OCULAR HEADACHES.¹

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It is hardly necessary at the present day for me to suggest to you what an important part errors in refraction and muscular insufficiencies play in the etiology of headaches.

During the past few years much has been written on this subject and many valuable statistics have been compiled.

It is undoubtedly true that for a time, as in all new lines of medical progress, the pendulum swung much too far, until it was claimed that in the correction of refractive and muscular errors lay the secret of the successful treatment of almost all the functional nervous diseases. This condition might be compared to the wonderful results promised at one time for the operation of oöphorectomy, except that the slight inconvenience of wearing glasses can hardly be compared with the seriousness of an abdominal section.

At the present day, however, the pendulum has practically settled, and the therapeutic results to be obtained by the wearing of lenses are fairly well understood. Many physicians make a practice of having their patient's eyes tested before beginning any treatment for persistent headache. Physicians often do not realize what an important part these errors play in cases of headache where, to the ordinary rough tests, the eye-sight seems perfect. It should be constantly borne in mind that the errors most productive of eye-strain are the ones that affect the acuity of vision the least.

How often every oculist hears a story like the following: "My family physician has been unable to cure my headaches and has sent me to have my eyes tested to see if there is any cause for my trouble there, but I know it cannot be so for my eye-sight is perfect both for distance and for reading." A careful examination, however, may reveal a slight amount of astigmatism, and when the sceptical patient begins to wear the correcting lenses the headaches disappear to his surprise and gratification.

A history of occasional headaches coming on in the afternoon after reading or sewing, and gradually coming more and more frequently, until they are almost constant and appear with the opening of the eyes in the morning, should make one strongly suspect refractive error as the cause. This cause should always be suspected when a visit to the theatre, picture gallery, concert hall, or a day's shopping ends with a severe headache. In fact, it has been my experience that no severer test can be put on slightly astigmatic eyes than an evening spent at a theatre. Many patients come complaining of what they call their "theatre or Boston headaches," and in some cases this is the only time when they are afflicted and many patients often experience the greatest benefit from their lenses at the theatre.

The occasional attacks of so-called sick-headache, to which some school-children are subject, are often found to be caused by refractive defects, the careful correction of which prevents future trouble. In these cases the child forces the eyes to do the work they are unequal to, until the ciliary muscles and nerves become exhausted and painful. The pain is usually confined to one eye or the region around it and is often severe enough to cause reflex vomiting.

¹ Read before the Waltham Medical Club, May 6, 1897.

A night's sleep will, by the complete rest afforded the muscles and nerves, cure the present attack, and the next day the child can return to school with eyes capable of keeping up the unnatural strain for a longer or shorter period according to the vigor of the child and the amount of the defect.

In regard to the site of ocular headaches, I have found that the frontal region is most often affected. Next in order of frequency comes temporal, and then occipital, headaches.

In order to present the subject to you, I have very carefully reviewed and tabulated 900 cases of refractive and muscular errors. These are not selected cases, but represent the cases of this kind coming under my care during the past few years. My object in the tabulation is to show what proportion of the cases had headache as the most important symptom and the measure of relief obtained in such cases by the use of lenses.

I have not tabulated the eyes separately, as is often done, but have classified cases where the eyes were very different, according to the error existing in the eye that seemed most at fault.

For instance: in a case where one eye is myopic and amblyopic and the other is slightly astigmatic, but with good acuity of vision, it is evident that the eye which does all the work is the one at fault in causing the headaches, and the case is classified accordingly.

In looking at the table, the number of cases of muscular insufficiency may seem small, but under that head I have put only such cases as had some well-marked muscular trouble, accompanied by a slight or no refractive error.

Very many of the refractive cases were complicated with slight exophoria, esophoria, or hyperphoria, and at one time I was in the habit of ordering prisms combined with the lenses correcting the refractive error. Now, however, I very rarely do so, for, by experience, I have found that the correction of the refractive error will do away with the muscular trouble in the majority of cases, and the use of prisms is often unnecessary, and may do harm by more firmly establishing the lack of muscular equilibrium. The exception to this is in cases of hyperphoria, where a correcting prism is more often necessary.

In studying the table, you will notice that, out of the 900 cases, 480 were found having headache as an important symptom; and in many cases it was the only one, no symptom referable directly to the eyes being present.

In the other column is included those cases complaining of poor vision—blurring after use, and other symptoms pointing directly to the eyes.

Of the cases accompanied by headache and treated by the use of lenses to correct the refractive error, or in some cases by rest and tonics, 239 are classified as entirely relieved, 134 as partly relieved, 43 as unrelieved and 64 as unknown.

It is undoubtedly true that many of those unrelieved could have been had they permitted the more accurate test under the use of atropine; and many of the unknown were probably so fully relieved as to consider it unnecessary to return as requested. Taking these things into consideration, I think these figures are as accurate as is possible in this group of cases.

Every oculist recognizes a class of hysterical patients whose headaches are relieved every time a different

oculist changes the glasses, but they soon relapse after the suggestive effect has worn off.

One fact is well brought out by the table, namely, that, except in the case of myopia, the less the refractive error the greater is the liability of its causing headache, and thus we find confirmed the observation that often the cases presenting the most violent headaches have apparently perfect sight and no distinctly ocular symptoms.

Another observation which I have not brought out by the tabulation, but which during my review of the cases was forcibly impressed upon me, is the fact that in cases of astigmatism where the axis was contrary to the rule very great trouble was experienced by the patient, and equally great relief derived from the correcting lenses.

I should state here that in grading the amount of

ILLUSTRATIVE CASES.

CASE I. Hypermetropic astigmatism against the rule. Miss E. A., age twenty-one. August 9, 1892.

For several years has had a good deal of headache. Lately, she has had this constantly, and has been advised to stop teaching school. Under a mydriatic I found astigmatism of $+0.25$ D.; axis of cylinder, 180° . She has worn lenses ever since, with perfect relief.

CASE II. Myopic astigmatism. Miss G. V. W., age twenty-nine. August 28, 1892.

Always troubled, more or less, with headache, but now has severe occipital headache, extending down into the back between the shoulder-blades.

Under mydriatic examination showed

O. D. V. = $\frac{20}{40}$ $\ominus$ — 1 cyl. axis 180° = $\frac{20}{40}$
O. S. V. = $\frac{20}{40}$ $\ominus$ — .75 cyl. axis 180° = $\frac{20}{40}$

Error.	Grade.	Without Headache	With Headache	Entirely Relieved	Partially Relieved	Unrelieved	Unknown	Totals
Hypermetropia	{ High	5	1	1	..	..	..	6
	{ Medium	34	19	9	7	2	1	53
	{ Low	26	48	26	14	..	8	74
133								
Hypermetropic Astigmatism . . .	{ High	1	1	1	..	..	..	2
	{ Medium	16	14	8	4	1	1	30
	{ Low	40	125	58	33	15	19	165
197								
Compound Hypermetropic Astigmatism	{ High	1	5	1	2	..	2	6
	{ Medium	17	30	17	8	1	4	47
	{ Low	10	47	21	14	4	8	57
110								
Myopia	{ High	16	..	..	..	..	..	16
	{ Medium	27	2	1	..	1	..	29
	{ Low	9	5	1	2	..	2	14
59								
Myopic Astigmatism	{ High	4	..	..	..	..	..	4
	{ Medium	8	14	10	1	2	1	22
	{ Low	25	92	49	23	11	9	117
143								
Compound Myopic Astigmatism . . .	{ High	9	1	..	1	..	..	10
	{ Medium	19	11	7	2	..	2	30
	{ Low	2	14	9	4	1	..	16
56								
Mixed Astigmatism	{ High	1	..	..	..	..	..	1
	{ Medium	7	15	10	4	..	1	22
	{ Low	4	11	7	2	1	1	15
38								
Muscular Insufficiencies		14	20	2	11	2	5	34
Presbyopia		125	5	1	2	2	..	130
Totals,		420	480	239	134	43	64	900

error I have included under low degrees all up to one dioptré, under medium all from one dioptré up to five, and under high all above five.

It will be noticed that more than half the cases having headaches came under the simple forms of astigmatism, and of these the greater number were hypermetropic.

If all the cases of myopic astigmatism had been tested under atropine, many of them would probably have been found to belong to the hypermetropic list.

When one is in doubt whether to order the *minus* or *plus* cylinder, I find it a good rule to follow, that, if there is esophoria, order the *plus* cylinder, and exophoria order the *minus* cylinder.

Under the heading of Presbyopia, I have included only the simple cases, the cases accompanied by marked refractive error being classified under one of the headings above, according to the refractive condition.

The cases were worked out by means of skiascopy followed by the use of the trial case. In many cases a mydriatic was used.

Wearing the above correcting lenses entirely relieved all the pain in the head and back.

CASE III. Exophoria. Miss L. B., age twenty. April 15, 1894.

She was so much troubled with headache that she could scarcely keep on with her work. Examination showed

V. O. U. = $\frac{20}{40}$ Hm. + .75 sph. = $\frac{20}{40}$
Exophoria of 18° for distance
Abduction = 15°
Adduction = 3°

Under cocaine, the left external rectus was cut, and lenses of $+0.75$ sph. were ordered for constant use. After several weeks, examination showed an exophoria of one degree for distance. The headaches were greatly relieved.

CASE IV. Astigmatism against the rule. Miss N. E. S., age twenty-nine. October 29, 1894.

Has been troubled with headaches ever since she can remember, and was obliged to leave school long before she had finished the course she had begun. During the past four years she has been confined to the house with

nearly constant headaches, and a great deal of the time obliged to lie quiet in a dark room. The frequent vomiting caused by the pain has resulted in a chronic dyspepsia, so that she has to be very careful of her diet. For years she has been unable to do any reading or other fine work, and has been under medical care since she has been confined to the house.

Her condition was such that she could not come to my office, so that the examination was made at her house. Examination showed—

O. D. V. = $\frac{20}{40}$ C — .25 cyl. axis 90° = $\frac{20}{40}$
 O. S. V. = $\frac{20}{40}$ C — .75 cyl. axis 90° = $\frac{20}{40}$

Lenses afforded her immediate relief, and in a week's time she was able to go to church, the stomach trouble had ceased, and she could read and sew as much as she wished. Since then she has been perfectly well and entirely free from headaches.

CASE V. Myopic astigmatism. Mrs. N. S. A., age forty-five. December 17, 1894.

Has always had headache, especially after reading, and has what she calls Boston headaches when she goes shopping. Examination showed —

O. D. V. = $\frac{20}{100}$ C — .75 cyl. axis 112° = $\frac{20}{100}$
 O. S. V. = $\frac{20}{100}$ C — .4 cyl. axis 12° C + .50 sph. = $\frac{20}{100}$

Wearing lenses prevents her having headaches. For reading she wears a + glass added to the above correction.

CASE VI. Astigmatism against the rule. Mrs. F. S., age thirty-eight. February 15, 1897.

She has had headaches all her life; and five years ago she had nervous prostration. The past few months she has had severe headache and has become cross and irritable. About three months ago she had an operation for an old perineal tear, with hope of relieving the nervous symptoms. She is afraid of having nervous prostration again. Examination showed —

O. D. V. = $\frac{20}{40}$ C + .50 cyl. axis 180° = $\frac{20}{40}$
 O. S. V. = $\frac{20}{40}$ C + .37 cyl. axis 180° = $\frac{20}{40}$

Wearing glasses has relieved all her symptoms.

ACQUIRED IDIOSYNCRASY FOR QUININE, AS SHOWN BY PURPURA AND BLEEDING OF THE GUMS.¹

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MANIFEST effects of quinine on the skin are rare when one considers how frequently this drug is taken; but when they do occur, the clinical picture is so dissimilar in different cases as to make it almost incredible that they are to be attributed to one cause. In one man quinine will give rise to violent itching, in another to urticaria, in another to a simple erythema, or a scarlatiniform erythema, or even a rash simulating an erythema multiforme. An erysipeloid, a complete exfoliative, or even a gangrenous dermatitis have been ascribed to quinine. Furthermore, quinine can cause an erythematopurpuric rash, an eczema, or even a bullous eruption.

Besides these disagreeable inflammatory manifestations, quinine may produce more or less extensive extravasations of blood into the skin, and sometimes oozing of blood from the mucous membranes, constituting

a purpura, of which I believe the following case to be an example:

On August 8, 1895, a fairly strong-looking man, twenty-nine years of age, was sent to me by a dentist to ascertain if there would be any risk from hemorrhage in having a tooth extracted. The patient told me that about two years before, the second right lower bicuspid had been pulled out, leaving however, some fragments of roots, which were extracted about two months before he came to me. Two days later he had been awakened at night by bleeding, as he supposed, from the place where the roots had been extracted, and the oozing had continued for about forty-eight hours. At the same time there was subconjunctival hemorrhage of the right eye, and a purpura of the skin of the upper eyelid and of the backs of the hands and feet. He did not remember any rheumatic pains during the attack, but he was quite positive that he had never had any similar eruption before, and there was no history of a hemorrhagic diathesis in the family. The blood was normal.

The opinion was given that there would be no risk in extracting a tooth, as the patient was considered to have simply had an unusual attack of purpura rheumatica with bleeding from the mouth, and little or no pains in the joints. It was thought that the hemorrhage was in no way connected with the removal of the fragments of tooth, and that the patient's story of the bleeding being only from the wound in the gums was not an exact observation. The likelihood of the patient having hemophilia seemed to me to be very remote, as he gave no history of any similar bleeding either in himself or in his family. He had the tooth extracted at that time, and it was not followed by any unusual bleeding.

This opinion was given August 8, 1895, and September 12, 1895, I was called again at 9.30 A. M. to see the man. That morning at 5 o'clock he had wakened with pains in the ankles, knees, hips and in the metacarpo-phalangeal joints. The pains were most marked in the hips. On awaking he had vomited quite a large quantity of blood. The gums were oozing blood, the hemorrhage coming from beside the outer side of the upper and lower right and left molars — most freely, however, from the outer side of the lower right molars. There was a pinhead-sized bright red hemorrhage in the conjunctiva of the right eye over the sclerotic of the outer segment of the eyeball, which he said looked exactly the same in the previous attack, and there were several purpuric spots in the integument of the right side of the neck, over the breast bone and elbow tips, and into the skin of the thighs, and over the second joint of the right middle finger. The next day some very small hemorrhages were noticed in the integument of both upper eyelids. As in the previous attack the hemorrhage from the gums lasted about forty-eight hours, and after the second day no new hemorrhages were noticed in the skin, and as for the pains in the joints, they had only been present during the first half day. There was no rise of temperature nor acceleration of pulse-rate, and except for the symptoms enumerated, the patient felt perfectly well during the entire attack.

While questioning him to ascertain the cause of his trouble, it transpired he had taken a five-grain dose of quinine the night before for a cold, "even as you and I"; and then he remembered that just before the previous attack he had taken a ten-grain dose of qui-

¹ Read before the California Academy of Medicine, June 19, 1897.