Simultaneous pterygium excision with Mitomycin C and Phacoemulsification.

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ผู้ป่วยที่มีต้อเนื้อร่วมกับต้อกระจก เป็นปัญหาที่พบบ่อยในประเทศไทย การพิจารณาวางแผนการรักษาโดยการลอกต้อเนื้อพร้อมกับการลอกต้อกระจก เป็นวิธีที่เหมาะสม ได้ประโยชน์และมีปัญหาแทรกซ้อนที่คุ้มค่าต่อการรักษาหรือไม่

Abstract

Pterygium is a common ocular surface disorder of the subconjunctival tissues characterised by fibrovascular growth encroaching upon the cornea. Pterygium creates many problems for the patient including symptoms of irritation, foreign body sensation and lacrimation, cosmetic disfigurement, and functional problems such as reduced visual acuity.

In Had Yai hospital, both pterygium and cataract simultaneously occur with high incidence. In this study, 40 patients with both pterygium and cataract were treated with combined phacoemulsification (PE) with pterygium excision procedure. After pterygium was excised, intraoperative Mitomycin C (MMC) was applied at subconjunctival space posterior to pterygium site. Phacoemulsification (PE) and intraocular lens (IOL) insertion was done. Post operative topical steroid and antibiotic were given to the patients for a duration of 1 month. They were followed up for a duration of 6 months postoperatively. There were 4 of 40 patients had a recurrence of pterygium. There were 27 patients (67.5%) with visual acuity of 20/40 or better. The combined procedure had only mild and transient complication which was a corneal dellen at the pterygium head. This condition has been improved after frequent eye lubricant.

Introduction

Pterygium is a wing shaped layer of vascularized fibroelastic tissue that arises from the limbic conjunctiva and extends over the cornea and replaces Bowman's membrane and corneal epithelium(1). Loss of vision may occur if it extends across the visual axis. Pterygium is a common disease in tropical countries(2). Cataract is also common in developing countries such as in Thailand. In this study, we performed a combined procedure consisting of pterygium excision and cataract extraction. Intra-operative Mitomycin C has been used, in order to reduce the recurrence of pterygium. Visual recovery has been evalutated after this combined procedure.

Method

Forty patients had age range from 45 to 78 years. There were 21 male and 19 female. They all had both pterygium and senile cataract (n = 40 eyes) and were able to attend a 6 months follow-up regularly. Those with recurrent pterygium, pterygium in both eye, traumatic cataract, complicated cataract and cataract with posterior segment disorders were not included in this study. Demographic data of these patients is shown in Table 1.

Table 1. Age and sex distribution of 40 patients with pterygium and cataract.

Age in years	41-50	51-60	61-70	>70	total
Males	7	9	3	2	21
Females	5	7	4	3	19
Total	**12**	**16**	**7**	**5**	**40**

Twenty-eight of 40 patients (70%) were in the age group of 40 - 60 years. Sex distribution showed that 21/40 cases (52.5%) were males.

All the patients were operated after these tests were normal; normal blood pressure, fasting blood sugar, intraocular tension and patent nasolacrimal sac.

Operations were done under topical anaesthesia with Xylocaine Jelly. Initially, pterygium excision was done by performing a superficial keratectomy and creating an area of bare sclera without cauterization (Figure 1, 2). Intraoperative Mitomycin C 0.4 mg/ml was applied for 1 minute with sponge soaked with Mitomycin C at subconjunctival space posterior to the pterygium excision site (Figure 3). After the sponge was removed, an irrigation with Balance Salt Solution 20 cc had been performed. The cataract extraction was done at temporal clear cornea with phacoemulsification and IOL insertion. Wound closure was done as indication dictated with 10-0 nylon sutures. Pterygium excision site has not been sutured. Wound leakage was checked and sodium hyaluronate sterile solution 10 mg per ml was apply as an eye ointment on the pterygium excision site (Figure 4, 5). Pressure patch had not been placed . In the evening of surgical day start postoperative medications were started in the evening of the day.

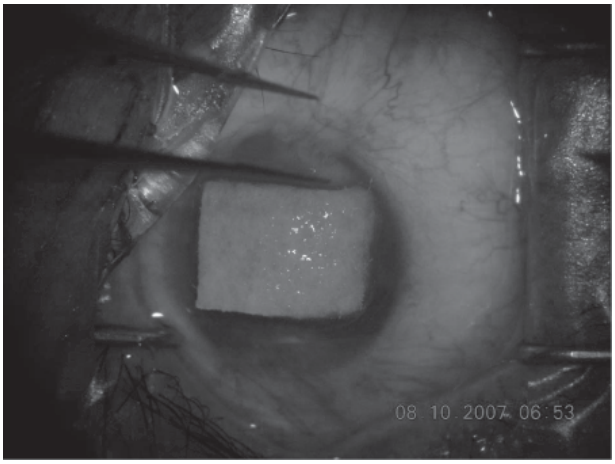

Figure 1. Two heads of pterygium right eye before surgery

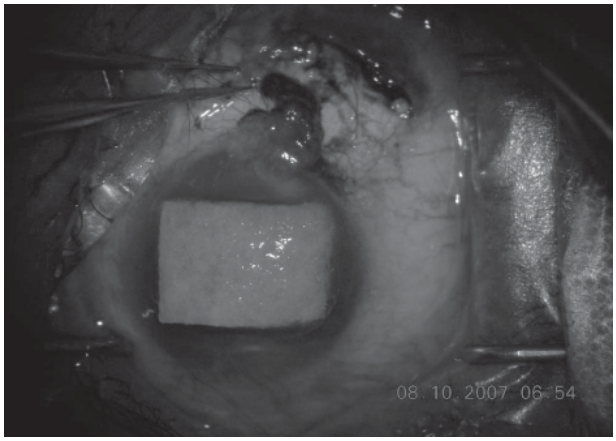

Figure 2. Conjunctiva and tenon after an excision under pterygium body

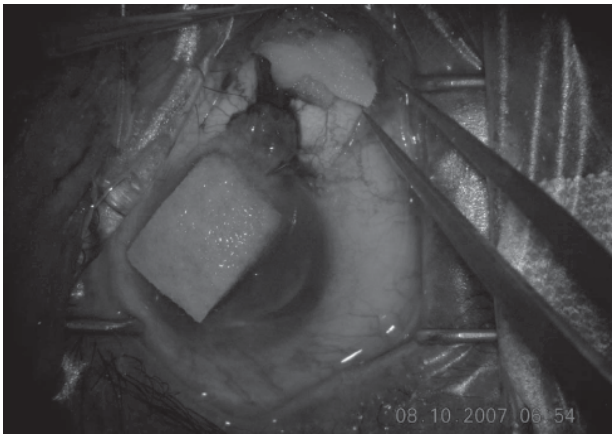

Figure 3. Sponge soaked with MMC was placed in subconjunctival space

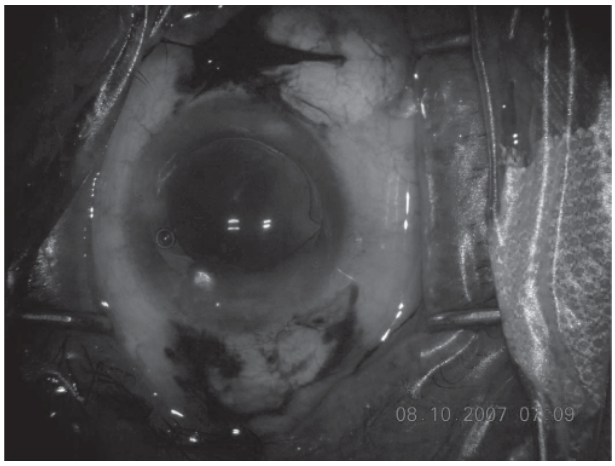

Figure 4. After finish the combined procedure of pterygium excision with PE and IOL

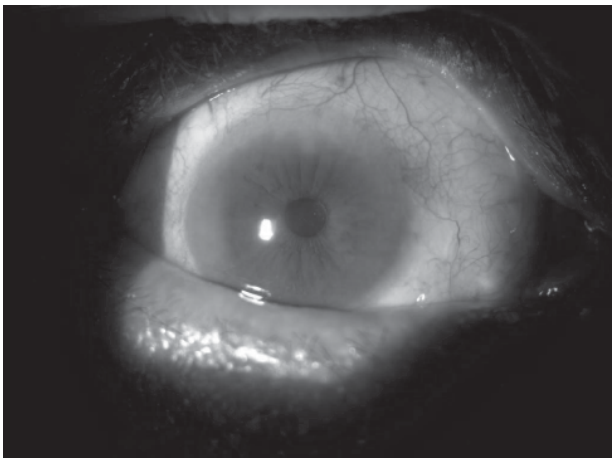

Figure 5. Another case after pterygium excision with PE with IOL at 3 month postoperative.

Postoperatively, these cases were hospitalized for 2 or 3 days. Oral vitamin C 100 mg / day for 7 days was given to the patients. The following medications were given to the patients; topical Moxifloxacin and 1% Pred forte eye drops every 2 hour and Maxitrol eye ointment at bed time for 1 - 2 week and artificial tear for 1 month.

Patients were followed at first week, 1, 3 and 6 month postoperatively to determine visual and recurrence of pterygium. Twenty-four of 40 patients had pterygium with size less than 3 mm while in 16 pterygium were larger than 3 mm in size. All procedure had been performed by one doctor (J.C.)

Results

After pterygium was removed, the beneath cornea usually was partial cloudy and obscure some area of lens capsule and operative field. However, when the microscope was tilted, capsulorhexis and

phacoemulsification had been done safely in all patients with no vitreous loss and no other complication was observed in this combined procedure. Further, the use of intraoperative Mitomycin C did not give the result of scleral necrosis, indolent corneal ulcer and shallow anterior chamber or glaucoma during the 6 months follow-up. There was one patient who had corneal Dellen at the site of pterygium head in first few weeks postoperatively which was disappeared after the frequent use of artificial tears.

At the first month postoperatively, 16 patients with pterygium larger than 3 mm in size and senile cataract, 8 patients (50%) had visual recovery to 20/40. In the group of 24 patients who had pterygium less than 3 mm in size and senile cataract, 15 patients (61 %) patients had visual recovery to 20/40. Thus, 23/40 patients had visual recovery to 20/40. (Table 2)

Table 2. Visual acuity in 40 patients after pterygium excision and cataract extraction

Vision	Pre-op		1 month post-operation		6 months post-operation			
	Pterygium < 3 mm.	Pterygium > 3 mm.	Pterygium < 3 mm.	Pterygium > 3 mm.	With recurrence of pterygium		Without recurrence of pterygium	
					<3 mm.	>3 mm.	<3 mm.	>3 mm.
20/20	-	-	2	-	-	-	2	-
20/30	-	-	5	2	-	1	7	1
20/40	-	-	8	6	-	1	11	6
20/70	1	1	6	5	-	1	3	4
20/100	3	2	3	2	-	1	1	1
20/200	5	3	-	1	-	-	-	-
10/200	6	4	-	-	-	-	-	-
5/200	5	3	-	-	-	-	-	-
<5/200	4	3	-	-	-	-	-	-
total	**24**	**16**	**24**	**16**	**0**	**4**	**24**	**12**
	40		**40**		**4**		**36**	

During the 6 months follow-up, no recurrence of pterygium was observed in 24 patients with pterygium less than 3 mm in size and 12/16 patients with pterygium larger than 3 mm (75%) (Table - 3). A small recurrent pterygium were reappeared in 4/40 patients (10 %). None of the patients had recurrent pterygium larger than the excised pterygium.

Table 3. Recurrent pterygium at 6 months in 4 patients that pterygium larger than 3 mm.

Sex	Age 41 - 50	Age 51 - 60	total
Male	1	1	2
Female	1	1	2
total	**2**	**2**	**4**

Discussion

Pterygium is a conjunctival degeneration found in tropical country where people have prolonged exposure of ultraviolet radiation. The major problem in surgical treatment of pterygium is recurrence. Bared scleral excision of pterygium is mostly accompanied by unacceptably high recurrence[3-4]. Many techniques aim to reduce recurrence and Mitomycin C is commonly recommended to reduce recurrence. Mitomycin C is an antineoplastic antibiotic with radiomimetic properties, that selectively inhibit DNA, RNA and protein synthesis[5-7]. Since its introduction by Kunitomo and Mori[8] in 1963, it has been used postoperatively and intra-operatively in different concentration.

In this study, intraoperative Mitomycin C and postoperative topical steroids completely prevented recurrences in 24 patients of pterygium less than 3 mm in size, 12 of pterygium larger than 3 mm. Incidence of recurrence observed in this study was 10%. Similar studies pterygium excision and intraoperative MMC conducted by Weerasak Watcharatsiriyuth who revealed recurrence rates of 13.8 %[9]

Reduction in the rate of recurrence is possible by using topical Mitomycin C 0.02% twice daily post-operatively[4]. However, these may cause serious ocular complications following postoperative use of 0.2 mg/ml MMC drops 3 - 4 times daily for 1 - 3 weeks. The complications included scleral ulceration and calcification, necrotizing scleritis, perforation, uveitis, cataract, infection, glaucoma, symblepharon and corneoscleral, ciliary body and vitreoretinal toxicity. The conjunctival autograft transplantation technique can be used to prevent recurrences, although this technique is complicated than our technique[4].

The combined procedure did not interfere with the healing of the cataract incision and long

term complications such as shallow anterior chamber, iris prolapse and glaucoma were not noted in our study.

The combined operative procedure is recommended as it is the only operative technique by which full visual recovery is possible in cases of pterygium larger than 3 mm with advanced cataracts. The author recommend to perform the combined procedure at one setting because it is time saving and cost effective .

As in this study the visual recovery in the combined pterygium and cataract procedure showed that 29 of 40 patients (72.5 %) had 6/12 vision, 6 months postoperatively. This study also shows that in spite of recurrences, all patients of 4 cases of recurrence had 20/100 or better visual recovery at 6 months follow-up The Mitomycin C used intraoperatively and postoperative topical steroids does not interfere with the results of cataract surgery and yet completely prevents recurrences of pterygium in 90% patients.

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การศึกษาการผ่าตัดลอกต้อเนื้อและต้อกระจกในคราวเดียวกันที่โรงพยาบาลหาดใหญ่

นายแพทย์จรัสกิจ จันทร์ผ่อง
กลุ่มงานจักษุวิทยา โรงพยาบาลหาดใหญ่ จังหวัดสงขลา

บทคัดย่อ

วัตถุประสงค์ : เพื่อศึกษาการมองเห็นและอัตราการเกิดซ้ำจากการลอกต้อกระจกและต้อเนื้อในคราวเดียวกัน

วิธีการศึกษา : ผู้ป่วยเป็นต้อกระจกและต้อเนื้อในตาเดียวกัน จำนวน 40 คน (ตา) ได้รับการผ่าตัดลอกต้อเนื้อโดยไม่ใช้ graft แต่ใช้ Mitomicin C เพื่อลดอัตราการเกิดซ้ำร่วมกับการลอกต้อกระจกโดยวิธี phacoemulsification และ intraocular lens implantation ที่โรงพยาบาลหาดใหญ่ ผู้ป่วยทั้งหมดได้รับยาหยอดตาแก้อักเสบเป็นเวลา 1 เดือน และนัดตรวจติดตามเป็นเวลา 6 เดือน

ผลการวิจัย : ผู้ป่วย 4 จาก 40 คน (10%) มีการเกิดซ้ำของต้อเนื้อ ผู้ป่วย 27 คน (67.5%) มีการมองเห็นที่ดีกว่า 20/40 มีผู้ป่วยเพียงไม่กี่คนที่มีปัญหาหลังผ่าตัดเพียงเล็กน้อย เช่น corneal dellen จากการผ่าตัดทั้งสองต้อนี้ร่วมกัน

สรุปผลการวิจัย : การผ่าตัดต้อเนื้อและต้อกระจกในครั้งเดียวกันเป็นวิธีการที่สามารถทำได้สะดวกและให้ผลดี มีภาวะแทรกซ้อนต่ำ

นิยามคำศัพท์ : ต้อเนื้อ, ต้อกระจก, Mitomicin C, phacoemulsification, pterygium, cataract