A Modification for the Streak Retinoscope

Dr. Mathew Joseph MS

**Introduction**

The addition of a + 1.50 D Spherical Lens to the viewing hole of a streak Retinoscope relaxes the accommodation of the examiner and so makes Retinoscopy less tiring, especially for presbyopes.

**Discussion**

It is a common experience for those who use the Streak Retinoscope for refractions to develop symptoms of asthenopia, and head aches. This is especially true for those who are presbyopic and those who do a large number of cases daily.

**The Optical principle**

Retinoscopy is done at a distance of 2/3 of a metre, i.e. 66 cm, between the eyes of the examiner and the patient.

It is very important to bear in mind that the following calculations are for an examiner who is an emmetrope, or, in the case of an ametrope, one who is wearing his/her full distance correction.

To calculate the accommodative power required to focus an intermediate point within the range of accommodation, the formula $A = V - R$ is used, where

- $A$ is the accommodative power required in dioptres.
- $V$ is the dioptic value of the intermediate point.
- $R$ is the dioptic value of the far point.

The far point $R$ is infinity for an emmetrope, and the reciprocal of infinity is zero.

For $V$ the intermediate distance of 66 cm - that is 0.66m, the dioptic value is 1.50 D (Dioptrre being 1/the focal length expressed in metres, i.e. $1/0.66m = 1.50D$).

Therefore, $A$ the accommodative power the examiner needs to exert to focus at the distance of 66cm is 1.50D.

This means that if a 1.50D sph lens is placed in front of the examiner's eye, his/her accommodation for that distance is completely relaxed. It also follows that the patient’s eye is at exactly the principal focus of the 1.50D lens, i.e. at its focal length of 66cm. Apart from relieving the examiner’s accommodative effort, the retinoscopy shadow is seen clearly and so facilitates the exact neutralization point.

The small magnification provided by the lens helps when the subject’s pupil is small and when the glow is dull due to either media opacities or low charge in the batteries. These last two points should be helpful even to the non-presbyopic retinoscopist.

Fig. 1. A + 1.50 D Spherical lens is stuck over the viewing hole of the retinoscope
In the illustration, the lens is seen stuck with adhesive (Fig. 1) over the viewing hole of the retinoscope. One can request an optician to grind the lens to the requisite size. It need not be as small as in the illustration. It is desirable that the optical centre of the lens be marked before grinding and is well centred over the viewing aperture.

References

Humour in Ophthalmology

Acronyms in Ophthalmology

RRV

Acronym is defined by any standard dictionary as ‘a word made up of first letters of a compound name’. It is derived from the Greek root ‘acro’ meaning ‘tip’ or ‘point’. So we join the tips of different words and make up another. Apart from innocuous ones like UNICEF, UNESCO, WHO, DME, SNDP, UPA, NDA etc., acronyms are most widely used by us, doctors. It is the secret weapon of medical men (and women, of course) one can say. It is a secret language, anyway.

As one enters the medical college, one is bombarded with TC, DC and ESR in Physiology and mysterious things like FTM in Biochemistry. (Anatomy is relatively free of acronyms, having instead, regal sounding names like Gluteus maximus and funny ones like Medulla oblongata). As one progresses through the clinical classes, one gets familiar with entities like PUO, AML, TAO, PPBS etc. By the time you finish those five and a half years, you are an expert ‘acronymist’.

Each specialty has its own array of them and they remain a mystery to the laity as well as colleagues in other specialties. And as soon as you manage to decipher one, they change it into something more obscure. The good old IHD of my student days is now a more politically correct CAD.

The first acronym I met as a senior house surgeon in Ophthalmology was ‘SPK’. Then a hyphenated A-R pupil to be followed by CSR, RP, RD, CRVO and a plethora of others. (By the way, one doesn’t come across SPK now a days. May be it has metamorphosed into a more exact EBPLUO [Extra Bowman’s punctuate lesions of unknown origin] or some such). I think among Ophthalmologists the Vitreo-retinal specialists use the maximum and maximally complicated acronyms. Who else can complicate diabetic retinopathy into BRDM, NPDR, PDR etc. with PD and PVD thrown in for good measure? But for me the one that takes the cake is APMPPE. Wow! It sounds like the initials of a political leader from Andhra Pradesh, doesn’t it?

Not that others are far behind. Even humble General Ophthalmologists do use things like ICCE and ECCE, not to mention SICS. Recently someone mentioned TICS (T for tiny). But I take my hat off to my friend who routinely performs what he calls “LICEX”. He coined that term from Limited Incision Cataract Extraction. How can one call a three or three and a half millimeter incision as small or even tiny when people are trying out sub-one millimeter incisions, he asks. LICEX has the added advantage that it sounds suspiciously like LASER.

It seems he operated on the wife of a colleague and the husband, being a medical man asked him if he used laser for cataract extraction. He coolly replied. “No! No! I use the NMNR Technology.” Of course, the word ‘technology’ satisfied the doctor husband; but what he didn’t know that NMNR stood for non-mechanical nucleus removal, meaning he did a bi-/tri-section of the nucleus to get it out through a three millimeter section.

That convinced me that acronym was the most useful thing to come out since they invented the wheel.

So friends, S.Y.A.I.N.I.I.H. (See You All In the Next Issue, I Hope)