Original Article/นิพนธ์ต้นฉบับ

ผลสำเร็จในการผ่าตัดรักษาภาวะหนังตาตกขั้นรุนแรงในผู้ป่วยสูงอายุที่มีโรคประจำตัวที่เปราะบาง โดยใช้เครื่องคาร์บอนไดออกไซด์เลเซอร์

ศิลา ทองไล้ พ.บ.

บทคัดย่อ

วัตถุประสงค์: เพื่อศึกษาผลสำเร็จของการใช้เครื่องคาร์บอนไดออกไซด์เลเซอร์ (CO_2 Laser Blepharoplasty) ในการผ่าตัดรักษาภาวะหนังตาตกขั้นรุนแรง (Severe Ptosis) ในผู้ป่วยสงอายุที่มีโรคประจำตัวที่เปราะบาง (Vulnerable Elderly Patient)

วิธีการศึกษา: เป็นการศึกษาย้อนหลังผู้ป่วยที่มีภาวะหนังตาตกขั้นรุนแรง ใช้เกณฑ์ Margin Reflex Distance (MRD1) = 0-1 mm. จำนวน 32 ราย ระหว่างปี พ.ศ. 2556-2557 ที่ รพ.กรุงเทพ, รพ.รามคำแหงและคลินิกศูนย์แพทย์พัฒนา, ผู้ป่วยทุกรายมีอายุ 60 ปีขึ้นไป (60-84 ปี เฉลี่ย 68.5 ปี) ผู้หญิง 20 ราย (ร้อยละ 72.5) ผู้ชาย 12 ราย (ร้อยละ 37.5) และมีโรคประจำตัว (หนึ่งโรคขึ้นไป) เช่น เบาหวาน 12 ราย (ร้อยละ 37.5) ความดันโลหิตสูง 10 ราย (ร้อยละ 31.25) โรคหัวใจ 8 ราย (ร้อยละ 25) ความผิดปกติทางเลือด (เช่น โรค ITP, ไม่สามารถหยุดสารกันเลือดแข็งหรือยาละลายลิ่มเลือด) 4 ราย (ร้อยละ 12.5) โรคพาร์คินสัน 2 ราย (ร้อยละ 6.25) ผู้สูงอายุมาก 80 ปีขึ้นไป 5 ราย (ร้อยละ 15.62) ผู้ป่วยทุกรายผ่าตัดโดยวิธีเย็บกระชับเอ็นกล้ามเนื้อลีเวเตอร์ (Levator Aponeurosis Advancement) โดยการใช้เครื่องคาร์บอนไดออกไซด์ เลเซอร์ (CO_2 Laser Blepharoplasty) ชนิด Ultrapulse Mode, Power 5-7 วัตต์ ภายใต้การฉีดยาชาเฉพาะที่ และเสริมด้วยวิธีให้ยาช่วยระงับความเจ็บปวดทางหลอดเลือดดำ (intravenous sedation) ในกรณีผู้สูงอายุมาก (80 ปีขึ้นไป) เพื่อช่วยบรรเทาปวดและผ่อนคลายระหว่างการผ่าตัด และจัดระดับการลืมตาในท่านั่ง (upright position) เพื่อผลผ่าตัดที่คงที่และสวยงาม: สังเกตผล MRD1, เลือดออกขณะทำผ่าตัดและหลังผ่าตัด,อาการปวดและความพึงพอใจของผู้ป่วยหลังผ่าตัด

ผลการศึกษา: MRD1 ก่อนผ่าตัด = 0-1 mm, หลังผ่าตัดเฉลี่ย 2.8 mm (P<0.01), เลือดออกระหว่างผ่าตัดน้อยถึงน้อยมาก, หลังผ่าตัดเลือดออกน้อยมาก, อาการปวดหลังผ่าตัด:ปวดน้อย 28 ราย (ร้อยละ 87.5) ปานกลาง 4 ราย (ร้อยละ 12.5) ไม่พบผู้ป่วยที่มีอาการปวดรุนแรงและไม่มีปัญหาโรคแทรกซ้อนหลังผ่าตัดหรือผลกระทบใดๆ ต่อโรคเดิมของผู้ป่วย นอกจากนี้ ผู้ป่วยทุกรายที่ได้รับการผ่าตัดพึงพอใจต่อการมองเห็นที่ดีและรูปลักษณ์ใบหน้าที่ดีขึ้น

บทสรุป: การผ่าตัดภาวะหนังตาตกขั้นรุนแรงในผู้ป่วยสูงอายุที่มีโรคประจำตัวที่เปราะบางและยากในการผ่าตัด สามารถประยุกต์ใช้เครื่องคาร์บอนไดออกไซด์เลเซอร์ (CO_2 Laser Blepharoplasty) เป็นทางเลือกในการผ่าตัดและประสบผลสำเร็จได้เป็นอย่างดี **จักษุเวชสาร 2015; มกราคม-มิถุนายน 29(1): 21-26.**

คำสำคัญ: ภาวะหนังตาตกขั้นรุนแรง, การผ่าตัดด้วยเครื่องคาร์บอนไดออกไซด์เลเซอร์, การผ่าตัดเย็บกระชับเอ็นกล้ามเนื้อลีเวเตอร์, ผู้สูงอายุที่มีโรคประจำตัวที่เปราะบาง

ผู้นิพนธ์ไม่มีส่วนเกี่ยวข้อง หรือผลประโยชน์ใดๆ กับผลิตภัณฑ์ที่ได้กล่าวอ้างถึงในงานวิจัยนี้

ศูนย์จักษุ โรงพยาบาลกรุงเทพ, โรงพยาบาลรามคำแหง, คลินิกศูนย์แพทย์พัฒนา

Original Article/นิพนธ์ต้นฉบับ

Use of CO_2 Laser Blepharoplasty for Correction of Severe Ptosis in Vulnerable Elderly Patients

Sila Thonglai, M.D.

Abstract

Objective: To assess the success of CO_2 laser blepharoplasty for correction of severe ptosis in vulnerable elderly patients.

Materials and Methods: A retrospective review of 32 consecutive cases of severe ptosis (SP) was carried out between 2013-2014 at Bangkok Hospital Medical Center, Ramkamhaeng Hospital, Patana Medical Center Clinic in Bangkok. All cases with SP [margin reflex distance (MRD1)=0-1 mm] aged 60 years or above (range 60-84 years, average 68.5 years; 20 women (72.5%), 12 men (37.5%)) and with underlying diseases (at least one or more) i.e. diabetes (DM; 12 cases, 37.5%), hypertension (HT; 10 cases, 31.25%), heart diseases (HD, i.e. post balloon catheterization, cardiac intervention, coronary bypass; 8 cases, 25%), bleeding diathesis (i.e., ITP, anticoagulation or antiplatelet therapy which could not be discontinued; 4 cases, 12.5%), Parkinson's disease (2 cases, 6.25%), very old (aged 80 years or above; 5 cases, 15.62%). The Levator Aponeurosis Advancement (LA) was performed with a CO_2 laser device [1,000 NAIN Ultra CO_2 Laser. UTI Co., Ltd KOREA : skin incision with laser mode : Ultrapulse, frenquency 200-400 hertz, duration 100-200 us, tissue mode continuous; tissue dissection with laser mode Continuous Wave (CW), Power 5-7 W, tissue mode continuous; or SHARPLAN, Laser Industries Ltd. ISRAEL : skin incision with Superpulse mode, Power 5-7 W in continuous; tissue dissection with laser mode CW, Power 4-5 W in continuous] under local anesthesia with additional light intravenous sedation for 5 very old aged patients to calm and comfort them during the operation. The LA was adjusted for eyelid height and contour in the upright position to obtain the most consistently favorable postoperative results. MRD1 (pre and postoperation), intraoperative bleeding, postoperative bleeding, tissue swelling, ecchymosis, pain and patient satisfaction were observed.

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Results: MRD1 was preoperatively = 0-1 mm, and postoperatively averaged 2.8 mm ($p<0.01$). There was little or no bleeding intraoperatively and postoperatively. All cases had mild to moderate tissue swelling and ecchymosis. The advantages of CO_2 laser over conventional surgery are ease for dissection of skin and fat tissue and ease of identification of the LA. 28 cases (87.5%) had mild pain or less, 4 cases (12.5%) had moderate pain; no severe pain was observed. There was no serious complication or any harmful effect to the patients or their underlying diseases. All enrolled patients have had high degree of satisfaction after the operation and were pleased with improvements in vision and facial presentation

Conclusion: CO_2 laser blepharoplasty is a good choice for severe ptosis and complicated situations in vulnerable elderly patients. **Thai J Ophthalmol 2015; January-June 29(1): 21-26.**

Keywords: CO_2 laser blepharoplasty, severe ptosis, levator aponeurosis advancement,vulnerable elderly patient

No Author has a financial or proprietary interest in material or method mentioned

Eyelid ptosis or blepharoptosis is defined as an abnormal drooping of the upper eyelid when looking straight[1]. Ptosis can be present at birth (congenital) or developed later in life (acquired). Ptosis may be due to a myogenic, neurogenic, aponeurotic, mechanical or traumatic cause. In addition to drooping, patients with ptosis complain about tired appearance, blurred vision, upper visual field impairment and increased tearing. Patients with significant ptosis may need to tilt their head back into a chin up position, lift their eyelid with a finger, or raise their eyebrows. Continuous activation of the forehead and scalp muscles may additionally cause tension headache and eye strain[2].

CO_2 laser blepharoplaty (CLB) or laser-assisted blepharopltasty (LAB), first introduced by Baker in 1984, presents the following the advantages: improved intra operative hemostasis, decreased operating time and improved appearance in the immediate post operative period[1,3].

The CO_2 laser was first developed in 1964 by Patel in the lab of the Bell Telephone Company. The CO_2 laser is 10,600 mm in wavelength, absorbed by biological tissue regardless of pigmentation or vascularity. The target is water with rapid heating and vaporizing of intracellular water. The CO_2 laser has several advantages:extreme precision in depth; excellent hemostasis (can seal blood vessels less than 0.5 mm and up to 2 mm); acceleration of the procedure; minimization of postoperative pain (sealing small nerve ending without frayed endings as occurs with a scapel); less edema or swelling (sealing small lymphatic vessels)[4].

Thailand has become an aging society since 2005 and people aged 60 or above make up 10.4 percent of the population, by 2024-2025 Thailand will turn into an aged society, that means people aged 60 or above will be more than 20 percent of the population. (According to United Nations definition of population: in an Ageing Society, people aged

60 and over make up more than 10 percent of the population or people aged 65 and make up over 7 percent of the population. In an aged society people aged 60 and over make up more than 20 percent of the population or people aged 65 and over make up more than 14 percent of the population)[6,7].

The surgery for treatment of severe ptosis (SP) in aged patients with several underlying diseases or Vulnerable Elderly Patients (VEP) has to be managed and justified with appropriate techniques for not only good and effective results but also lack of harm from underlying diseases. The CLB or LAB were selected for that purpose in this study to assess the success of CO_2 laser blepharoplasty for complicated and difficult surgery in such patients.

Material and Methods

This is a retrospective, case control study reviewing 32 consecutive cases of severe ptosis which were carried out between 2013-2014 at Bangkok Hospital Medical Center, Ramkamhaeng Hospital, Patana Medical Center Clinic in Bangkok.

Inclusion criteria for participants included severe ptosis with margin reflex distance (MRD1) = 0-1 mm, of the senile or aponeurotic type, in elderly patients aged 60 years or above [range 60-84 years, average 68.5 years, 12 men (37.5%) and 20 women (72.5%)]. Vulnerable patients had underlying diseases (at least one), i.e., diabetes (DM; 12 patients, 37.5%), hypertension (HT; 10 cases, 31.25%), heart disease (HD, including post balloon catheterization, cardiac intervention, and coronary bypass; 8 cases, 25%), bleeding diathesis (i.e., ITP, unable to stop anticoagulation of antiplatelet therapy; 4 cases, 12.5%), Parkinsons disease (2 cases, 6.25%), or very old age (80 years or above; 5 cases, 15.62%). Exclusion criteria included Severe Ptosis from other causes, i.e., neurogenic, myogenic, mechanical or traumatic; and previous eyelid surgery for SP.

The SP patients were corrected by levator aponeurosis advancement (LA)[5] with CO_2 laser blepharoplasty (CLB) or Laser-assisted blepharoplasty (LAB) by CO_2 laser devices [1,000 NAIN Ultra CO_2 Laser. UTI CO., Ltd. KOREA : skin incision with laser mode: Ultrapulse, frequency 200-400 hertz, duration 100-200 us, tissue mode continuous; or SHARPLAN Laser Industries Ltd. ISRAEL: skin incision with Superpulse mode, Power 5-7 W in continuous; tissue dissection with laser mode CW, Power 4-5 W in continuous] by the same oculoplastic surgeon (the author) under local anesthesia, except for 5 very old aged patients who had light intravenous sedation to calm and comfort them during the operation. The LA was adjusted for eyelid height and contour in the upright position to obtain consistently favorable post operative outcome. MRD1 preoperatively and postoperatively, intraoperative bleeding, postoperative bleeding, tissue swelling, ecchymosis, pain and patient satisfaction were observed.

Results

MRD1 was preoperatively = 0-1 mm, postoperatively averaged = 2.8 mm ($p<0.01$). We observed little or no bleeding intraoperatively and postoperatively. All cases had mild to moderate swelling and ecchymosis. Postoperative pain was mild or less in 28 cases (87.5%), pain was moderate in 4 cases (12.5%), and no severe pain was observed. There was no serious complication or any harmful effect to VEP or their underlying diseases. All enrolled pa-

tients have had delight and a high degree of satisfaction after the operation with happiness for their improved vision and smart facial presentation.

Discussion

The surgery for SP for VEP by LA is very complicated and difficult. I have found that CLB or LAB has several advantages over conventional surgery by easy dissection of skin and soft tissue including fat, good hemostasis for small blood vessels, sealing nerve endings and lymphatic vessels resulting in less postoperative pain and swelling. This unique property of CO_2 laser is useful for LA in old aged patients because the tissue of the eyelid is loose and redundant with numerous blood vessels and much fat. Furthermore, the levator aponeurosis is situated in the deep part of the lid. Improved clearance of the surgical field and approach to the deep target is favored by the surgeon. Postoperative care is simple and easy for VEP. The choice for skin type for CO_2 laser surgery should follow the Fitzpatrick skin classification[4] for reducing adverse effects effect and matching the best procedure for CLB or LAB. For that case who skin could not match the Fitzpatrick skin classification for CO_2 laser. The author recommend for use standard surgical blade for skin incision and after that the tissue dissection can apply by CLB or LAB with good result. The wound healing is important for CO_2 laser surgery because removal of stitches is delayed from conventional surgery for at least 3-5 days (normal blepharoplasty 5-7 days; CLB or LAB 10-14 days) to prevent premature wound dehiscence[4].

From the data of this study, the MRD1 improved from 0-1 mm to average 2.8 mm which was good enough for eye opening and looking but did not embarrass the VEP because of altered appearance. On the other hand, all of them are pleased with good vision and smart facial presentation. The intraoperative and postoperative bleeding was little or nearly bloodless. The tissue swelling and ecchymosis observed was only mild to moderate in all cases. The postoperative pain was mostly mild (87.5%), with some moderate pain (12.5%) and there was no severe pain. All pain was relieved by ordinary oral analgesic prescriptions. There was no serious complication or harm to VEP or their underlying diseases.

I suggest that CLB or LAB by LA is a good choice for delicate and difficult cases such as SP in VEP for patients, especially for improving vision and quality of life for the increasingly elderly population.

Conclusion

CO_2 Laser Blepharoplasty has several advantages and is a good choice for performing difficult surgery such as severe ptosis in vulnerable elderly patients.

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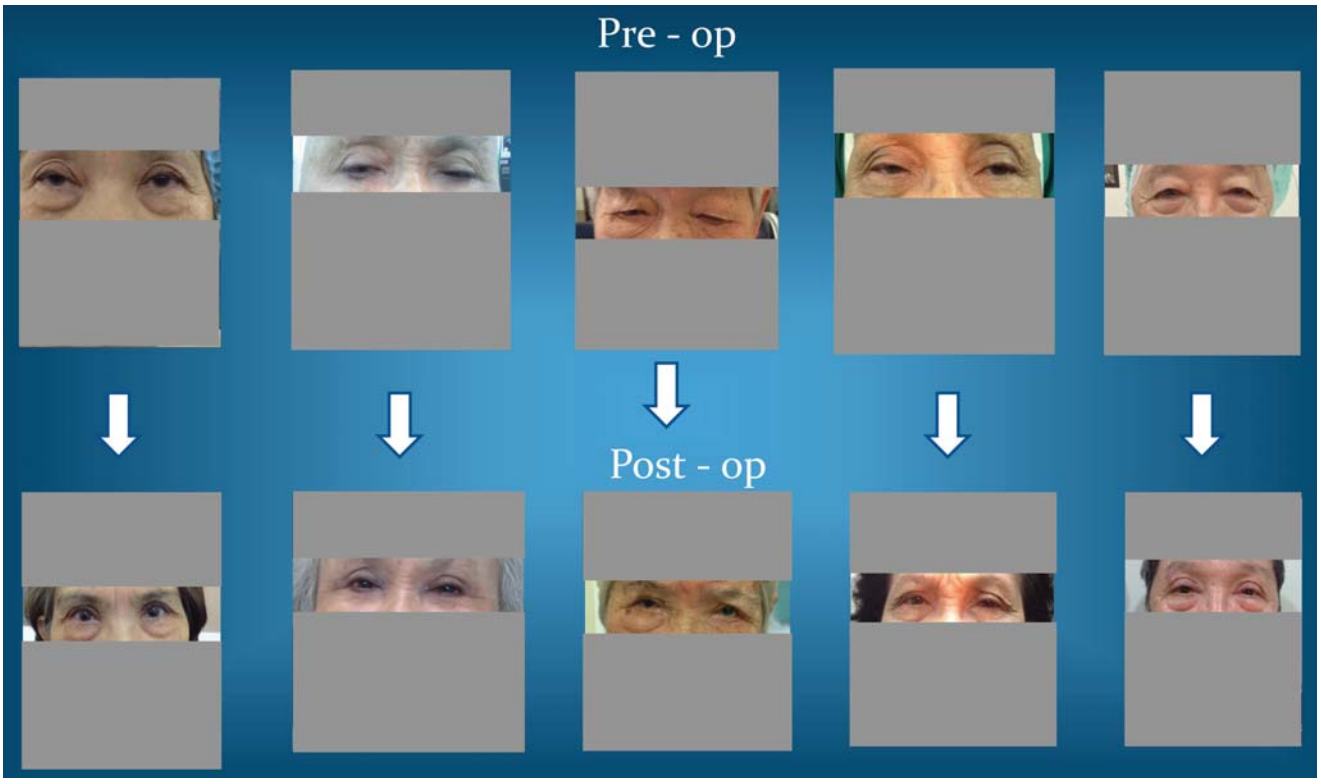
I would like to express deep gratitude to Dr. John H. Hunts MD PhD at the Eye Center at Eugene, Oregon and Prof. Bhuphendra C. K. Patel at Moran Eye Center at the University of Utah USA who have been my advisors and teachers for Oculoplastics since I studied abroad in the USA in 1999-2000. Thanks to all my teachers at Thailand medical schools, my colleagues, my friends and my family especially both my children, who encouraged and inspired me.

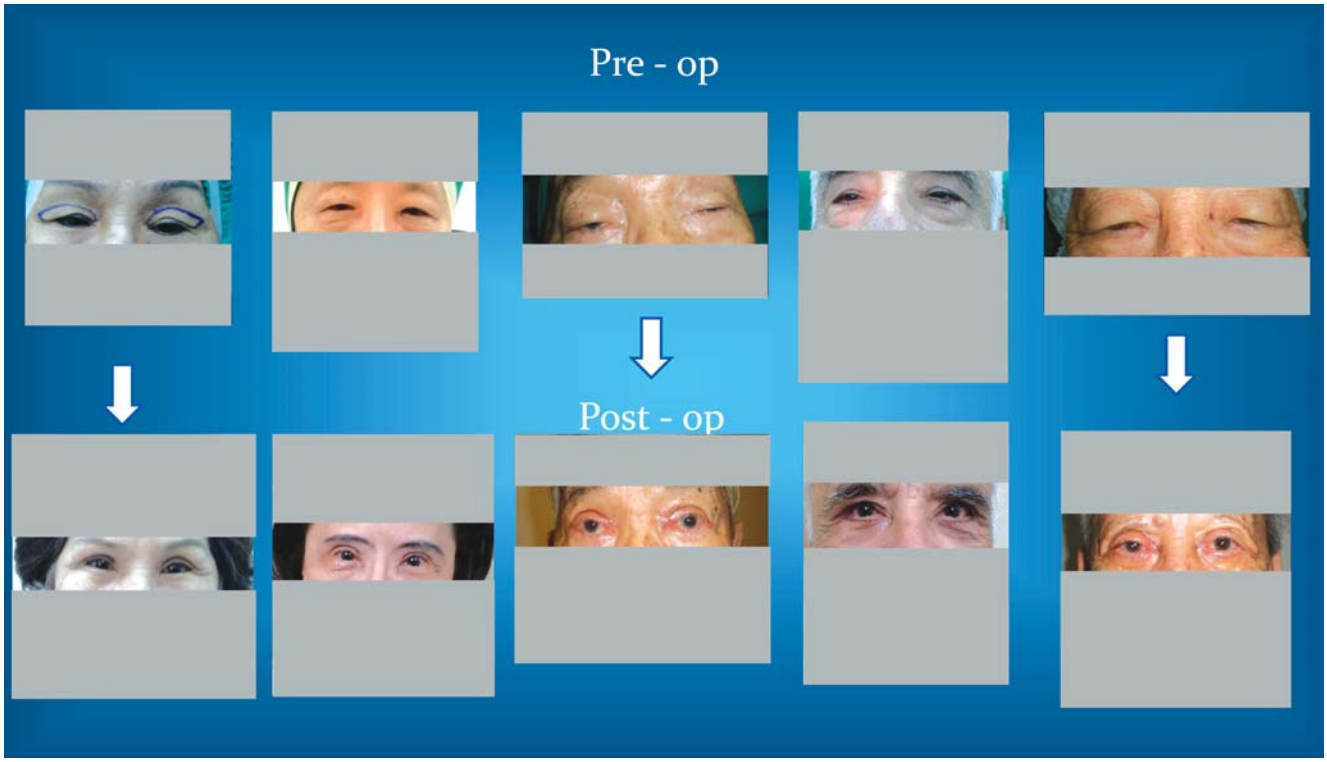
Pre-op

Levator Aponeurosisi Dehiscence

END CASE

Post-op 4 wks





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