นิพนธ์ต้นฉบับ

การผ่าตัดต้อกระจกแบบแผลเล็ก : Manual Phacocracking

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บทคัดย่อ **การผ่าตัดต้อกระจกแบบแผลเล็ก : Manual Phacocracking**

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วารสารศูนย์การศึกษาแพทยศาสตร์คลินิก โรงพยาบาลพระปกเกล้า 2003;20:77-81.

วัตถุประสงค์ : เพื่อดูผลของการผ่าตัดต้อกระจกแบบแผลเล็ก วิธี Manual Phacocracking ภาวะแทรกซ้อนในระหว่างผ่าตัดและหลังผ่าตัด

รูปแบบ : เป็นการศึกษาเชิงบรรยายแบบพรรณนาไม่มีกลุ่มเปรียบเทียบเก็บข้อมูลไปข้างหน้า

วิธีการศึกษา : ทำการผ่าตัดต้อกระจกแบบแผลเล็กวิธี Manual phacocracking ในผู้ป่วยต้อกระจก 108 รายระหว่างเดือนกันยายน พ.ศ. 2544 ถึงเดือนเมษายน พ.ศ. 2546 บันทึกข้อมูลระดับสายตาก่อนและหลังผ่าตัด ภาวะแทรกซ้อนระหว่างผ่าตัดและหลังผ่าตัด ตรวจติดตามผลการรักษา 1 สัปดาห์ 2 สัปดาห์ 4 สัปดาห์ และทุก 1 เดือนหลังจากนั้นวิเคราะห์ข้อมูลด้วยโปรแกรมไมโครซอฟท์เอ็กเซล

ผลการศึกษา : ระยะเวลาในการติดตามผลการรักษาเฉลี่ย 24.8 สัปดาห์ (4-80 สัปดาห์) ระดับสายตาก่อนผ่าตัด 15/200 – pj. พบ 51 ตา (ร้อยละ 47.23) และระดับสายตา 20/80 – 20/200 พบ 57 ตา (ร้อยละ 52.77) ระดับสายตาหลังผ่าตัด 20/20 พบ 26 ตา (ร้อยละ 24.08) และระดับสายตา 20/30 – 20/40 พบ 64 ตา (ร้อยละ 59.26) และน้อยกว่า 20/60 พบ 18 ตา (ร้อยละ 16.66) ภาวะแทรกซ้อนที่พบในระหว่างผ่าตัดคือ posterior capsule rupture 2 ตา (ร้อยละ 1.85) ภาวะแทรกซ้อนหลังผ่าตัดที่พบคือ corneal edema ใน 11 ตา (ร้อยละ 10.19) ไม่มีภาวะแทรกซ้อนถาวรที่รุนแรง

สรุป : Manual phacocracking เป็นวิธีผ่าตัดต้อ กระจกแบบแผลเล็กอีกวิธีหนึ่งที่ผลการรักษาดี ภาวะแทรกซ้อนน้อย การผ่าตัดไม่ยุ่งยาก ไม่ต้องการเครื่องมือพิเศษหรือเครื่องสลายต้อกระจก

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Introduction

Manual phacocracking is a small incisional cataract extraction that does not require a phacomachine or extra instrument. It needs only the needle No.21 Manual Phacocraking is adapted from tunnel cracking in phacoemulsification. The technique involves using the needle No.21 to stab into the lens about a half of the thickness of the lens and then using a Sinsky hook to crack lens into 2 pieces. The cataract is then extracted using a temporal clear corneal incision.

Materials and methods

108 patients (39 males and 69 females) had small incision cataract surgery by manual phacocracking by the same surgeon between September 2001 and April 2003. Preoperative visual acuity, post operative visual acuity, intraoperative complications and postoperative complications were recorded. Follow ups were done one, two, and four weeks after surgery, and then every month. Data were analyzed by Microsoft (c) Excel.

Surgical techniques

Anesthesia was done with retrobulbar block and topical anesthesia was required only in some cases. Paracenthesis was performed at 12 o'clock and 7 o'clock (for the right eye of patients), with the 7 o'clock incision larger than the 12 o'clock incision. Temporal clear corneal incision was made for 3.2 mm. by a keratome. Capsulorrhesis was made by forceps about 6-7 mm. by forceps Hydrodissection and hydrodelamination were performed until the core nucleus was loosened. The lens was tilted slightly into the anterior chamber. Viscoelastics were injected behind and in front of the lens to protect posterior capsule and endothelium cells. The needle No.21 was bent in the same way as a capsulotomy needle (figure 1) and placed bevel down.

The needle no.21 was inserted through paracenthesis at 7 o'clock and a Sinsky hook was inserted at 12 o'clock. The needle no.21 was penetrated at the center of the lens, and into about a half of the thickness of the lens Then, the Sinsky hook was used to push against the needle No.21. The Sinsky hook was embedded above the needle No.21 to perform Cracking in the same way as tunnel cracking. This procedure separated the lens into 2 pieces (figure 2,3).

A spatula and Sinsky hook was used in the situation that the lens did not initially separate completely. The incision was extended to 6 mm. wide and viscoelastics were injected to protect endothelium cells and the posterior capsule. The Sinsky hook was used to remove each piece of cracked lens and the spatula was placed behind the cracked lens to guide these pieces into the incision (figure4).

The cortex of lens was irrigated by Simcoe canula. The intraocular lens was then implanted into the capsular bag. The incision was sutured using 10-0 nylon for 1 stitch. The viscoelastics were removed by Simcoe canula and then the anterior chamber was flushed using balanced salt solution.

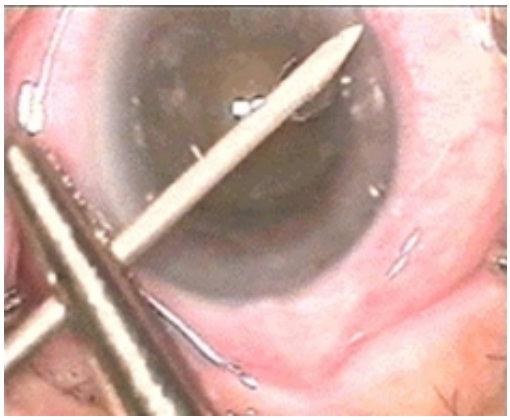

Figure 1. Needle no.21 is bent

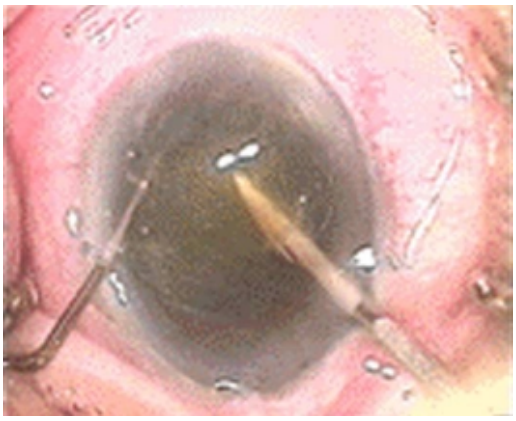

Figure 2. Stabing needle No.21 into lens

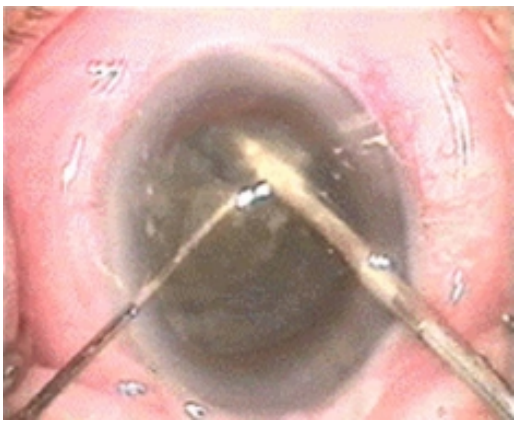

Figure 3. Cracking lens

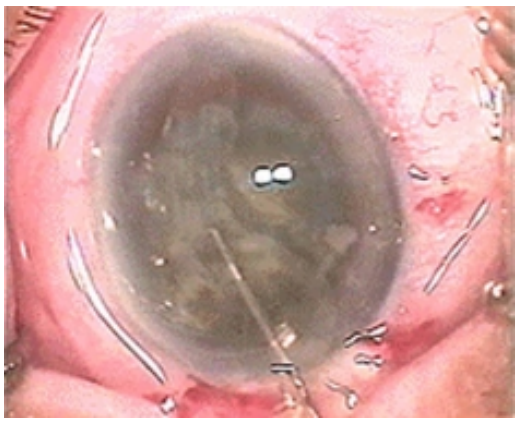

Figure 4. Removing lens by Sinsky hook and spatula

Results

The mean of the follow up interval was 24.8 weeks (ranged from 4 to 80 weeks). The preoperative visual acuity is shown in table 1. The visual acuity was less than 15/200 for 51 eyes (47.23 percent) and between 20/80 and 20/200 for 57 eyes (52.77 percent). The postoperative visual acuity is shown in table 2. Uncorrected visual acuity 20/20 was achieved for 26 eyes (24.08 percent) and 20/30-20/40 for 64 eyes (59.26 percent), and less than 20/60 for 18 eyes(16.66 percent). The intraoperative compli-cation which was posterior capsule rupture occurred in 2 eyes (1.85 percent), whereas the postoperative complication which was transient corneal edema occurred in 11 eyes (10.19 percent), but returned to normal within 2-3 days. No permanent complications occurred in any cases.

Discussion

Several techniques have been employed to split the lens during manual small incision cataract extraction, including nucleus nipping by using a vannus to cut the nucleus[1], nucleocapture

Table 1 Preoperative visual acuity

Visual Acuity	Number of Eyes	Percentage of Total Eyes	
HM–PJ	8	7.41	47.23
FC1'–FC2'	13	12.04	
3/200–15/200	30	27.78	
20/120–20/100	36	33.33	52.77
20/60–20/80	21	19.44	
Total	**108**	**100**	

Table 2 Postoperative visual acuity

Visual Acuity	Number of Eyes	Percentage of Total Eyes
20/20	26	24.08
20/30–20/40	64	59.26
20/60–20/80	9	8.33
20/120–20/200	9	8.33
Total	**108**	**100**

spoon and spatula[2], chop bisection and trisection using a chopper and spatula[3], quater extraction and rotated lens[4], manual phacofragmentation by using a chopper and spatula[5], mininuc technique using anterior chamber maintainer[6,7]. Most of these methods require extra instruments to split the lens into small pieces. In this study, manual phacocracking is described as a technique which requires only the needle no.21 to stab into the lens and a Sinsky hook embedded above needle to crack the lens into 2 pieces. Each piece of the lens was removed by a Sinsky hook and a spatula via temporal clear corneal incision (size 6.0mm). Postoperative visual acuity was better than 20/40 in 83.34 percent of the cases. The improved visual acuity rate is similar to other reports Jaime's study renealed that[8] visual acuity better than 20/40 in 83 percent of the receiving cases, Yao also reported that[9] visual acuity was better than 20/40 in 76.6 percent of the receiving cases similarly, Hepsen[10] found that visual acuity was better than 20/40 in 83 percent of the cases receiving Guitierrz Carmona[11] pointed out that the most frequent postoperative complication of the small incision cataract extraction was corneal edema (10 percent of the cases), following by hyphema (4 percent of the cases) and intraocular pressure rise (6 percent of the cases). In this study, the postoperative complication was corneal edema which occurred in 11 eyes (10.19 percent of the cases). Notably, serious complications such as corneal decompensation were not found However, in general, complications were found in cases that had a hard nucleus to manipulate. It is therefore suggested that to reduce the risk of complications, this method showld be applied to a soft to moderately hard nucleus.

Conclusion

Manual phacocracking is a small incision cataract extraction that showed good results with few complications. The procedure involves simple surgical techniques and does not require an extra instrument or a phacomachine.

Abstract

Objective : To evaluate the results of manual phacocracking and the intraoperative

and postoperative complications of this small incisional cataract extraction.

Setting : Prapokklao Hospital, Chanthaburi Province, Thailand.

Methods : 108 patients had small incision cataract surgery by manual phacocracking by one surgeon between September 2001 and April 2003. Preoperative visual acuity, postoperative visual acuity, intraoperative complications and postoperative complications were recorded. Follow up was done at the first week, second week, and fourth week and then every month. Data analysis was done by Microsoft (c) Excel.

Results : The mean of the follow up interval was 24.8 weeks, ranged from 4 to 80 weeks. Preoperative visual acuity was 15/200 – pj for 51 eyes (47.23 percent) and 20/80 – 20/200 for 57 eyes (52.77 percent). After implementing the manual phacocracking procedure, if was found that postoperative visual acuity was 20/20 for 26 eyes (24.08 percent) and 20/30 – 20/40 for 64 eyes (59.26 percent) and less than 20/60 for 18 eyes (16.66 percent). No serious complications were found. The intraoperative complication was posterior capsule rupture (n=2, 1.85 percent), whereas the postoperative complication was corneal edema which developed in 11 eyes (10.19 percent). No permanent complication occurred in any cases.

Conclusion: Manual phacocracking is a small incision cataract extraction that has shown good results with few complications. It involves simple surgical technique which does not require an extra instrument or a phacomachine.

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