

# Treatment of common complications after ptosis operation

Jian-Bing Tang, Biao Cheng, Qin Li, Wen-Lin Yu

Department of Plastic Surgery, Guangzhou Military Command General Hospital, Guangzhou 510010, Guangdong Province, China

**Correspondence to:** Qin Li. Department of Plastic Surgery, Guangzhou Military Command General Hospital, Guangzhou 510010, Guangdong Province, China. guangdongliuhua@163.com

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## Abstract

• **AIM:** To investigate the management of common complications after ptosis operation.

• **METHODS:** Clinical experience of managing the common complications after ptosis operation in the past 5 years was summed. For the common complications such as under-correction or over-correction, exposure keratitis, conjunctival or lacrimal gland prolapse, corresponding countermeasure was treated as soon as which was detected. Then satisfactory clinical results were attained.

• **RESULTS:** In all 150 cases (180 eyes) with ptosis, 127 cases were corrected satisfied with bilateral symmetrical, no significant complications. Twelve cases (14 eyes) were under-correction, 4 cases (4 eyes) were over-correction mildly, conjunctival prolapse occurred in 3 cases (3 eyes), lacrimal gland prolapse occurred in 1 case (one eye), eyelid and eyeball separated mildly in 3 cases (3 eyes). These cases were adjusted in early stage and improved satisfiedly. No infection, hematoma occurred.

• **CONCLUSION:** Levator resection or frontal muscle flap suspension are applied to correct ptosis usually. Intraoperative accurate judgement and postoperative intensive care are necessary. Through close observation and early treatment of complications, good results can be attained.

• **KEYWORDS:** ptosis; complication; treatment

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## INTRODUCTION

Ptosis refers to vertical narrowing of the palpebral fissure secondary to drooping of the upper eyelid to a lower than normal position. It is considered congenital if present at birth or if it is diagnosed within the first year of life. Congenital ptosis is generally unilateral (70%), but may be bilateral, and can be isolated or associated with disease of one or more of the extraocular muscles and/or other systemic conditions<sup>[1,2]</sup>. This disease greatly affects the patient both in

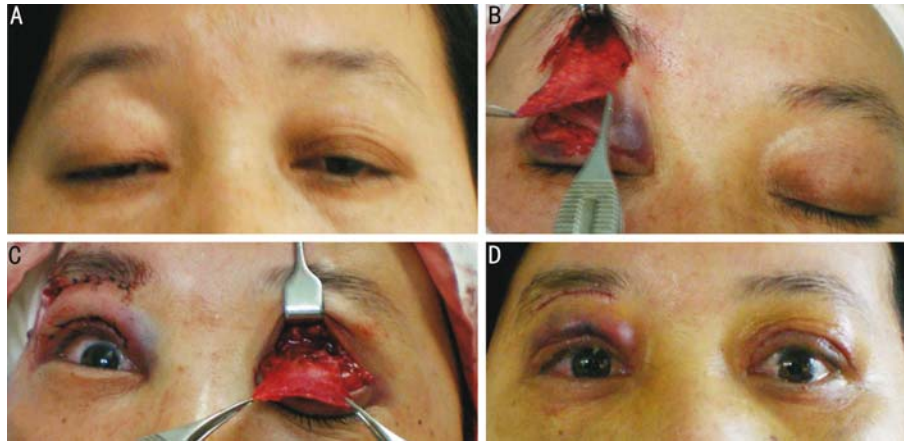
appearance and visual function, which may result in amblyopia<sup>[3]</sup>. The operation techniques have evolved not only to minimize major complications but also to gain a good aesthetic results. So correction of congenital ptosis is one of the most difficult challenges for ophthalmologists. Multiple surgical procedures are available including frontalis muscle flap<sup>[4]</sup>, levator advancement, Whitnall sling<sup>[5]</sup>, and mullerectomy<sup>[6]</sup>. Selection of one technique over another depends on the consideration of several factors including the surgeon's experience, the degree of ptosis in the patient, as well as the degree of levator muscle function. For children with poor levator muscle function frontalis suspension using autogenous temporal fascia or fascia lata is an effective and feasible treatment method<sup>[7,8]</sup>. Current recommendations for the correction of congenital ptosis vary based on clinical presentation. Advantages and disadvantages of each of these procedures are presented to surgeon to avoid or reduce complications. Since 2005, 150 cases (180 eyes) of blepharoptosis were corrected, which were analyzed and experiences were summed up to reduce complications through early treatment. And a good result was achieved which was reported as follows.

## MATERIALS AND METHODS

**Materials** In the past 5 years, 150 cases (180 eyes) of ptosis were treated, of which 64 were males and 86 were females, 30 cases of bilateral ptosis, 120 cases of unilateral ptosis, aged 8 to 54 years old, average 26 years old. 130 cases were congenital ptosis, 6 cases were traumatic ptosis and 14 cases for other reasons. Myasthenia gravis and neurogenic ptosis were ruled out preoperatively in all cases. Informed consent was obtained from all the patients and it was approved by the Institutional Review Board.

## Methods

**Postoperative complications and treatment** All cases were divided into mild, moderate and severe ptosis in accordance with the ptosis distance (Figure 1A)<sup>[9]</sup>. For severe ptosis frontalis muscle suspension was applied to correction (Figure 1B), and for mild to moderate ptosis levator was shortened for correction (Figure 1C, D)<sup>[10]</sup>. Had clinical rounds for 3 days after operation and three times a day, patients were asked whether they were discomfort. After 24 hours' operation dressing was change, and eye drops in daytime, eye ointment was used before sleeping. Pay attention to protecting eyes from light after operation. Once the complication occurred, the physician should deal with it in time.



**Figure 1 Patients with bilateral ptosis** A: Preoperative view: moderate ptosis in the left eyes and severe ptosis in the right eye; B: For severe ptosis frontalis muscle suspension was adapted to correction; C: For moderate ptosis levator was shortened for correction; D: 2 weeks after operation.

Correction insufficiency or under correction usually occurred in the severe ptosis patients whose levator shortening was applied. It was difficult to judge whether correction was insufficiency for early swelling and other factors postoperatively. We usually judged the results 5-7 days after operation. Most under-correction was due to suture loose or shift, so eyes winked fiercely and massage was forbidden after operation. Under-correction in ptosis patients usually was thought to be the operation failed, which likely caused medical disputes. So early reoperation was necessary. Usually suture was removed in advance 5 days after operation to further shorten the levator. For small parts of patients who were reluctant of the early operation, surgical correction could be carried on 3 to 6 months after operation.

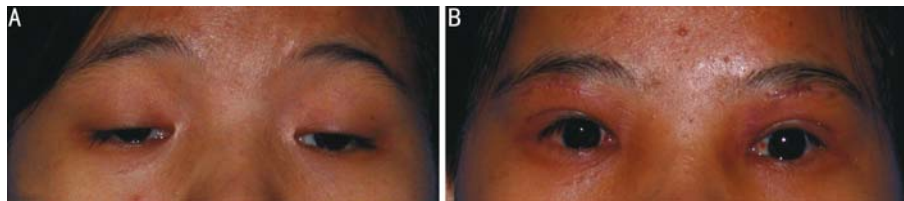
Over-correction was common complication in the mild ptosis and frontalis muscle suspension was applied, which is also found in patients with mild ptosis with good levator muscle strength and levator shortening was applied. Often the lower eyelid limb was 1-2mm upon of the cornea, slight over-correction often relieved itself over time and didn't require special treatment. Finger massage muscles in frontal region, eyes often opened and closed to relax the muscle and exercise flexibility which could improve the over-correction. If over-correction was more than 3mm, the skin sutures needed to be remove in advance, and frontalis muscle flap should be fix in the upper position and resutured. About 1 month after less adhesion, reoperation might be easy for adjusting.

Conjunctiva prolapse on the fornix or the lacrimal gland prolapse mostly was due to separate levator excessively high and beyond the conjunctival fornix. Once the conjunctival prolapse occurred we should not be panic, just to require patients not to touch the conjunctiva and prevent the occurrence of conjunctivitis keratitis. Prednisone and ofloxacin eye drops could be given to such patients in 1 week. Conjunctiva was sutured through the skin to the fornix to return it in position or cut off the prolapsed conjunctiva after 2 weeks<sup>[11]</sup>. The lacrimal gland prolapse should be sutured to its position in time.

Eyelid entropion or separated from eye ball occurred commonly when frontal muscle flap suspension was used. Firstly, muscle flap direction was vertical, and biased from the levator muscle physiology direction. Secondly, suture position was too close to the lid margin, which resulted in eyelid separating easily from the eyeball. At last, muscle flap was separated not enough, in order to achieve correct position but rise over the lid margin. So intraoperative after flap sutured double-check was necessary, as far as possible to avoid such situations. Once that happened, you could continue to separate muscle flap and extended it properly, and resutured it to the upper edge of tarsal plate. Early detection and early treatment could solve the problem<sup>[12]</sup>.

Exposed keratitis occurred usually in eyes after operation for 2-4 days, accompanied with significant foreign body sensation, tearing, tingling. When checked, conjunctival edema could be found, as well as corneal punctate infiltration, or even epithelial exfoliation. Secondary infection occurred in severe cases. Once the corneal ulcer formed, vision could be interrupted, which resulted in medical disputes. Trichiasis or residual foreign body could injury corneal and resulted in exposure keratitis, so postoperative care and observation should be strengthened. Tingling and other symptoms should be dealt with in time. Eyes cream should be used immediately; eye drops should be used to alternate to prevent from infection and to promote epithelial growth. Eyes were dressed to keep from intensive light. And eyeballs movement was disallowed to prevent further damages. Thus the ulcer could heal normally after 7-10 days<sup>[13]</sup>.

Others complications, such as eyelid closure insufficiency, conjunctiva congestive or hyperemia, conjunctival edema, may not affect the postoperative outcome. After several days it can be dissipated on their own without special treatment. However, before operation patients should be notified these situations and informed consent of patients was obtained. Theoretically, infection or bleeding can occur, if we follow the surgical procedure, these situations can be avoided.



**Figure 2 Patients with moderate bilateral ptosis** A: Preoperative view; B: 3 weeks after operation.



**Figure 3 Patients with moderate ptosis in the left eye** A: Preoperative view; B: Under-correction after the first operation; C: After the second operation for 7 days which carried on the 5<sup>th</sup> day after the first operation.



**Figure 4 Patients with mild bilateral ptosis** A: Preoperative view; B: Over-correction after the first operation in right eye; C: After the second operation for 2 weeks which carried on the 1<sup>st</sup> month after the first operation (No operation in the left eye).

**Table 1 The common complications after ptosis operation**

Complication categories	Total number of cases	Insufficiency correction	Excessive correction	Prolapse of conjunctival	Prolapse of the lacrimal gland	Eyelid ball separate
Number	150	12	4	3	1	3
Percentage(%)		8.0	2.7	2.0	0.7	2.0

## RESULTS

Of all 150 cases, 127 cases were satisfied with ptosis correction, symmetry in bilateral, no significant complications (Figure 2A, B). Twelve cases (14 eyes) were under-correction, 4 cases (4 eyes) had mild over-correction, 3 cases had marked conjunctival prolapse, 1 case had lacrimal gland prolapse, and 3 cases had mild eyelid ball separation. After the early adjust a satisfactory result was achieved, mild congestion, conjunctival edema, or temporary lagophthalmos occurred in some patients but which did not affect the final efficacy, no serious infection or hematoma took place. Summary of postoperative complications was listed in Table 1. A typical case who was under-correction was shown in Figure 3 and a typical case of over-correction was shown in Figure 4.

## DISCUSSION

The patients did not only want to solve the matter of dysfunction, but also have higher demands for its looks of symmetry, the curvature of double eyelid, recurrence even scar after operation. So ptosis is a relatively difficult plastic operation. In all blepharoplasty it is vulnerable more to encounter a number of complications<sup>[14]</sup>. Correction inadequate or over-correction mostly affects the appearance of patients, and the incidence is high. While the exposed corneal injury or infection have greater potential risk to patients. So enough clinical experience is necessary for ptosis operation.

The article summarized the possible complications and its prevention. First of all, judging the correct height in the

operation is crucial<sup>[15]</sup>. As frontal muscle may be relaxed with time, so ptosis employed muscle flap suspension should be corrected to the height of exceeding the cornea margin for 1mm. In practice, even the height of suspension should be adjusted according to the degree of muscle growth and strength. Firstly, try to sew the middle of the muscle flap to observe the degree of upper eyelid suspension, and then make a judgment. In addition, when correcting the monocular ptosis require suspend higher than the healthy eyes for about 1-2mm. Intraoperative test is not accurate when general anesthesia. The suspension height can be designed in the preoperative, and to make a mark on the nasal dorsum. When using levator shortening for ptosis correction the eyelid suspension height can reach to the margin of corneal. As the edema subsided, correct position may be just right.

Postoperative care is also a very crucial factor. The patients had better in hospital for observation, and be inquired whether the eye stinging and other discomfort. Postoperative edema and hemorrhage should be observed. Eye ointment should be painted before sleeping, eye drops should be used and eye kept from intensive light during the day. Once any complication occurs, it should be dealt with in time so as to prevent the occurrence of exposure keratitis<sup>[16]</sup>.

It is increasingly demanding that patients not only require solving functional problems, but also pay attention to aesthetic form, for example, double eyelid line, bilateral symmetry and scar severity. Therefore, doctors should possess a wealth of clinical experience. They should have fully anticipated to

patients before operation, and chosen the best suitable and the operation procedure what they are best familiarity with, and to account for possible complication to patient and their families, which ensure informed consent of patients. Once something wrong happen, we should deal with it in time. As for correction insufficient or excessive correction, early treatment could obtain satisfactory results according to our experience. Scar adhesions become serious significantly with time goes on<sup>[17]</sup>. Both the early and timely treatment can reduce the difficulty of operation, but also avoid involving the medical disputes. Correct insufficiencies and over-correction could be repaired once the edema dissipated largely. As for bleeding, infection, exposure keratitis and other possible complications, as long as standard operating procedure was obeyed in the operation, and strictly observation and care was given, it could be avoided<sup>[18]</sup>.

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#### 上睑下垂术后常见并发症的治疗

唐建兵,程 颺,李 勤,余文林

(作者单位:510010 中国广东省广州市,广州军区广州总医院整形外科)

作者简介:唐建兵,博士,主治医师,研究方向:眼鼻美容整形、颌面外伤修复。

通讯作者:李勤,博士,主任医师. guangdongliuhua@163.com

#### 摘要

**目的:**探讨上睑下垂常见并发症的处理方法。

**方法:**总结近 5a 来矫正上睑下垂的临床体会,对常见的并发症如矫正不足、矫正过度、暴露性角膜炎、结膜或者泪腺脱垂分别采取相应对策,尽量早期发现纠正,可以获得满意临床效果。

**结果:**所选 150 例 180 眼上睑下垂患者中,127 例患者术后上睑下垂矫正满意,双侧基本对称,无明显并发症。12 例患者 14 眼欠矫,4 例患者 4 眼轻度过矫,3 例患者 3 眼结膜脱垂,1 例患者 1 眼泪腺脱垂,3 例 3 眼轻度睑球分离,早期予以调整后形态满意,未出现感染、血肿病例。

**结论:**对于上睑下垂患者采用提上睑肌缩短法或者额肌瓣悬吊矫正,术中尽量准确判断,术后精心护理,严密观察,出现并发症可以早期处理以获得好的效果。

**关键词:**上睑下垂;并发症;治疗