

Surgical treatment of retinal detachment from macular hole

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Abstract. Six cases of retinal detachment from the macular hole were treated by a procedure including closed vitrectomy, air-fluid exchange, and prone positioning of the patient. All of these detachments were of the idiopathic type. Five patients had myopia ranging from -13 to -20 diopters; one was emmetropic. The initial success rate can be considered 100%: in all six cases the retina remained attached during follow-up periods ranging from 4–10 months at least. One later recurrence was not caused by the macular hole. This new technique, which allows permanent releasing of vitreous traction and temporary closure of the hole, shows that idiopathic retinal detachment is caused by vitreous traction.

Introduction

From December 1982 to November 1983, six cases of retinal detachment with macular hole were treated by a new technique described by Gonvers and Machemer (1982). The procedure requires closed vitrectomy, air-fluid exchange, and prone positioning of the patient.

Material and methods

The cases are summarized in Table 1. The first two cases were a recurrence of retinal detachment by macular hole, which were treated by classic techniques, including retinopexy and macular extrascleral buckling without vitrectomy (Kloti 1970; Margherio and Schepens 1972). The first case had failed as a result of sliding of the indentation on the temporal side of the tear, reopening it, and the second because of intraocular hemorrhage, which appeared the day after surgery.

The other cases were primary retinal detachments. In three, the macular hole appeared to be the only cause of

Table 1. Summary of cases

Patients	1	2	3	4	5	6
Sex	M	F	F	M	F	F
Age	60	64	60	48	67	68
Refractive error	-10	-1.2	-16.50	-20	No	-13
Retinal detachment	Bul-lous	Bul-lous	Bul-lous	Folds	Bul-lous	Bul-lous
Tear	No	No	No	No	2	No
Immediate follow-up	+	+	+	+	+	+
Long-term follow-up	+	-	+	+	+	+

retinal detachment in myopic patients, but in one case there were also two peripheral horseshoe tears.

In all six cases, a pars plana vitrectomy was carried out by means of a suction-cutter ocutome and separate infusion. Ophthalmoscopic control was performed by indirect ophthalmoscopy, which provides good illumination and avoids lensectomy in all cases. During surgery, the diagnosis of macular hole could be confirmed in four cases by aspiration of subretinal fluid through the hole with the nibbler. In two cases (1 and 3), the retina did not move at all.

At the end of the vitrectomy, the suction-cutter was placed in front of the optic disc, and air was injected through the infusion tube to perform an air-fluid exchange with good intraocular pressure. Prone position was required only for 8–12 h, allowing a normal position at night if the procedure is performed in the morning.

Results

The results were successful immediately in all six cases. There was one recurrence of the detachment (case 2) 4 months later because of a nasal horseshoe tear, probably in relation to the intraocular hemorrhage. Thus, in five cases, the retina remained flat during a follow-up period of at least 10 months, without the necessity for laser treatment or other forms of chorioretinal treatment to the macula after it had been reattached.

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Discussion

When other classic techniques have been used, the results of surgical treatment of retina detachment by retinal hole have been quite variable. Our impression is that this procedure is the least traumatic and most successful, with the maximum of visual possibilities. It allows immediate reattachment of the retina in each case and can avoid the difficult problem of a questionable macular hole associated with peripheral tears like in case 5. This case could possibly have been managed with a conventional scleral buckling procedure to close the peripheral holes. However, the biomicroscopic examination seemed to prove sufficiently that the retina was really open. This technique was chosen in one operation after consideration of the risks involved in a vitrectomy and the chances of success in a reoperation under a second general anesthesia.

From the pathogenesis point of view, we think that the vitrectomy releases vitreous traction and that the air bubble is necessary to assure permanent closure of the retinal hole during the period of subretinal fluid absorption. These two points restore the anatomic condition that allows efficient physiologic suction power of the pigmentary epithelium and choroid. Spontaneous absorption of the subretinal fluid is then obtained more by artificial sealing of the nervous cell

layer than by tamponade. The minimal bubble size necessary is the size of the hole for 8–12 h, so expandable gases or silicone oil is not necessary (Haut et al. 1980).

Although this study was carried out on a limited number of cases, the cases were successive and confirm that this new macular surgery technique can be considered non traumatic and recommended as a first procedure.

References

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