spectacle correction alone; the other 14 were patched. Our series consists of only patients who were successfully treated with glasses alone, and our mean amount of anisometropia (1.92D) and mean initial visual acuity (20/60) are comparable to that of their nonpatched group. Other published series describing patients successfully treated for anisometropic amblyopia with spectacles alone cited very similar amounts of anisometropia, initial best corrected visual acuity in the amblyopic eye, and age at presentation (Table 4).[2,10,11] It is likely that patients around 5 years old with a milder degree of anisometropia, in the 1.00 to 2.00D range, and a moderate amount of amblyopia, in the 20/60 to 20/100 range, have the best chance of achieving resolution through spectacle correction alone.

Our series of 28 patients successfully treated for anisometropic amblyopia with spectacle correction alone emphasizes that this can be an effective treatment option for selected patients and that in these children the social stigmata and risks associated with patching can be avoided.

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An Eye on the Arts – The Arts on the Eye

"His father was also a shaman. He taught Don Pablo and Himaro how to use ayahuasca. Don Pablo became a *pajé* because he was very sick. He healed himself and became a healer. The best way to become a *pajé*—maybe the only way—is to be very ill and follow that path." Nestor listened to Don Pablo and spoke again. "Ayahuasca is like death. When you drink it you die. The soul leaves the body. But this soul is an eye to show you the future. You will see your grandchildren. When the trance is over the soul is returned." Don Pablo was still talking. Nestor said, as though summarizing, "He talks about the 'eye of understanding.'"

Manfred said, "Please ask Don Pablo to explain the meaning of this."

The question was relayed to Don Pablo, who turned away and answered the question while facing the trees and the darkness and the insect chatter.

"This eye can see things that can't be seen physically. Some people have this third eye already developed. And for others the eye of understanding can be acquired through ayahuasca or some other certain jungle plants."

—Paul Theroux (from *Blinding Light*, Houghton Mifflin)