

Conference Paper

Approach to the Diagnosis and Management of Ptosis

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ABSTRACT

Ptosis is a condition characterized by the drooping of the upper eyelid from its normal position. This case report presents a 45-year-old female patient who has experienced the inability to fully open her right upper eyelid for the past 2 months, a condition that appeared suddenly. This persistent issue has significantly impacted her daily activities. The patient has a history of a fall 8 years ago, resulting in a laceration on her right forehead that required suturing. Ophthalmologic evaluation revealed a visual acuity of 20/30 in the right eye and 20/25 in the left eye. Physical examination confirmed ptosis of the right upper eyelid (oculi dextra). Other anterior segment findings were within normal limits. Extraocular movements were intact in all directions with normal direct and consensual pupillary reflexes. Specific measurements for the right eye included a palpebral fissure height of 6 mm, Margin Reflex Distance 1 (MRD1) of 0 mm, and Margin Reflex Distance 2 (MRD2) of 6 mm, with a levator function of 8 mm. Based on the history, physical examination, ophthalmologic findings, and ancillary tests, the patient was diagnosed with ptosis oculi dextra. The treatment plan included administration of vitamin B complex and vitamin B12, along with a referral to an ophthalmologist for surgical management of ptosis.

Keywords: Ptosis, palpebra, trauma, unilateral

Introduction

The upper eyelid is normally positioned halfway between the superior limbus and the upper edge of the pupil, with a variation of 2 mm if both eyelids are symmetrical. Ptosis occurs when the upper eyelid fails to fully open, mainly due to a dysfunction in the levator palpebrae muscle, which is controlled by the third cranial nerve, also known as the oculomotor nerve (Ilyas & Yulianti, 2017).

Ptosis is categorized based on its severity: mild ptosis is when the upper eyelid margin covers < 2 mm of the cornea, moderate ptosis is when it covers 3 mm, and severe ptosis is when it covers > 4 mm of the cornea. The management of ptosis depends on its etiology and severity. Treatment involves improving levator muscle function by shortening the muscle, thereby elevating the tarsus (Bermant, _____).

Ptosis can be categorized into five types: myogenic, neurogenic, aponeurotic, traumatic, and mechanical. In this case, the patient's ptosis is classified as traumatic, due to a history of trauma 8 years ago when the patient slipped and sustained a laceration on the right forehead, which required suturing (Ilyas & Yulianti, 2017).

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Case study

The patient presented to the eye clinic with complaints of her right upper eyelid not opening fully for the past 2 months, a condition that appeared suddenly. This persistent issue has significantly impacted her daily activities. The patient has a history of a fall 8 years ago, resulting in a laceration on her right forehead that required suturing. Ophthalmologic evaluation revealed a visual acuity of 20/30 in the right eye and 20/25 in the left eye. Physical examination confirmed ptosis of the right upper eyelid (oculi dextra). Other anterior segment findings were within normal limits. Extraocular movements were intact in all directions with normal direct and consensual pupillary reflexes. Specific measurements for the right eye included a palpebral fissure height of 6 mm, Margin Reflex Distance 1 (MRD1) of 0 mm, and Margin Reflex Distance 2 (MRD2) of 6 mm, with a levator function of 8 mm. Based on the history, physical examination, ophthalmologic findings, and ancillary tests, the patient was diagnosed with ptosis oculi dextra. Consider a differential diagnosis of dermatochalasis, which involves an excess of skin on the upper eyelid without associated weakness of the levator muscle. A simple test, such as manually elevating the excess skin, can demonstrate improvement in the drooping of the eyelid. The treatment plan included the administration of Cyanocobalamin tablets 50 mcg twice daily and Vitamin B Complex twice daily, with surgical management of ptosis planned.

Additional therapy such as eye drops containing Oxymetazoline Hydrochloride can be administered. This medication acts on the Müller muscle by activating its alpha-adrenergic receptors, leading to contraction of the smooth muscle and correction of ptosis. Surgery is performed based on the function of the palpebral muscles, which helps determine the appropriate type of surgery. For example, Levator Resection Surgery is used to shorten the levator muscle, thereby enhancing the eyelid's ability to lift. This technique is indicated for ptosis with preserved levator function. In contrast, Frontalis Sling Surgery employs a material (such as silicone or fascia lata) to connect the upper eyelid to the frontalis muscle in the forehead, allowing the patient to elevate the eyelid by moving the forehead. This approach is used in severe ptosis cases with very weak or absent levator function (Ulivieri et al., 2022).



Figure 1. The patient presents to the ophthalmology clinic with the complaint of incomplete opening of the right upper eyelid, which has occurred suddenly over the past 2 months



Figure 2. Patient left eye opens normally

Additional ptosis examination of the patient

Palpebral fissure height measurement is an important component of the clinical evaluation of ptosis. This measurement assesses the distance between the upper and lower eyelid margins when the eye is in a normally open position.

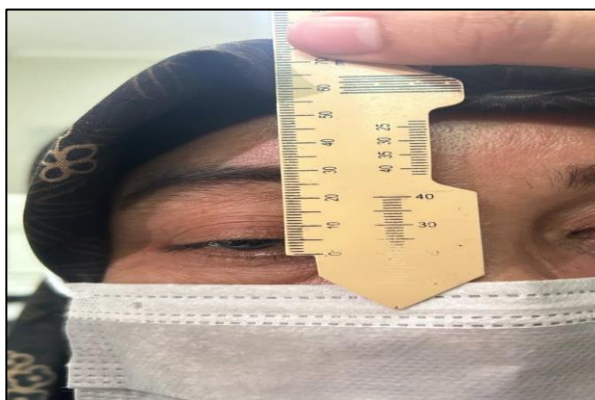


Figure 3. Palpebral Fissure Height measurement for the right eye (OD) is 6 mm

The Marginal Reflex Distance (MRD) examination is a method used to measure the distance between the corneal reflex (the reflection of light on the cornea) and the upper eyelid margin (MRD1) or the lower eyelid margin (MRD2). MRD1 is the most commonly used measurement in the evaluation of ptosis.



Figure 4. Marginal Reflex Distance 1 for the right eye (OD) is 0 mm



Figure 5. Marginal Reflex Distance 2 for the right eye (OD) is 6 mm

The Levator Function Test is a clinical evaluation used to assess the ability of the levator palpebrae superioris muscle to lift the upper eyelid. This examination is crucial for diagnosing and managing ptosis, as it helps determine the type and severity of ptosis and guides treatment options.



Figure 6. Levator Function test for the right eye (OD) shows 8 mm

The Bell Phenomenon examination is used to assess the natural protective reflex of the eye, known as the Bell phenomenon. This reflex involves an upward movement of the eyeball when the eyelid is closed, particularly during forced closure. The Bell phenomenon test is important in the context of ptosis as it provides information about the function of the oculomotor muscle and aids in planning surgical interventions.



Figure 7. Bell's Phenomenon for the right eye (OD) is positive



Figure 8. Palpebral Fissure Height measurement for the left eye (OS) is 10 mm



Figure 9. Marginal Reflex Distance 1 for the left eye (OS) is 3 mm



Figure 10. Marginal Reflex Distance 2 for the left eye (OS) is 7 mm



Figure 11. Levator Function test for the left eye (OS) shows 13 mm

This case report describes a 45-year-old woman presenting to the eye clinic with complaints of her right upper eyelid not opening fully for the past 2 months, a condition that appeared suddenly. This persistent issue has significantly impacted her daily activities. The patient has a history of a fall 8 years ago, resulting in a laceration on her right forehead that required suturing. Ophthalmologic evaluation revealed a visual acuity of 20/30 in the right eye and 20/25 in the left eye. Physical examination confirmed ptosis of the right upper eyelid (oculi dextra). Other anterior segment findings were within normal limits. Extraocular movements were intact in all directions with normal direct and consensual pupillary reflexes. Specific measurements for the right eye included a palpebral fissure height of 6 mm, *Margin Reflex Distance 1* (MRD1) of 0 mm, and *Margin Reflex Distance 2* (MRD2) of 6 mm, with a levator function of 8 mm. Based on the history, physical examination, ophthalmologic findings, and ancillary tests, the patient was diagnosed with ptosis oculi dextra. The treatment plan included administration of Sianocobalamin tablets 50 mcg twice daily and Vitamin B Complex twice daily, with surgical management of ptosis planned.

Diagnosis of ptosis in this case was established based on the patient's symptoms and signs. The symptoms included stiffness in the right upper eyelid, a sensation of narrow vision, and a feeling of obstruction in the eye. The signs included a drooping right upper eyelid that partially covered the patient's visual field. Additional examinations revealed a palpebral fissure height of 6 mm in the right eye, confirming the diagnosis of ptosis.

The diagnosis of ptosis in this patient aligns with theoretical expectations, based on anamnesis showing a drooping upper eyelid, difficulty opening the eye normally, increased tear production, visual disturbances, and eye irritation due to continuous corneal pressure from the eyelid.⁵ Ophthalmologic examination findings included a smaller eyelid opening in ptosis compared to the normal eye. Further examination of Palpebral Fissure Height, the distance between the superior and inferior eyelid margins in the primary gaze position, was abnormal. Margin-Reflex Distance 1 (MRD 1), the distance between the center of the pupillary light reflex and the upper eyelid margin in the primary position, was measured, with a normal result being 4-5 mm. The lid crease height was high, double, and asymmetrical, typical of involutional ptosis. Abnormal levator function was found, with normal action being 14-16 mm. Visual acuity and refractive errors were also assessed (Aryatul, 2008; American Academy of Ophthalmology, 2002).

Ptosis can result from poor levator muscle function, paralysis of the third cranial nerve, or inadequate support tissues causing the eye to retract or enophthalmos. Causes of ptosis include congenital, myogenic, and neurogenic abnormalities. Ptosis can also occur in myasthenia gravis, affecting one or both eyes. If congenital ptosis is not promptly managed, it can lead to amblyopia in the affected eye (Ilyas & Yulianti, 2017).

Ptosis diagnosis involves assessing the duration, age at onset, severity, and degree of ptosis throughout the day. Diagnosis also considers other conditions such as trauma history, previous surgeries, and family history of ptosis. Symptoms like double vision may suggest myasthenia gravis (MG), with additional signs like dysphonia, dyspnea, dysphagia, or proximal muscle weakness indicating systemic MG. Clinical evaluation can include comparing old photos of the patient with current clinical appearance. The physical examination of ptosis includes assessing the margin-reflex distance, measuring the height of the palpebral fissure, observing the presence of eyelid folds, evaluating levator muscle function, determining the degree of ptosis, and checking for the presence of lagophthalmos (Suh, 2003).

Conclusion

In conclusion, ptosis is a condition characterized by the drooping of the upper eyelid, which prevents it from fully opening, leading to a reduced palpebral fissure size compared to normal. Proper management and evaluation of the patient's condition can lead to a good prognosis.

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