고신대학교 의과대학 학술지 제24권 제1호 Kosin Medical Journal Vol. 24. No. 1, pp. 106~109, 2009

초음파 가이드를 통한 맥락막상강출혈의 치료

이기헌 · 유재호 · 김태원 · 이상준 · 김신동

고신대학교 의과대학 안과학교실

Management of Suprachoroidal Hemorrhage under the Guidance of Ultrasonography

Gi-Heon Lee · Jae-Ho Yoo · Tae-Won Kim · Sang-Joon Lee · Shin-Dong Kim

Department of Ophthalmology, College of Medicine, Kosin University, Pusan, Korea

— Abstract

Purpose: Intraoperative suprachoroidal hemorrhage is one of the most serious complications. We report a case of suprachoroidal hemorrhage during phacoemulsification surgery, was managed properly.

Methods : Suprachoroidal hemorrhage occurred during phacoemulsification in other hospital. The patient was referred to our department immediately after closing the surgical wound. On initial examination, iris and vitreous were prolapsed through surgical wound. Ciliary body was closely place to anterior chamber, and retina was not visible.

Results: Prolapased ocular tissue were reduced by emergency operation. We controlled the patient's intraocular pressure and inflammation. Ultrasonography was repeatedly performed to check the degree of liquefaction of suprachoroidal hemorrhage. After 9 days of suprachoroidal hemorrhage onset, vitrectomy and drainage through sclera was performed. Postoperative state was stable with successful removal of suprachoroidal hemorrhage. After 2 weeks of secondary operation, retinal detachment has occurred on nasal retinal area, so we performed scleral buckling and endolaser photocoagulation. After 6 months, retina was attached well and intraocular pressure was in normal range. **Conclusion**: In suprachoroidal hemorrhage, drainage of suprachoroidal hemorrhage after liquefaction of thrombi is effective. After successful drainage, postoperative complications may accompany such as retinal detachment or elevation of intraocular pressure.

Key words : Suprachoroidal hemorrhage, Phacoemulsification, Ultrasonography

Introduction

Suprachoroidal hemorrhage(SCH) can occur spontaneously or after trauma, under operation and is characterized by acute severe pain, shallow anterior chamber, dark-brown choroidal effusion, elevated intraocular pressure.¹⁻² Various intraocular operation involves such as cataract operation, vitrectomy, scleral buckling, keratoplasty and so on, and incidence are variable from 0.05% to 4%.¹⁻³

Although it's incidence is very low, SCH remains one of

교신저자 : Sang Joon Lee Add : Gospel Hospital, Kosin University 34 Amnam-dong, Seo-ku, Pusan 602-702, Korea. TEL: 82-051-990-6140, FAX : 82-051-990-3026 E-mail : hhiatus@hanmail.net

This case was presented in part at the Korean Ophthalmological Society, Autumn Meeting, Pusan Korea, Autumn 2007.

the most feared complication of cataract surgery, with potentially devastating consequences to vision. However it may be difficult to determine when to intervene surgically and how likely the drainage will be successful.

We authors experienced SCH during phacoemulsification and managed properly with the guidance of ultrasonography. In SCH, ultrasonography is useful to evaluate the liquefaction of thrombi and decide the time to operate.

Report of a case

62-year-old male patient was referred to our department immediately after closing surgical wound because SCH has

초음파 가이드를 통한 맥락막상강출혈의 치료

developed during phacoemulsification.

At initial examination, uncorrected visual acuity was light perception and intraocular pressure(IOP) was 30 mmHg on left eye. He has a ocular trauma history and takes medicine of systemic hypertension before 1 year. On slit lamp examination, iris and vitreous was prolapsed through surgical wound and ciliary body was close to anterior chamber with aphakic state, but invisible retina.(Fig. 1) The prolapsed ocular tissues was reduced immediately by emergency operation and patient's IOP and inflammation was controlled by hyperosmolar agent and carbornic anhydrase, topical steorid. Ultrasonography was repeatedly performed to detect degree of liquefaction of SCH. At 7 days postoperatively, there was a dense non-mobile hyperechoic shadow consisted with SCH and at 9 days postoperatively, we detected liquefied SCH.(Fig. 2)



Fig. 1 Slit lamp image reveals iris and orbital contents prolapsed through surgical wound.



Fig. 2. At 7 and 9 days after secondary operation, ultrasonograph reveals suprachoroidal hemorrhage.

On slit lamp examination, dark brown convex elevation representing SCH appeared to be moved posteriorly due to liquefaction, so we performed vitrectomy and drainage through sclerotomy at 9 days postoperatively.

10 days after of second operation, we could detect SCH disappeared. But nasal retinal detachment was detected. At



Fig. 3 Slit lamp image reveals repaired prolapsed orbital contents and deep anterior chamber and fundal image reveals well attached retina.

14 day after secondary operation, scleral buckling, vitrectomy, endolaser phatocoagulation, fluid gas exchange, intraocular tamponade was performed. After 1 month, nasal retinal detachment was well attached, after 3 months, the best corrected visual acuity was 0.125 and IOP was between 25 and 30 mmHg.(Fig. 3) On slit lamp examination, retina was well attached. Later, Ahmed valve was inserted because IOP gradually increased. At 6 months after follow-up, retina was well attached and IOP was in normal range.

Discussion

SCH is bleeding in the potential anatomic space between the choroid and sclera. It occurs acutely and is accompanied with severe ocular pain and elevation of IOP. It's mechanism is not clear but may involve traction on a posterior cilliary artery associated displacement of the lens-iris diaphragm, and retina, choroid.¹⁻²

Incidence are variable from 0.05% to 4% and known risk factors are high myopia, aphakia, pseudophakia, prior vitrectomy, bleeding disorder, systemic hypertension and so on.¹⁻³ In this case, systemic hypertension, and history of ocular trauma that was revealed as retinal and choroidal scar is risk factors of SCH. And old age was also risk factor of this case. So careful preoperative fundal examination and preparation may required.

Known intraocular surgery associated SCH are cataract surgery, vitrectomy, scleral buckling, keratoplasy, filtration surgery and so on. SCH associated with cataract surgery was first reported by de Wenzel in 1786 and Taylor reported that SCH occurs in 2 of every 1000 cataract

References

- Ling R., Kamalarajah S., Cole M. et al. Suprachoroidal haemorrhage complicating cataract surgery in the UK: a case control study of risk factor. BrJ ophthalmol. Apr;88(4):474-7, 2004
- Chack M, Williamson TH. Spontaneous suprachoroidal hemorrhage associated with high myopia and aspirin. Eye. May;17(4):525-7, 2003
- Risk factors for suprachoroidal hemorrhage after filtering surgery. The Fluorouracil Filtering Surgery Study Group. AmJ Ophthalmol. May 15;113(5):501-7, 1992
- Tayolr DM. Expulsive hemorrhage. AmJ Ophthalmol. 78:961-6, 1974
- 5) DeWenzel J. Traite de la Cataracte. Paris, P-J Duplain, 1786.
- Lakhanpal V. Experimental and clinical observations on massive suprachoroidal hemorrhage. TansAm Ophthalmol Soc. 91:545-652, 1993.
- Blair HL. Expulsive hemorrhage at cataract operation : report of a case and an additional recommendation for its management. AmJ Ophthalmol. 61:992-4, 1996.
- Lambrou FH Jr, Meredith Ta, Kaplan HJ. Secondary surgical management of expulsive choroidal hemorrhage. Arch Ophthalmol. 105:1195-8, 1987.
- Welch JC, Spaeth GL, Benson WE. Massive suprachoroidal hemorrhage: follow-up and outcome of 30 cases. Ophthalmology. 95:1202-6, 1988.
- Meier P, Wiedemann P. Massive suprachoroidal haemorrhage : secondary treatment and outcome. Graefe' s Arch Clin Exp Ophthalmology. 238(1):28-32, 2000.
- Obcuchwska I, Mariak Z, Ustymowicz A. The role of ultrasound examinations in diagnosis of massive suprachoridal hemorrhage occurring as a postoperative complication of intraocular surgery. Klin Oczna. 105(3-4):225-31, 2003.
- Lakhanpal V, Schocket SS, Elman MJ, et al. A new modified vitreoretinal surgical approach in the management of massive suprachoroidal hemorrhage. Opthalmology. 96:793-800, 1989.
- Spaeth GL, Baez KA. Long-term prognosis of eyes having had operative suprachoroidal expulsive hemorrhage. Ger J Ophthalmol. May;3(3):159-63, 1994.

extractions.⁴ There are some difference in incidence according to the surgical technique, for example phacoemulsification is lower than conventional extracataract surgery.⁵ In this case, SCH occurred during phacoemulsification.

Following sign occurs with SCH during cataract surgery. Tensing of the soft open globe, shallow anterior chamber, gaping of the cataract incision with prolapse of the iris, spontaneous dislocation of the lens into the anterior chamber or rupture of the posterior capsule, bulging of the choroid, loss of red reflex.⁶

Visual prognosis depends on rapidity of hemorrhage, presence of prolapsed of ocular tissues, rapid and proper management. But management of SCH is difficult, so long-term outcome is very poor.⁷

Initial management includes to lower the IOP with medical therapy and to control pain with cycloplegics, topical corticosteroids. Further management is decided according to the visual potential and other factors. Although the ideal time to intervene and drain SCH is controversial, drainage surgery is recommended 1-2 weeks after onset of hemorrhage.8-10 Scleral buckling may required if associated with rhegmatogenous retinal detachment or troublesome peripheral vitreoretinal traction. When attempted to intervene surgically right after onset of SCH, intraocular inflammation could disturb the view during surgery and the tamponade effect of raised IOP could be unsettled due to ooze through the sclerotomies and could cause rebleed. Also blood in the suprachoroidal space clot rapidly, so it may not drain through the emergency sclerotomies. Lakhanpal et al. reported that sclerotomies made during the acute event are detrimental to eyes in his study.⁶ And Ling et al. reported that with introperative drainage sclerostomy, 87.5% had full blown SCH by the next postoperative day and subsequently poor outcome.¹ In this case, repeat ultrasonography was helpful to detect the liquufaction of SCH, and drainage operation was performed successfully.

Ultrasound examination is a useful tool to diagnose and differentiate SCH from other etiologies and to check up the liquefaction of thrombus. Also we can determine the extent and location of SCH by B-scan ultrasonography. And it may useful to determine the time to drain SCH after liquefaction of thrombi.¹¹ Liquefaction of blood in the suprachoroidal space can be seen by B-scan ultrasonography and it usually occurs between 7 and 14 day. Thus the ideal time for vitreoretinal intervention can be assessed by ultrasonography, and it is 7 to 14 days after onset of SCH.¹² If operator can't exclude the chance of retinal detachment, tamponade with vitrectomy and drainage may be appropriate.

But after successful drainage, retinal detachment and IOP elevation may occur. Spaeth et al. repoted that secondary glaucoma develops in almost SCH patient in his SCH long-term follow study and some patients experience postoperative retinal detachment and macular degeneration that are contributors of poor visual outcome. So long-term follow is essential and proper management for secondary complication is demanded.¹³

국문초록

목적 : 술중 발생하는 맥락막상 출혈은 매우 심각한 합병 증이다. 저자는 수정체 유화술 중에 발생한 맥락막상 출 혈을 적절히 대처한 증례를 보고하는 바이다.

대상과 방법 : 수정체 유화술 중 발생한 맥락막상강 출혈 환자가 수술창을 봉합 후 즉시 본원으로 전원되었다. 초 진시 홍채와 유리체가 수술창을 통해 탈출되어 있었으 며, 전방을 통해 모양체가 확인되었으나, 망막은 보이지 않았다. 탈출된 안구내 조직을 응급수술을 통해 복원 후 환자의 안압과 염증을 조절하였다. 초음파를 반복적으로 실시하여 맥락막상 출혈의 액화 정도를 확인하였으며, 출혈 9일 후 유리체 절제술과 공막을 통한 배액술을 시 행하였다.

결과 : 맥락막상 출혈이 성공적으로 제거되었으며 술 후 상태는 안정적이었다. 수술 2주 후 비측 망막 박리가 발 생하여 공막돌륭술과 안구내 삽관 레이**저**술을 시행하였 다. 6개월 후 망막은 잘 붙어있었으며, 안압은 정상 범위 를 유지하였다.

결론: 맥락막상 출혈의 경우 출혈의 배액 시기를 결정하 는 것이 어렵지만, 규칙적인 초음파를 통해 배액술의 시 기를 결정할 수 있다. 또한 맥락막상강 출혈의 성공적인 배액 이후에도 망막박리 및 안압상승과 같은 합병증의 동반에 대해 유념해야한다.