

THE VALUE OF TESTING BINOCULAR VISUAL ACUITY IN INTERMITTENT EXOTROPIA

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Exotropia, constant or intermittent, is a frequent occurrence in Australia, and seems more common in the northern areas. Fusional control of such deviations may produce symptoms which cannot always be relieved by conventional orthoptics. It is important to investigate the role of accommodation in this respect. If excessive accommodation is involved in controlling the deviation, the symptoms become dramatic; there may be a risk of ciliary spasm developing, and orthoptic treatment becomes more difficult.

In my experience this accommodation feature is not a common problem with exotropic deviations. It should be treated as a separate entity if it occurs. Assessment of binocular vision acuity at 6 metres is therefore essential prior to any treatment. The following case study illustrates the problem.

Mr. P., aged 29 years, presented with self-diagnosed "tension headaches", and concern about the cosmesis of a large intermittent divergent squint. He was anxious to undergo surgery as soon as possible.

Refraction : R -0.50 , L $+0.50$. Nil ordered
 $+0.50 \times 180^\circ$
 Visual acuity : R 6/6, L 6/6 Both eyes fixing 6/60
 Cover tests : I.D.S. 40 Δ . No diplopia, but heteronymous diplopia under stimulation.
 Convergence : held to 8 cm with much effort.

There was a small fusional range from the angle of deviation. The patient was advised to practice full versions in 8 positions of gaze, and to stimulate convergence on a detailed target, pre-operatively.

Surgery (1): bilateral lateral rectus recession 7 mm. Post-operative findings:

Cover test at 6 metres : I.D.S. 22 Δ This later regressed, to 40 Δ
 Binocular visual acuity unchanged
 AC/A ratio : attempted measurement unsuccessful

As observed during casual discussion, the intermittent exotropia persisted, and the intermittent recovery of binocular fixation seemed a habitual, mechanical action, unrelated to any visual stimulus such as diplopia or clear vision. The patient had no awareness of these motor adjustments.

In preparation for further surgery, orthoptics seemed necessary to eliminate deep central suppression and to re-establish a stable state of binocular single vision with a normal accommodation and convergence relationship.

To treat the patient conventionally by stimulating recognition of diplopia might well increase the excess accommodation "spasm". To use concave lenses as described by Merrick offered too great a risk of creating a true ciliary spasm. It was decided therefore to neutralise the deviation, or a part thereof, with Fresnel prisms, and gradually to reduce the strength, while maintaining single binocular vision with acuity of 6/6.

The minimum prism strength which clinically achieved this end was 10 Δ base in, divided between the lenses which were now ordered for the small refractive error. The patient was seen at 3-weekly intervals, and on each occasion it was found that he could accept a 2 Δ reduction of prism without losing 6/6 bifoveal acuity. At the 5th visit the patient, who had now worn a 4 Δ prism for three weeks, could control the deviation and maintain bifoveal visual acuity of 6/6, but only with great effort. Convergence and accommodation were just within normal limits. The patient asked for more surgery.

Surgery (2): Resection left medial rectus 5 mm. Bilateral free tenotomy of inferior oblique muscles. (Insertions of both lateral recti were investigated, and found to be at equator).

Postoperative findings:

Cover test : 8 Δ exophoria/tropia
 Binocular visual acuity : 6/6. The patient complained that this was blurred vision, and preferred to let eye deviate. Full binocular function at zero angle, with a small fusion amplitude.

He was instructed to wear glasses constantly (without prisms) and to carry out vigorous exercises as before. One week later, there was a marked improvement in clinical control of the latent deviation, and associated accommodation difficulty. The patient reported comfortable, clear vision at all distances. All measurements remained unchanged. This single case study is presented as an example of a rare but considerable problem. With prism therapy the patient learnt to dissociate the accommodation-convergence pattern, thereby producing a more stable condition for surgical correction.

Investigation of binocular visual acuity is a valuable test and should be routinely carried out at the initial examination of all patients with intermittent divergent squint.

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REFERENCES

MERRICK, F. (1974), *Aust. Orthopt. J.*, 13, 17.