

# Clinical characteristics and operative therapy of binocular juvenile retinal detachment

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**Abstract** **Aim** To find out the clinical features and surgical outcome of binocular juvenile retinal detachment. **Methods** A retrospective study was made of 9 patients with binocular juvenile retinal detachment treated in our hospital from 1998 to 2002 in terms of age, gender, type and location of retinal breaks as well as surgical outcomes. **Results** The success rate of scleral buckling and encircling was 94.1% (16/17) after one operation. Prognosis of vision was not satisfactory despite retinal reattachment. **Conclusion** Binocular retinal detachment is a vision-threatening disease. Its optimal surgical treatment is scleral buckling and encircling.

**Keywords** binocular; juvenile retinal detachment; surgery

Retinal detachment (RD) in childhood and adolescence is rare<sup>[1-3]</sup>, compared with RD in adult population RD in this age group is often characterized by typical clinical features such as delay in diagnosis, association with various complicating entities, and the physiology of the developing visual system in childhood. Some patients present with bilateral RD and relatively few studies exist on characteristics and results of surgical treatment of RD in these patients till now. It is possible that binocular RD has special entities different from single eye juvenile RD. The aim of this study is to find out clinical characteristics and surgical outcome of binocular juvenile RD.

## PATIENTS AND METHODS

We reviewed records from the Ophthalmology Department of the First People's Hospital of Shanghai from January 1, 1998 to January 1, 2002. Data gathered included age at presentation, gender, the affected eye, duration of presenting symptom(s), medical and ocular history, presenting visual acuity, refractive status, initial vitreous body status, type of detachment, macular status, presence of proliferative vitreoretinopathy(PVR), and postoperative retinal attachment status.

This study comprised 9 patients 15 years old or younger, who were operated on for RD in both eyes at

our department between 1998 and 2002. They accounted for 10.23% of the total cases of juvenile RD during the same period. Eight patients were male and one was female. The average age at the time of operation was 13.3 years (ranging from 11 to 15 years). There was no trauma history in all eyes but one (had a blunt trauma history 1 year before). The information on the duration of symptoms of RD was obtained for 14 eyes. Symptoms had been noticed for an average of 2.6 months (ranging from 6 days to 1 year). In 4 patients RD of the other eye was found at regular examination after hospitalization.

In our population, 7 of 9 patients were myopic. Minor myopia (up to 3 diopters) was found in both eyes of 3 patients, and high myopia (over 7 diopters) in both eyes of 4 patients.

Pre- and postoperative retinal examinations were performed by binocular indirect ophthalmoscopy and Goldmann three-mirror lens. During the operations, a further examination of the peripheral retina with scleral depression was conducted.

Retinal break was round holes binocularly in 6 patients, round hole in one eye and horseshoe-shaped in the other in 1 patient, round hole in one eye, and giant retinal tear in the other in 1 patient, and ora dialysis

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binocularly in 1 patient. Thirteen retinal breaks were located in the lower temporal quadrant, three in upper temporal quadrant, one in lower nasal quadrant. The retinal breaks of six patients were symmetric. Lattice degeneration existed in peripheral retina of all patients. In all eyes but one, there was no posterior vitreous detachment. There was no global RD. PVR A degree were observed in 4 eyes, B in 8 eyes, C<sub>1</sub> in 5 eyes, C<sub>2</sub> in 1 eye.

## RESULTS

The initial surgical procedure performed was scleral buckling and encircling in 17 eyes. Anatomic reattachment was achieved in 16 eyes (94.1%) with one surgical procedure. Because of choroid detachment the retina failed to reattach in one eye, which at last, underwent pars plana vitrectomy. Another eye underwent pars plana vitrectomy for giant retinal tear. Silicon oil was used during pars plana vitrectomy. The number of patients with the best corrected binocular vision lower than 0.3 was 6, either preoperatively or postoperatively.

## DISCUSSION

Juvenile retinal detachment is a special type of RD. However there are no unified criteria for it. As known, the characteristics of patients between 16 and 19 are similar to those of adult population<sup>[4]</sup>, and so, we choose patients 15 years old or younger to study.

Binocular RD accounts for about 10% of the total incidence of RD. The proportion of our patient to all juvenile RD at the same period is similar to it. Binocular juvenile RD is a disease that affects visual function severely and are difficult to be recognized early. Ocular trauma is thought to be the most common cause for juvenile RD<sup>[4]</sup>. In our population, although only one patient had trauma history, the fact that 8 of the 9 patients were boys suggest that trauma could not be excluded.

Round retinal hole is the most common type of retinal tear and is always accompanied with lattice degeneration in peripheral retina. Almost all round holes were located in lower temporal quadrant and had a tendency of symmetry. It may be a result of weakness in lower temporal quadrant retina caused by imbalanced expansion

of the nasal and temporal part of eyeball. In 4 patients, RD was recognized in the other eye at regular checkup after hospitalization and good results were achieved in these patients. This emphasizes the importance of regular checkup of contralateral eye.

The anatomic success rate of juvenile RD is about 72~88%<sup>[1,4-6]</sup> in reported articles, which is relatively low. The surgical outcomes among our patients after scleral buckling and encircling were similar to those in other reports<sup>[7]</sup>. For juvenile RD, the choice of surgery should be weighed over and over. Posterior vitreous detachment is rare in juvenile RD and the traction of vitreous body to retina will exist for a long time. Scleral buckling and encircling can not only close tears, but also relieve the traction of vitreous body and then reduce recurrence of RD. Of course, scleral buckling and encircling can affect blood flow of eyeball and result in ischemia of the anterior part of eye. The development of eyeball in childhood, especially when very young, has not finished and eyeball can still expand to some extent. Therefore the encircling band should not be too tight and the buckling should not be too long.

The anatomic success rate of vitrectomy in juvenile RD is very low and proliferative vitreoretinopathy is a severe postoperative complication. However better results can still be achieved with scleral buckling and encircling in severe PVR cases. Therefore scleral buckling and encircling should be the first choice in treatment of juvenile RD.

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### 少年双眼视网膜脱离的临床特点及手术治疗

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**摘要 目的** 少年双眼视网膜脱离是视网膜脱离的特殊类型, 对视功能及生存质量的影响十分严重。本文对少年双眼视网膜脱离患者的临床特点和手术效果进行观察及评价。**方法** 本院分析了1998/2002收治的9例少年双眼视网膜脱离患儿的(年龄 $\leq$ 15岁)发病年龄、性别、裂孔类

型、位置、形态和手术方法及效果等。**结果** 巩膜环扎加压术一次手术视网膜复位率为94.1%(16/17)。少年双眼视网膜脱离对视功能影响严重。**结论** 少年双眼视网膜脱离是一类严重危害视功能的疾病。视网膜裂孔以圆孔为主伴有周边视网膜格子样变性, 多位于颞下象限, 并且有一定的对称性。巩膜环扎加压手术为首选手术方式, 成功率较高。

**关键词** 双眼; 少年视网膜脱离; 手术

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