Diplopia after retinal detachment surgery

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Accepted 30 August 1988

Key words: binocular single vision, diplopia, retinal detachment surgery

Abstract. In the Amsterdam Academic Medical Centre with an annual rate of 200 retinal detachment procedures, about the same incidence (4.5%) of diplopia after detachment surgery was found as by Fison and Chignell (1987). In 13 out of 18 patients with diplopia (sent for orthoptic evaluation between 01.01.1986 and 31.12.1987) double vision could be eliminated by various ways; orthophorization with or without temporary prismatic therapy was seen in 3 patients; a compensatory head posture eliminated diplopia in two cases, and prisms were effective in 4 cases (one of them had additional squint surgery). In 4 patients strabismus surgery alone restored binocular single vision. Binocular single vision was not restored in 5 cases.

Introduction

The incidence of diplopia following retinal detachment surgery varies in the literature from 3% to 30%. Fison and Chignell (1987) found that 15 out of 311 patients (4.8%) developed diplopia lasting more than three months after retinal detachment surgery. Binocular single vision was restored in 12 of the 15 cases (80%) by prisms, removal of the scleral buckle or strabismus surgery. In another study [3], 30 patients with untreated rhegmatogenous retinal detachment underwent ocular muscle examinations before scleral buckle procedures three weeks, six weeks, three months and six months after surgery. The authors found a high incidence of heterotropia shortly after surgery, in all but three cases with persisting diplopia. The deviations resolved during the first postoperative months, presumably by the mechanism of phoria adaptation or orthophorization, the same mechanism that Crone [1] held responsible for the restoration of disruptions of oculomotor disturbances, as in the Kestenbaum procedure.

Several factors which may influence the occurrence of diplopia after retinal detachment surgery have been suggested. They include operative
trauma, repeated retinal surgery and the size, location and type of scleral buckle used.

Diplopia can be eliminated by various measures, depending on the ocular motor and sensory situation. The second image can be suppressed, or when diplopia is restricted to a certain field of gaze a compensatory head posture (C.H.P.) can be helpful. (Temporary) prisms can eliminate small concomitant deviations. Sometimes, especially with large of incomitant deviations, surgical procedures are effective: removal of the scleral buckle, or strabismus surgery on the treated or untreated eye. If all measures are unsuccessful, a frosted glass can be prescribed.

Material and methods

In the Amsterdam Academic Medical Centre about two hundred retinal detachment procedures are performed each year. We retrospectively studied 18 patients sent to the orthoptic department between January 1st, 1986 and December 31st, 1987 because of diplopia after retinal detachment surgery. The orthoptic examination included measurement of visual acuity and the range of ocular movements; motility disturbances were recorded by serial Maddox schemes. Binocular functions were assessed with Bagolini striated glasses, the Titmus stereo test, the synoptophore, and the deviation were measured for distant and near vision with the prism cover test.

Results

Table 1 gives details of the episcleral buckling in our 18 cases with diplopia after retinal detachment surgery. An encircling band alone never resulted in diplopia; six cases were treated by encirclement with sponges, another six cases by encirclement with gutter. Radial buckles were used in four cases and a circumferential buckle in one case. One scleral resection was performed. Eleven of our 18 patients had a scleral buckle directly related to one or more rectus muscle(s). We distinguished two groups of patients:

- In group I (10 cases) we tried to control diplopia without strabismus surgery. The clinical data of these patients are given in Table 2.
- In group II (8 cases) strabismus surgery was performed to overcome diplopia. Clinical details of these patients are summarised in Table 3.