

"Ciliary Spasm"

Extract from recent lecture by **LEONET G. AMSDEN**,
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I am almost daily in receipt of communications from practising opticians on the subject of ciliary spasm, it apparently entering in some shape or form in almost all classes of ametropia. How difficult it is to answer these inquiries with the meagre details which usually accompany them. As my only guide will be apparent to you when I ask you to consider for a moment the multitude of causes that are directly traceable to this effect.

Spasm of accommodation or ciliary spasm has been described as an abnormal or involuntary contraction of the ciliary muscle similar in some respects to the common cramp such as attacks one when plunged into cold water when in a heated condition.

It will readily be seen that its effect upon the refraction of the eye is to increase it so that an emetrope would be artificially myopic, hyperopia would be relieved and in many cases would become myopic, while myopia would be increased by its presence, and as the victims have no knowledge of the unnatural use to which the ciliary is subjected its presence becomes a factor of no small importance in the success or failure of the refracting optician.

A spasm of accommodation may be either clonic or tonic. In the former case it is produced only under the influence or fixation, a desire for distinct vision, or certain causes which excite the sensibility of the eye, while it ceases as soon as that organ is in repose. In the case of tonic spasm it is permanent and yields only to a madiatic. Clonic spasm is undoubtedly a very common form of eye trouble in young persons increasing the refraction and making out of many hyperopic cases artificial myopes. This spasmodic contraction of the ciliary is usually insignificant as it ceases at the same time as fixation and disappears with advancing years, and it is only in cases of asthenopia that we are called upon to make the examinations which finally reveal its presence.

If for no other reason than for the instant detecting of clonic spasm, retinoscopy should be employed by every optician who expects to make a professional success of optics.

As stated, the clonic spasm ceases as soon as the eye is at rest and no attempt is made to observe anything, and employing the retinoscope under these condi-

tions we are able to diagnose the refraction and ascertain the error if any is present.

If upon making the usual test with the trial lenses we find the refraction noticeably greater than with the retinoscope, that is, find the amount of hy. less or even find myopia indicated we would have sure proof of the presence of clonic spasm.

The tonic spasm presents features that place it outside the scope of the optician and transfers it to the category of medicine, and we need not take time here to dwell on it further than to illustrate a ready method of diagnosis and a brief description of its characteristics.

Landolt states that it is difficult to state exactly the cause of tonic spasm, but is probably the result of a lesion of a muscular tissue, or is produced by irritation of the motor nerves, which, in commonplace language, simply means that the ciliary muscle, similarly to all other muscles of the human system, is depending for its motive power upon a nervous edict from the brain; that the third nerve being the means of communication, some foreign cause creates a state of excitability in this nerve which causes it to give to the ciliary muscle the same action as if the intellect had so ordered.

Let me illustrate this point. Suppose you have an electric door-bell which rings upon a button being pressed which so acts as to close the circuit and make a continuous channel for the electric power to pass on its route, of course affecting the mechanism of the bell in such a way as to cause the clapper to vibrate and consequently ringing the bell. Now, the same result will follow if by any means the wires are short circuited, that is, if another piece of wire should become entangled in such a manner as to form the two main wires. The power is there and is accidentally applied, the same as in the tonic spasm the power is there and is applied without any intention upon the part of the intellect to so use it, and, unlike the clonic form, it remains constantly in use and does not cease with fixation.

We are only able without the use of atropine to decide upon tonic spasm by means of its effect upon amplitude of accommodation, as we know what amount of accommodation should be present at different ages, and consequently in measuring the PP, with distant vision normal, with glasses if necessary, we are able at once to see if a proportionate amount is present according to age, and if not we

would suspect spasm. For instance, a person of 20 years should have amplitude of 10.00 D and PP in emetropia would be 4 inches, and finding a case of this age in which amplitude was only 6.00 D we would expect spasm 4.00 D. Of course the same results are to be expected in paralysis of ciliary, as that would lessen the amplitude in exactly the same way, but with but little practice you can readily differentiate between them, as spasm carries with it a contracted pupil, while in paralysis it is dilated. In the tonic form considerable pain in the ciliary is felt, and a common symptom is an abnormal secretion of tears. The acuteness of vision is nearly always diminished, frequently simulating myopia, and is very changeable. The presence of a slight convergent squint would add to the proof. The common nerve supply of the ciliary and internal recti would account for spasm in case of muscular errors.

Having by any of the foregoing symptoms and methods of examination established the presence of spasm, it is easily classified with the retinoscope, and, if found to be tonic spasm, we can only resign the case to the oculist. In your regular practice of refraction you have come across cases in which the refraction, as measured from time to time, shows results which are greatly at variance, and some of you have doubtless pursued your studies far enough to know that this is a fairly accurate indication of the presence of spasm, but if you stop there you have no results. You must diagnose and classify, and if tonic let it go, but if clonic it is open to your efforts.

My own custom was for years, when engaged in doing refraction work, to order for all cases of tonic spasm, irrespective of any error of refraction as indicated by trial lenses, sufficiently strong convex lenses to blur the distant vision. These, of course, it was not possible to wear constantly, but by undergoing slight inconvenience they can be worn part of the time for distance, and constantly for reading, and the longer they are worn the less discomfort there is felt in wearing them, as their effect is to induce a relaxation, as the only means of obtaining clear vision. If a record is kept of these cases—and you cannot hope for practical results unless you do so—it will be found that subjective tests made previously will reveal more myopia, or less hyperopia, than one made after a course of training by means of a convex glass. I have even found the application of a weak convex lens in-