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# A new non-incisional correction method for blepharoptosis

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## KEYWORDS

Blepharoptosis;  
Eyelid;  
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Correction

**Summary Purpose:** The present report introduces our correction method for blepharoptosis, in which major incisions are made on neither the skin nor the conjunctiva of the upper eyelid, and no dissection of the eyelid tissues is required.

**Methods:** After turning the upper eyelid inside out, threads are introduced into it through the conjunctiva close to the superior fornix. Then the superior palpebral levator muscle and the tarsus are connected using threads. This thread application is performed at two-to-four locations of the upper eyelid. By tightening the threads, the tarsus is elevated and the ptotic eyelid is corrected. A total of 624 eyelids in 390 patients with mild or moderate ptosis were operated on with this surgical method. Effectiveness of the treatment was evaluated referring to the degree of improvement. Furthermore, frequencies of complications were evaluated.

**Results:** Among 416 eyelids with mild ptosis, complete correction of ptosis was achieved with 406 eyelids (97.5%). Among 208 eyelids with moderate ptosis, improvement was achieved with 185 eyelids (88.9%), with complete correction for 156 eyelids (75%).

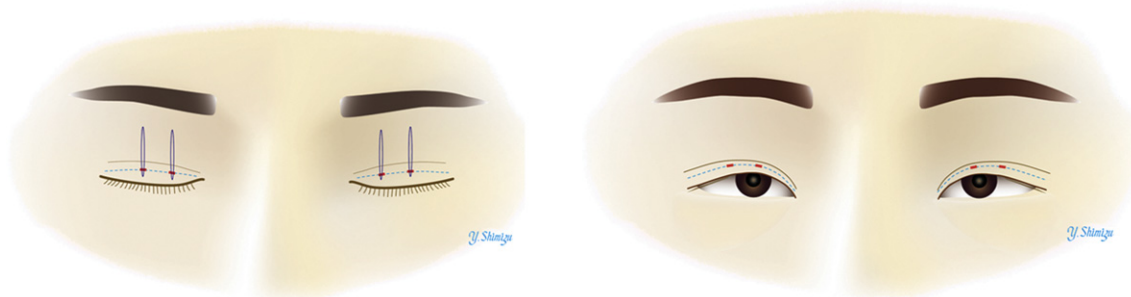
**Conclusion:** Since the present method enables effective correction of the blepharoptosis with a simple technique, minimised recovery time and no scarring, it provides a useful surgical option for the treatment of mild and moderate blepharoptosis.

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Blepharoptosis is caused by various factors, such as genetic abnormality,<sup>1</sup> conjunctivitis,<sup>2</sup> trauma,<sup>3,4</sup> neurological disorder,<sup>5</sup> constant wearing of contact lenses<sup>6</sup> and ageing.<sup>7</sup> Blepharoptosis impairs patients' features, presenting

sleepy appearances and making patients appear to have indifferent personalities. Besides these cosmetic disadvantages, blepharoptosis induces functional disorders such as headache, eyestrain and increased tearing.<sup>8</sup> Correction of blepharoptosis by surgical intervention is needed to remove these disadvantages and improve patients' quality of life. The authors have developed a simple and effective surgical correction method in which suspension of the eyelid is achieved with minimised invasion. The present

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**Figure 1** Preoperative planning. After drawing the line of postoperative double-folds (Dotted Lines), marks are made at the points where the suspension sutures and the expected double-fold line intersect (Red Marks).

study introduces details of the method and evaluates post-operative outcomes, referring to 624 eyelids in 390 clinical cases.

## Methods

### Surgical technique

#### Step 1

The locations at which suspension sutures are applied are marked on the upper eyelid (Figure 1). Since the positioning of the suspension suture affects the width and the curvature of the double fold, it is arranged according to the double-fold shape requested by patients. Two to four suspension sutures are usually applied per eyelid. Marks are made at the points (red in Figure 1) where the sutures intersect with the line on which the double fold is expected to be placed postoperatively (dotted lines in Figure 1).

#### Step 2

The eyelid is anaesthetised using 1% lidocain containing epinephrine.

#### Step 3

The skin at the marked points on the eyelid is penetrated with a scalpel to make minor slits less than 1 mm in length in which the suspension sutures are enfolded at the end of the operation.

#### Step 4

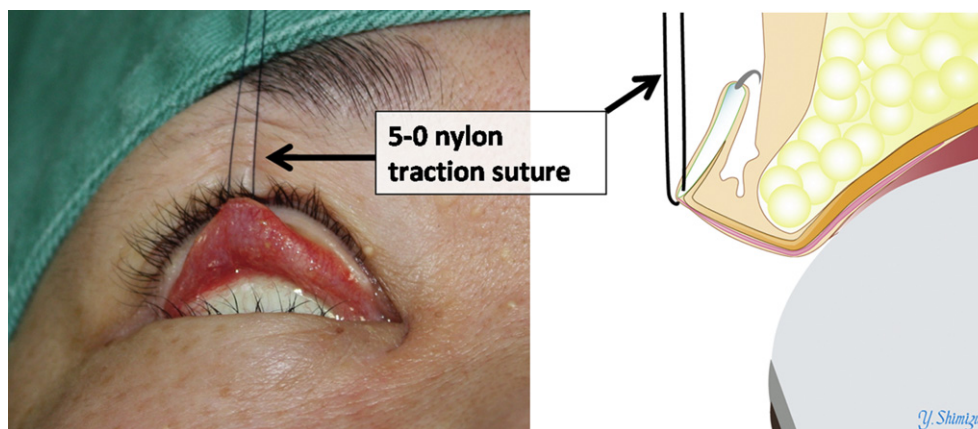
After turning the upper eyelid inside out, a 5/0 nylon suture is applied at the upper margin of the central part of the tarsus and suspended in the anterior–superior direction (Figure 2). This suspension provides exposure of the fornix of the superior conjunctiva, making subsequent procedures easy to perform.

#### Step 5

A 7/0 nylon suture is introduced into the upper eyelid through the conjunctiva. The suture should be introduced from a point as close to the superior conjunctiva fornix as possible (point A in Figure 3); instructing the patient to gaze downward facilitates this manoeuvre. The authors use a 7/0 nylon suture with needles attached to both ends. The two needles are inserted at the same point of the conjunctiva. After the threads are introduced into the eyelid, they are guided to involve the superior levator palpebral and Müller muscles. Thereafter, the thread is temporarily extracted from the conjunctiva at the level of the upper margin of the tarsus (point B in Figure 3).

#### Step 6

The 7/0 nylon suture is again introduced into the eyelid from the point on the conjunctiva through which it was extracted (point B in Figure 4). After being guided to pierce the upper part of the tarsus, it is extracted from the minor slit previously made in step 3 (point C in Figure 4).



**Figure 2** By applying a traction suture at the upper margin of the tarsus, the tarsus is flipped.

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