

Challenges in Diagnosis and Management of Pseudoptosis Secondary to Asymmetrical Skin Creases

S L Ting, MBBS, A C A Koay, MD, Y H Yew, MD, C N Chua, FRCOphth

Department of Ophthalmology, Faculty of Medicine and Health Sciences, Universiti Malaysia Sarawak, Kuching, Sarawak

SUMMARY

Introduction: Asymmetrical eyelid skin crease may be mistaken for ptosis due to apparent narrowing of the palpebral fissure in the eye without the skin crease. This study describes a series of patients who were mistakenly referred for ptosis operation as a result of absent skin crease. **Methods:** Retrospective case review. **Results:** A total of 8 patients (5 males and 3 females) were referred by the general ophthalmologists because of suspected ptosis. Although skin creases asymmetry was noted by the general ophthalmologists, the apparent narrowing of the palpebral fissure was thought to be caused by ptosis. However, measurement of the palpebral fissures in both eyes were normal. Creation of a symmetrical skin crease in the affected eye correct the apparent palpebral fissure narrowing. This could be achieved by either surgical or non-surgical means (tape or glue). **Conclusion:** Patients with asymmetrical skin crease of the upper eyelid can give rise to apparent differences in palpebral apertures which may be mistaken for ptosis. The treatment of choice is to create symmetrical skin crease in the eye with absent skin crease to correct the pseudoptosis. Recognition of this condition is important to avoid unnecessary ptosis surgery.

KEY WORDS:

Pseudoptosis, Ptosis, Asian blepharoplasty, Double eyelid

INTRODUCTION

Congenital upper eyelid skin crease asymmetry is a common occurrence amongst people of East Asian origins (Chinese, Japanese and Koreans)¹. Typically, there is a well-formed upper eyelid skin crease in one eye but an absent or poorly formed skin crease in the other eye. Such asymmetry can create the appearance of unequal palpebral fissures so that the eye with the well-formed skin crease appears wider than the one with absent or poorly formed skin crease. In some cases, this may be misdiagnosed as ptosis due to the appearance of a smaller palpebral fissure in the eye without the skin crease. In this report, we present 8 young patients who were referred to the oculoplastic clinic for treatment of a unilateral ptosis; however, the appearances of unequal palpebral apertures were caused by asymmetrical skin creases in all cases. This type of pseudoptosis and its management has never been previously reported in Malaysia. The incidence of eyelid skin crease asymmetry (one eye with skin crease and one eye without) appears to be high amongst people of East Asian origin. A recent study in Korea reported an incidence of 10.9% amongst the 20 to 40 years old².

MATERIALS AND METHODS

This study is a retrospective review of the clinical notes of 8 patients who were referred to the oculoplastic clinic for ptosis consultation from the general ophthalmologists between May 2007 and April 2009. All patients had asymmetrical skin creases (presence of a skin crease in one eye and an absent or poorly formed skin crease in the other) and apparent narrowing of the palpebral fissure in the eye with absent or poorly formed skin crease. All the patients presented to the general ophthalmologists complaining of a smaller palpebral aperture in the eye with absent or poorly formed skin crease. Although some cases were identified by the general ophthalmologists as having asymmetrical skin creases, all patients were referred to the oculoplastic clinic for ptosis management.

At the time of consultation, all patients had a detailed eyelid examination including the measurements of the levator function, skin crease height, marginal reflex distance and the palpebral aperture. During the initial examination, the eyes with absent or poorly formed skin crease appear to be smaller. However, the levator functions and the marginal reflex distances were identical to the contralateral eyes with the well formed skin crease. Digital pictures of all the patients were also taken. Repeated measurements of the eyelids and digital pictures were taken following creation of the skin crease in the eyes with absent or poorly formed skin creases.

Skin creases in the eyes with apparent narrowing of the palpebral aperture were created (if absent) or enhanced (if poorly formed) using either surgical or non-surgical method¹. In the surgical method, the skin crease was created using the incisional technique under local anaesthesia. The height of the skin crease created was set similar to the skin crease height in the fellow eye. The orbital septum was opened and the pre-aponeurotic fat was gently cauterised to retract it so as to expose the underlying levator aponeurosis. The skin crease was then created by suturing the skin of the cut edge to the underlying levator aponeurosis using 6/0 vicryl. The sutures were removed at one week. In the non-surgical method, the skin crease was created by using either tape or glue¹. The patients were given the choice of either surgical or non-surgical method to create a symmetrical skin crease. The surgical method creates a permanent skin crease while the non-surgical method, a reversible skin crease.

Following the creation of the skin creases, the eyes with the apparent narrowing of the palpebral aperture appear wider even though the levator functions and the marginal reflex distances remain unchanged from the initial examination.

This article was accepted: 9 May 2011

Corresponding Author: Chua Chung Nen, Department of Ophthalmology, Faculty of Medicine and Health Sciences, Universiti Malaysia Sarawak (UNIMAS), Lot 77, Seksyen 22, KTLD, Jalan Tun Ahmad Zaidi Adruce, 93150 Kuching, Sarawak Email: CHUAOXFORD@HOTMAIL.COM

Table I: Reason(s) for referral and management

Patient (age / sex)	Reason(s) for referral	Side with poorly formed or absent skin crease	Management
1 (17/M)	Right ptosis (Figure 1)	Right	Tape
2 (19 /M)	Right ptosis (Figure 2)	Right	Glue
3 (17 /M)	Right ptosis (Figure 3)	Right	Surgery
4 (15 / F)	Right ptosis	Right	Surgery
5 (17 / M)	Left ptosis and poor lid crease	Left	Glue
6 (18 / F)	ight ptosis and absent skin crease	Right	Tape
7 (23 / M)	Right ptosis	Right	Tape
8 (25 / F)	Left ptosis and absent skin crease	Left	Tape

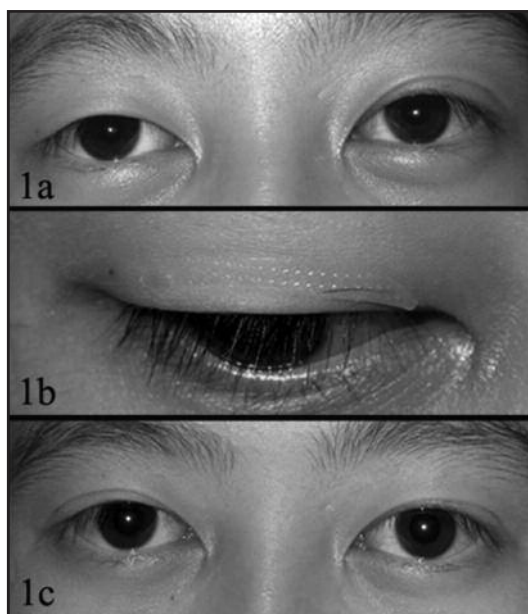


Fig. 1: (Fig. 1a) Patient 1. Right palpebral fissure appearing narrower due to absent upper eyelid skin crease. (Fig. 1b) Applying a small strip of tape to the upper eyelid to form an upper eyelid skin crease. (Fig. 1c) Palpebral fissures in both eyes appearing the same following creation of the right upper eyelid lid.

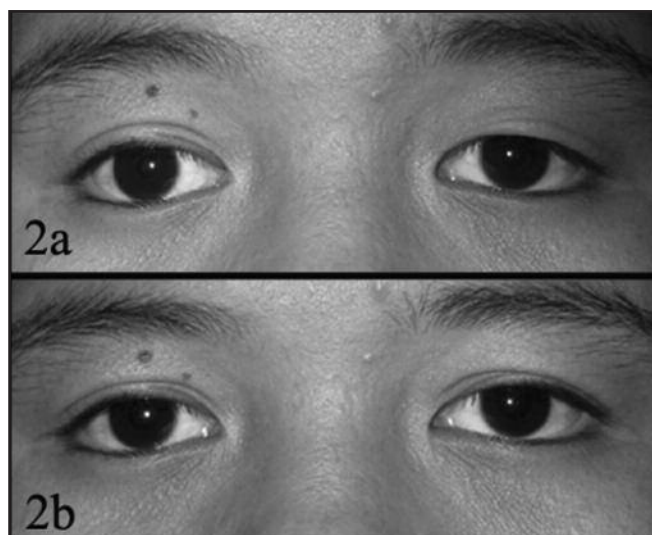


Fig. 2: (Fig. 2a) Patient 2. Left palpebral fissure appearing narrower due to poorly formed upper eyelid skin crease. (Fig. 2b) Both palpebral fissures appearing symmetrical following creation of a left upper eyelid skin crease using glue.

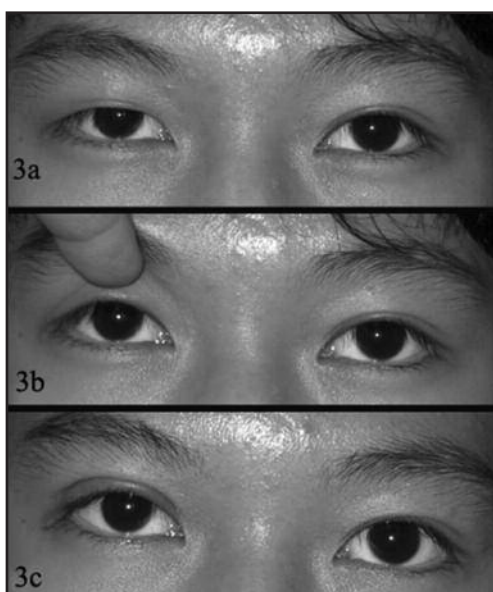


Fig. 3: (Fig. 3a) Patient 3. Right palpebral fissure appearing narrower due to poorly formed upper eyelid skin crease. (Fig. 3b) Both palpebral fissures appearing equal when the right upper lid skin was lifted from the eyelid margin. (Fig. 3c) Both palpebral fissures appearing symmetrical following surgical creation of a right upper eyelid skin crease.

RESULTS

There were 3 female and 5 male patients with a mean age of 17.6 years (range 15 to 23). The results are presented in Table I.

DISCUSSION

Congenital upper eyelid skin crease asymmetry can give an impression of unequal palpebral fissures which may be misdiagnosed as ptosis. The upper eyelid skin crease (superior palpebral sulcus) is formed by the attachment of the superficial insertion of levator aponeurotic fibers to the skin. However, the skin creases of the East Asians are not as well developed as other races and may be absent in as many as 50% of the population. The following anatomical factors are implicated for the East Asian upper eyelid appearance^{4,5}:

- a. The orbital septum fused with the levator aponeurosis at a lower level and this allows the preaponeurotic fat to descend further. This fat forms a barrier and prevents the levator aponeurosis from forming adhesions with the skin.
- b. In races with well-developed skin creases, there is strong natural adherence between the front of the tarsal plate and the back of the skin formed by fibrous connections that pierce the orbicularis muscle. In the East Asians, such adhesions are weak or absent.

The presence of a skin crease forms a barrier and holds back the upper eyelid skin so that it does not fall over the eyelid margin. In patients who have no skin creases, the upper eyelid skin is held back by the upper eyelid lashes and consequently some of the eyelid may droop over and occlude the upper eyelid margin (Figure 4). When viewed from the front, this skin hooding makes the palpebral fissure appears smaller. To the unwary examiner, the palpebral fissure in these patients may be mistaken as the height from the lower eyelid margin (or from the pupil reflex if using the marginal reflex distance) to the edge of this skin fold instead of the upper eyelid margin which is hidden by the skin fold. To avoid misdiagnosis of ptosis, patients who have asymmetrical skin creases should have the eyelids elevated and the palpebral apertures measured precisely with a ruler. In addition, the amount of upper eyelid movement (from looking down to looking up) should be evaluated. In true ptosis, both the palpebral aperture and the eyelid movement would be decreased compared with the normal eye.

This case series shows the importance of recognising asymmetrical skin crease as a cause of pseudoptosis in order to avoid inappropriate surgery such as levator advancement. The treatment of choice in these patients involves the creation of a symmetrical skin crease in the affected eye. This can be achieved with either a surgical or non-surgical mean (such as tape or glue) as discussed in this article.

REFERENCES

1. Chen W PD. Asian Blepharoplasty and the Eyelid Crease. 2nd ed. New York, NY: Elsevier; 2006; Chapter 2: 2-22.
2. Song WC, Kim SJ, Kim SH, Hu KS, Kim HJ, Koh KS. Asymmetry of the palpebral fissure and upper eyelid crease in Koreans. *Journal of Plastic, Reconstructive & Aesthetic Surgery* 2007; 60: 251-5.
3. Doxanas MT, Anderson RL. Oriental eyelids – an anatomic study. *Arch Ophthalmol* 1984; 102: 1232-5.
4. Liu D, Hsu WM. Oriental eyelids – anatomic difference and surgical consideration. *Ophthalmic Plast Reconstr Surg* 1986; 2: 59-64.
5. Jeong S, Lemke BN, Dortzbach RK, Park YG, Kang HK. The Asian upper eyelid: an anatomical study with comparison to the Caucasian eyelid. *Arch Ophthalmol*. 1999; 117: 907-12.
6. Amrith S. Oriental eyelids--anatomical and surgical considerations. *Singapore Med J*. 1991; 32(5): 316-8.