การศึกษาผลการผ่าตัดแก้ไขภาวะตาเท่าที่ทำให้เกิดภาพขือนในผู้ป่วยไทยโดยวิธีการปรับเลื่อนรอบเยื้อง

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บทคัดย่อ

วัตถุประสงค์: เพื่อศึกษาผลจากการผ่าตัดกล้ามเนื้อตาในผู้ป่วยไทยที่มีภาพขือนด้วยวิธีปรับเลื่อนรอบเยื้อง

วิธีการวิจัย: ศึกษาจากประวัติของผู้ป่วยไทยที่มีภาพขือน และได้รับการผ่าตัดด้วยวิธีปรับเลื่อนรอบเยื้องโดยใช้ยาธรรมนัด

ผลการวิจัย: ผู้ป่วย 28 คน จากทั้งหมด 32 คน อายุระหว่าง 19 ถึง 77 ปี เข้าเก็บข้อมูลในเดือนที่ 28 คน ชาย 11 คน จาก 28 คน คิดเป็นร้อยละ 39.28 มีปัญหาที่กล้ามเนื้อ inferior rectus ผู้ป่วย 6 คนจาก 28 คน คิดเป็นร้อยละ 21.42 มีปัญหาที่กล้ามเนื้อ medial rectus ผู้ป่วย 3 คนจาก 28 คน คิดเป็นร้อยละ 10.71 มีปัญหาที่กล้ามเนื้อ superior rectus ผู้ป่วย 8 คน จาก 28 คน คิดเป็นร้อยละ 34.78 มีปัญหาที่กล้ามเนื้อตามากกว่า 1 มิต โดยผู้ป่วย 20 คน จาก 28 คน คิดเป็นร้อยละ 71.42 ประสบผลสำเร็จจากการผ่าตัดในครั้งเดียว พบว่าในกรณีที่ผู้ป่วยต้องรับการผ่าตัดซ้ำนั้น ผู้ป่วย 3 คนจาก 8 คน คิดเป็นร้อยละ 37.5 ประสบผลสำเร็จจากการผ่าตัดครั้งที่สอง และ 5 คนจาก 8 คน คิดเป็นร้อยละ 62.5 ยังคงมีอาการภาพขือน หลังการผ่าตัดครั้งที่สอง ผู้ป่วยที่ยังคงมีอาการภาพขือนหลังผ่าตัดนั้น พบว่ามีอาการภาพขือนมากกว่า 1 มิต ผู้ป่วย 1 คน มีการผ่าตัดโดยใช้ยาธรรมนัด 1 อีกครั้ง

สรุป: ผู้ป่วยไทยที่มีอาการภาพขือนได้รับการผ่าตัดด้วยวิธีปรับเลื่อนรอบเยื้อง จากการศึกษานี้พบว่าการผ่าตัดการแก้ไขภาพขือนภายนอกการผ่าตัดด้วยวิธีปรับเลื่อนรอบเยื้อง สามารถทำให้ผู้ป่วยซ้ายตาสามารถรับรู้ความเจ็บปวดได้เป็นอย่างดี


ผู้มีส่วนเกี่ยวข้องที่จะต้องรับผิดชอบในงานวิจัยนี้

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Outcomes of adjustable suture surgery for incomittant deviation and diplopia in Thyroid-Associated Ophthalmopathy

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Abstract

**Propose:** To review the results of adjustable suture surgery in patients who had diplopia from thyroid associated ophthalmopathy (TAO).

**Material and methods:** The medical records of patients with TAO and diplopia, who underwent adjustable suture surgery under topical anesthesia in Ramathibodi hospital between January 2001 to June 2013. Follow up time at least 3 months. Success defined as no diplopia in primary and reading positions without prisms.

**Results:** Twenty-eight from thirty-two patients (range in age 19 to 77 years) met the criteria in this study, with an average follow-up of 16 months. Of 28 patients, 11 (39.28%) had restriction on inferior rectus alone, 6 (21.42%) had restriction on medial rectus alone, 3 (10.71%) had restriction on superior rectus alone, and 8 (34.78%) had more than one muscle involvement. 20/28 (71.42%) met the criteria as success in one operation. After second operation, 3/8 (37.5%) had good outcome and 5/8 (62.5%) still had diplopia. All patients who were failed to eliminate diplopia had long term period of diplopia more than 1 year, superior rectus restriction or multiple muscles involvement. All patients could tolerate well under topical anesthesia during adjustable suture surgery.

**Conclusion:** Incomittant deviation and diplopia in thyroid associated ophthalmopathy were effectively relieved by recession with adjustable suture technique in majority of patients. Long term period of diplopia before surgery, superior rectus restriction or multiple muscles involvement were the predominant factors for failure in this study.  **Thai J Ophthalmol 2014; January-June 28(1): 10-14.**

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Introduction

Thyroid-associated ophthalmopathy (TAO) also called Graves’ ophthalmopathy, thyroid-related orbitopathy or thyroid eye disease, describes a complex constellation of opthalmic signs and symptoms that occur with hyperthyroidism. Ocular involvement is the most common extra-thyroid manifestation of hyperthyroidism that can present with soft tissue involvement, eyelid retraction, proptosis, strabismus and optic neuropathy. Strabismus is a common sequela of TAO, arising from the inflammatory infiltration and subsequent fibrosis of extra-ocular muscles. Approximately 15% of patients with TAO suffer from a symptomatic ocular motility disturbance.1 The inferior rectus and medial rectus muscles most frequently are involved, followed by superior rectus, lateral rectus and rarely oblique muscles. Muscles involvement, which is characteristically bilateral and asymmetric, progresses differently in every individual.

Restriction of extraocular muscles leads to diplopia, which can be difficulty to correct with prisms. Recession of restricted muscles generally has been accepted as the standard surgical treatment for such patients, however surgical results in TAO can be highly unpredictable, with reoperation rates reported between 17% and 45%.1-4 To more predictably re-instate fusion in the primary and reading positions and increase ductions, several investigators recommend the adjustable suture surgery.5-10 With this procedure, one or more extraocular muscles is sutured using a slipknot, allowing the surgeon to fine tuning of ocular alignment. However, the outcome of the treatment depends on many factors such as number of muscles involved, preoperative deviation and long term period before surgery. The purpose of this report was to review the results of adjustable suture surgery in patients who had diplopia from thyroid associated ophthalmopathy (TAO).

Materials and Methods

The medical records of patients with TAO and diplopia who underwent adjustable suture surgery under topical anesthesia in Ramathibodi hospital between January 2001 to June 2013, were retrospectively reviewed. There were 32 patients. The data included age, sex, laterality, muscles involvement, preoperative deviation, procedures, postoperative deviation, reoperation and diplopia symptoms. All patients were euthyroid with stable deviations at the time of surgery. Preoperatively, deviation in primary position was measured in prism diopters with alternate prism cover test. The surgeries were performed under topical anesthesia by two surgeons who used the same surgical technique. The forced duction test was done before surgery in all cases to identify muscle restriction. In all cases, a limbal conjunctival incision was made in the quadrant of the restricted muscle. The muscle insertion was exposed by blunt dissection and secured to the muscle hook. Muscle recession was performed and sutured to the sclera both forward and backward at the insertion as shown in Figure 1 with double armed 6/0 vicryl suture by using a hang-back technique. The muscle was fastened with a bow tie slipknot so the muscle could be adjusted. Intraoperatively, patients were asked about diplopia. Then the suture was adjusted until diplopia was gone. The conjunctival incision was closed by simply suturing with 7/0 vicryl suture. The postoperative follow up period was at least 3 months. Success was defined as no diplopia in primary and reading positions without prisms. Reoperation was also recorded.

Results

Twenty-eight of thirty-two patients (age range 19 to 77 years) met the criteria in this study, with an average follow-up of 16 months. 12 patients (42.9%)
had bilateral and 16 (57.1%) had unilateral surgery. Of 28 patients, 11 (39.28%) had restriction on inferior rectus alone, 6 (21.42%) had restriction on medial rectus alone, 3 (10.71%) had restriction on superior rectus alone, and 8 (34.78%) had more than one muscle involvement. The median primary position deviation was 16.5 prism diopters. 9 patients (32.1%) had prior orbital decompression surgery. 20/28 (71.42%) met the criteria as success in one operation. After the second operation 3/8 patients (37.5%) had good outcome, while the other 5/8 patients (62.5%) still had diplopia. All patients who failed to eliminate diplopia had long term period of diplopia more than 1 year, superior rectus restriction or multiple muscles involvement. All patients could tolerate topical anesthesia well during adjustable suture surgery.

**Discussion**

There are several treatment options for strabismus related to TAO. The use of prisms and/or systemic corticosteroid may improve the symptoms of diplopia. Observation may be appropriate when patient do not have diplopia in primary position and reading position. For patients with bothersome diplopia, the duration of symptoms is important as well as whether or not the diplopia is changing. The patients who have TAO with diplopia will have an operation after dioplopia is stable for at least 6 months.

The adjustable suture technique allows a surgeon to achieve elimination of diplopia in cooperative patients. Several reports have discussed the use of adjustable suture technique in TAO. Ellis\(^{11}\) reported 83% of 30 patients who had elimination of diplopia after surgery. Scott and Thalacker\(^1\) reported 22 patients, 82% of whom were fused in primary position after surgery. Lee et al\(^{12}\) described 16 patients, 14 of whom had successful elimination of diplopia. In our study, we found similar results. 23 of 28 patients (82.14%) had no diplopia in primary and reading position after surgery, although 5 patients (17.86%) still had diplopia after a second operation.

Lueder et al.\(^{13}\) reported several factors that might affect surgical success. These included the presence of Graves disease, history of orbital decom-
pression, the size of preoperative deviation, the residual deviation after postoperative adjustment, restriction of superior rectus and the number of muscles operated on. Similarly, we found that long term period of diplopia before surgery, superior rectus restriction and multiple muscles involvement were the predominant factors for failure in this study.

In summary, we obtained elimination of diplopia in the majority of patients with thyroid associated ophthalmopathy using adjustable suture surgery, and reoperation might be needed in only a minority of cases.

References