

Editorial: Congenital nystagmus

In any disorder of ocular motility the ultimate aim in the persistent searching for knowledge about its fundamental nature is to try to secure some form of effective treatment. This has been achieved to a remarkable extent in many types of squint because of an increasing understanding of the underlying sensory and motor disorders, but it is evident that similar progress has not been made in the management of nystagmus. To a large extent this is because nystagmus is usually an expression of some visual, neurological, or vestibular disorder, so that treatment must be directed to the cause of the nystagmus rather than to the disorder of ocular motility. But this does not apply in congenital nystagmus of the so-called idiopathic type, when various direct methods of treatment are available.

Of course the prefix 'idiopathic' is unsatisfactory because it implies an ignorance of the mode of origin of congenital nystagmus, but it is reasonable to regard the causative lesion as lying in the complex nervous mechanisms in the brain stem which are concerned in the centring and in the so-called 'steady fixation' of the eyes. In this way the nystagmus may be regarded as an exaggeration of the fine persistent movements of the eyes (micro-saccades, slow motion random drifts, and rapid impulsive saccades which correct the random drifts) which are essential in the maintenance of a clear foveal perception of the retinal image.

Interest in the surgical treatment of nystagmus was generated by Anderson¹ and Kestenbaum,² and, although there are distinct differences in the 2 methods, the basic aim is to transfer the 'neutral point' (where the nystagmus is least evident) from an eccentric position to a straight-ahead position so that there is an elimination (or more usually a reduction) in the compensatory head posture. The surgical method consists essentially in moving both eyes so that they become 'straight' relative to the compensatory head posture.

Prismotherapy may be applied to achieve a similar effect, so that the eyes are maintained in the eccentric position (the 'neutral point') and yet regard the fixation object without any compensatory head posture. An entirely different form of prismotherapy may be attempted with a maintenance of the eyes in a position of marked convergence

(using base-out prisms) and yet fixing on a distant target, so that use is made of the so-called convergence block of the nystagmus.

The Fadenoperation put forward by Cüppers³ represents a different approach to the problem and is based on the concept that the necessary muscle force for any given ocular movement steadily increases after leaving the arc of contact of the globe. The operation consists in creating a second insertion of certain extrinsic ocular muscles (usually both medial recti) at least 10 mm behind the physiological insertion.

Various drugs have been tried (barbiturates, sodium diphenylhydantoin, coltramyl, etc.), but these act simply by depressing nervous activity in general so that there is no specific effect on the nystagmus. Recently interest has been revived in the injection of botulism toxin into certain extrinsic ocular muscles to induce a temporary paresis in squint treatment,⁴ and perhaps it may prove to have some part to play in the management of congenital nystagmus.

An attempt has been made by a subjective method to achieve a stability of the nystagmus by the application of pleoptic methods.⁵ The patient attempts to superimpose the real image of an object (which is moving) and the after-image which is created in the central part of the retina (which is stationary), but this theoretical concept has not proved to be of practical value. It is interesting that a new subjective method has been put forward (page 2) in which the movements of the nystagmus are converted to audible stimuli so that they can be heard by the patient, and with this feedback signal an attempt is made to control the nystagmus by maintaining a constant tone. This represents a fascinating concept, but its efficacy particularly in children is not established yet.

References

- ¹Anderson JR. *Br J Ophthalmol* 1953; 37: 267.
- ²Kestenbaum A. Proceedings of XVII Congress of Ophthalmology. *Acta Ophthalmol (Kbh)* 1955; 2: 1071.
- ³Cüppers C. *Second Congress of International Strabismological Association*. Paris-Marseille: Diffusion Générale de Librairie, 1974: 395.
- ⁴Scott A. *Fourth International Orthoptic Congress*, in press.
- ⁵Cüppers C, Sevrin G. *Bull Mem Soc Fr Ophthalmol* 1956; 69: 359.