

Clinical study of vitrectomy of retinal detachment with cytomegalovirus retinitisTao Dai¹, Yuling Liu², Chuanwen Gao¹, Qian Wang¹, Yu Zhao¹, Bo Wang¹¹Department of Ophthalmology, Zhengzhou Second Hospital, Zhengzhou, Henan 450006, China²Department of Ophthalmology, Beijing University, Beijing 100191, China

ABSTRACT: To investigate the safety and clinical effect of surgical treatment of vitrectomy of retinal detachment with cytomegalovirus retinitis. Observing from clinical data of 30 cases with acquired immunodeficiency syndrome (AIDS) and cytomegalovirus (CMV) retinitis, all patients underwent vitrectomy with silicone oil tamponade for repairing of retinal detachment. Six eyes were treated in the way that lens extraction with intraocular lens (IOL) implantation during repair of retinal. Best-corrected preoperative vision of 24 eyes was less than 0.05 or worse. Another 6 eyes was more than 0.05 or better. All cases got better postoperative vision. After operation, the uncorrected vision of 1 eye was counting fingers, 1 eye ranged from 0.02 to 0.05, 9 eyes ranged from 0.05 to 0.1, 9 eyes ranged from 0.1 to 0.2, 3 eyes was more than 0.2. No severe complications as cornea edema were found. Silicone Oil emulsification, expulsive suprachoroidal hemorrhage were not found either. The technic of vitrectomy with silicone oil tamponade can be safely and effectively used to treat retinal detachment with cytomegalovirus retinitis.

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Key words: cytomegalovirus retinitis, retinal detachment, vitrectomy

1. Introduction

Acquired Immune Deficiency Syndrome (AIDS) is caused by human immunodeficiency virus (HIV) which is a high effect of destruction of part of T lymphocytes. AIDS is a significantly fatal impaired of cell-mediated immune multi-system disease [1]. Ocular complications are accounted for 40 to 70% and usually manifested involving retinal cotton wool spots, cytomegalovirus retinitis, retinal hemorrhage, retinal detachment, eye Kaposi sarcoma [2-3]. Cytomegalovirus retinitis lesions involving the pole, broader, pigmented lesions subsided after formation of scar can lead to retinal detachment and severe visual impairment [4]. Currently, the vitrectomy with silicone oil injection technique are used to treat retinal detachment disease [5]. However, the patients with retinal detachment caused by AIDS may be accompanied by retinal vasculitis, anti-cytomegalovirus retinitis, acute retinal necrosis complications and thus involves high risk of vitrectomy choroidal hemorrhage and choroidal detachment. This retrospective analysis started from February 2000 to August 2013 in our hospital for AIDS patients with retinal detachment using vitrectomy with silicone oil injection technique. Good results were obtained.

2. Methods and Materials

The clinical data were collected from the February 2005 to August 2013. Total of 30 patients of amotio retinae were involved that 21 were males and 9 were

female. All the participated patients were AIDS patients. 18 patients were multiple blood donors and 9 patents had the history of illicit drugs. 3 patents had the history be maternal with infants. Most of them were with the symptoms of long-term low grade fever, weight loss, night sweats, cough, skin rashes, chronic diarrhea and others. The Blood tests have shown that all positive for HIV - Ab, CD4 cells < 350. Vision checks are characterized by retinal detachment accompanied by vitreous turbidity, retinal hemorrhage, seepage spot, white sheath surrounding retinal vein changed. Eye B ultrasonic examination were also performed for understanding of vitreous and retina, corneal endothelial known as corneal endothelial cell number count, eye electrophysiological examination function of the retina and optic nerve. In the related units to antiviral treatment and immunity reconstruction, it was excluded outside of retinal detachment surgery contraindications. Patients were divided into three groups according to preoperative best corrected visual acuity level. Group I ~ index for manual/eyes / 1 m, group II was limited in 0.02 ~ 0.04 and group III was 0.05 ~ 0.1. Operation are completed with (1) preoperative compound eye drops sufficiently mydriatic tropic card amine (2) surface anesthesia conventional washing and disinfection of conjunctiva sac shop towels (3) nerve block anesthesia (4) operating microscope with ALCON800CS vitrectomy and the corresponding auxiliary equipment, flat type of standard closure of three-channel vitrectomy. At the edge of the cornea after 3.5 ~ 4 mm,

above 10 points and 2 points and below 8 o'clock (right eye) or 4 (left eye) bearing for three sclera puncture, respectively placed phaco head, guide fiber peacocking perfusion, vitreous and hyperplasia tissue removed completely, Sclera trapped under external pressure with inclined mirror and whole retina remove base and hyperplasia of the front of the mirror film, laser photocoagulation in the eyes, finally gas-liquid exchange and silicone oil filling were performed. The scleral condensation and scleral buckling surgery was the must. The lens sheet cloudy for 2 eyes and artificial lens implantation united lens resection at the same time were also performed.

Postoperative patient must prone position for 3 months, according to the body's immune reconstruction is determined to take oil time. Routine dressing change every day, the whole body to lamivudine, nai vera equality, such as nucleoside like non-nucleoside drugs antiviral treatment, symptomatic given antibiotics and dexamethasone (5 ~ 10 mg) 5 ~ 7 days, local antibiotics eye water points, fully specialized for a month, daily visual acuity, intraocular pressure, cornea, anterior chamber, pupil, and fundus. Postoperative follow-up of 3 ~ 10 months had been

conducted. By using of SPSS11.0 statistical software package, the results have shown that of vision changes of differences between the three groups of chi-square test, with $P < 0.05$ as the difference was statistically significant.

3. Results

30 cases of postoperative visual acuity were checked and listed in table 1: where 0.2 or more has 6 cases, 9 cases were found in 0.05 ~ 0.05 and 9 cases in 0.02 ~ 0.04 were found also. Index of 1 m was found with six cases. Preoperative visual acuity in 24 eyes blind range, accounting for 80% of the total eye surgery operation, postoperative visual acuity in 15 eyes blind range, accounting for 50% of the total eye surgery, surgery vision contrast observed before and after operation, postoperative for 18 eyes see, surgery increased at a rate of 60%, group I between groups II, III respectively, group II and the incidence of postoperative visual acuity between III unchanged and eyesight improve comparison, there were no statistically significant difference ($P > 0.05$, table 2).

Table 1 Comparisons of Vision Change after and before eye operation

	manual/front in eye	index/in 1m	0.02~0.04	0.05~0.1	0.2
before	3	12	9	6	0
after	0	6	9	9	6

Table 2 Comparisons of the curative effect

group	cases	significant		invalid		X^2	P
		cases	%	cases	%		
I	15	9	60	6	40	0.036	0.850
II	9	6	66.7	3	33.3	0.058	0.809
III	6	1	50	1	50	0.139	0.709

Examination

30 eyes in mild corneal edema, 18 eyes; Aqueous humor ShanHui 24 eyes (- ~ +), 6 eyes (+ +); Round pupil center 27 eyes, 3 eyes with secondary glaucoma elevated intraocular pressure, the pupil moderately loose big, before the peripheral iris adhesion to the pupil to temporal shift; 6 patients implanted intraocular lens surface is bright and clean; 24 good eye retina reset, 6 eyes retina reset is not ideal.

Postoperative complications include 6 eyes elevated iop after silicone oil injection, 3 eyes after drug therapy and in front of the puncture, 3 eyes for the development of secondary glaucoma. 6 concurrency cataract eyes may be caused by silicone oil because the patient was related to hospital for treatment without surgery. Not silicone oil emulsion, ciliary body, choroid detachment, choroid cavity hemorrhage and other serious complications (table 3).

Table 3 Postoperative complication

postoperative complication	cases	%
corneal edema	15	50
aqueous flare	12	40
uveitis	3	10
increasing intraocular tension	6	20
secondary glaucoma	3	10
complicated cataract	6	20

4. Discussion

AIDS patient is easier to get the infection but rare malignant tumor. In 95% of eye disease in patients with HIV/AIDS, 3/4 of them get the infections. CMV retinitis were the most common eye infection after operation accounting for 90% of the retinal opportunistic infections. When the CD4 count is less than 50 / (including 1, obviously increase the incidence of CMV retinitis, main show is clinically apparent papillitis and branch vasculitis, histology of retina and retinal pigment on cortex full-thickness necrosis, eventually lead to retinal detachment [6]. CMV retinitis, as one of the important complications of HIV/AIDS, the chance of retinal detachment to 16-25%. When survival with antiretroviral therapy (art) is increased with the increase of effectiveness, must be considered for such patients after retinal detachment surgery to repair, to improve its visual quality. CMV retinitis terminal, often appear during the course of the fundus of retinal vein circuitry, gray after expansion and the pole of the retinal necrosis, also can show the peripheral retinal point flake focal necrosis, late course retinitis is aggravating, secondary retinal detachment seriously affect vision. Patients with HIV/AIDS patients more insufficient understanding of the disease, the part in the process of immune reconstruction ignores the eye disease, not received treatment in the first place, delayed the treatment time and complications, seriously affect the visual function. Therefore, the choice of operation time is the key to the success of surgery and postoperative visual acuity. These patients should be under the guidance of specialized subject doctor, visual impairment on the relevant inspection shall be carried out in a timely manner to the eye, and follow-up of vitreous turbidity and retinal detachment surgery, immediately save eyesight effectively, avoid hyperplastic vitreous retinopathy and other serious complications.

Choose vitreous surgery can remove turbid refractive stroma in operation, with the help of intraocular needle under direct illumination and flute looking for presplitting, through intraocular photocoagulation closed presplitting and choroid defect edge, silicone oil filling to ensure the success of the retinal reposition. Retinal detachment surgery to remove the lens at the same time combined intraocular lens implantation is one of the ways to improve the postoperative visual function. The incidence of cataract after silicone oil injection was 64%, suffering from AIDS and CMV retinitis in patients with cataracts after silicone oil injection operation for an average of 192 days [7], Meldrum reported CMV retinitis silicone oil injection caused by cataract, after take out joint intraocular lens implantation for the lens, 77% vision increases [8].

Retinal detachment in silicone oil injection technique refractive medium transparent line out of the lens can guarantee at the same time, is advantageous for the continuous monitoring retinitis, timely find disease recurrence. In addition, can avoid again after silicone oil cause the concurrency of cataract surgery, reduce the risk of secondary surgery. Postoperative silicone oil is removed is determined by CMV retinitis, immune reconstruction is successful, can consider to take out the silicone oil, because once the immune reconstruction is not yet implemented, CMV retinitis can lead to a new stage, the intraocular silicone oil can happen net to take off again. Instead, the injected gas disappear within a few weeks postoperatively, some new hiatal can result in the retina from retina. Therefore, patients with injection of silicone oil were injected gas control of postoperative recurrence of retinal detachment with advantage [9]. 10 cases of postoperative elevated iop in 2 eyes, 1 eye relief after symptomatic treatment, 1 eye for the development of secondary glaucoma were programmed in this project. Not all patients with postoperative visual acuity increased, 1 patients decreased vision, then remove silicone oil improve visual acuity, best corrective visual acuity increased from 0.03 to 0.1, this may be due to silicone oil injection lead to elevated intraocular pressure capillary perfusion inadequacy of the eye, with high intraocular pressure relief, macular microvascular circulation caused by increased. Hyperplastic vitreous retinopathy is a common cause of recurrence of retinal detachment after silicone oil out, is also the main factors influencing the surgery [10], with the increase of PVR severity, operation difficulty is increased. Therefore, with severe vitreous retraction, huge hiatal or merger of arteries and veins of patients, intraoperative line should be thoroughly the membrane stripping, release the fixed folds, as far as possible to remove vitreous base proliferation tissue, remove all the retina traction, the stiffness of the retina, the line should be removed or cut. Silicone oil can restrain mechanical retinal membrane before contraction, inhibition of hemorrhage and fibrosis, inhibiting proliferation of PVR, don't be absorbed by filling in the eye, the fixation is reliable, helps in closed. But intraocular silicone oil may cause the lens opacity, and silicone oil removal is necessary. To sum up, for retinal detachment of AIDS patients adopt closed type three-channel vitrectomy combined silicone oil injection, operation safe and feasible, and can effectively increase the CMV retinitis in patients with vision, improve the quality of life. At the same time, the skilled operation skills can further reduce the occurrence of complications, is good eyesight patients with postoperative recovery and reliable protection.

5. References

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