

Ptosis: Causes, Symptoms, Diagnosis and Treatment

David Kato*

Department of Optometry and Visual Science, Mbarara University of Science and Technology, Uganda

Introduction

Ptosis, commonly known as drooping eyelid, is a condition where the upper eyelid falls lower than normal, often partially or completely covering the eye. This can occur in one or both eyes and can vary in severity. In mild cases, the drooping may be barely noticeable, while in more severe cases, the eyelid can obstruct vision, affecting daily activities such as reading, driving, or seeing clearly. Ptosis can develop gradually over time or appear suddenly, depending on its cause. Ptosis is not a disease but rather a symptom of an underlying issue that affects the muscles or nerves responsible for lifting the eyelids. The primary muscle involved in lifting the eyelid is the levator palpebrae superioris, and when this muscle is weakened or its nerve supply is disrupted, ptosis can result. This condition can occur for a variety of reasons, including aging, nerve damage, congenital factors, or other systemic medical conditions [1]. There are two primary types of ptosis: congenital ptosis, which is present at birth due to underdeveloped or malfunctioning eyelid muscles, and acquired ptosis, which develops later in life due to factors such as aging, trauma, neurological disorders, or diseases like myasthenia gravis. The condition can also be associated with other symptoms like double vision, fatigue, or difficulty closing the eyes fully. While ptosis is often a cosmetic concern, in more severe cases, it can cause functional problems, such as difficulty seeing, and may require medical or surgical intervention [2]. Proper diagnosis is essential, as treatment depends on the underlying cause, and addressing it can significantly improve both appearance and quality of life.

Causes of ptosis

There are multiple factors that can contribute to ptosis. These causes can be broadly categorized into muscular, neurological, and structural.

Congenital ptosis

Congenital ptosis occurs when the levator muscle fails to develop fully during pregnancy. The condition may be inherited, and the severity of drooping can vary from mild to severe. Some children with congenital ptosis may have difficulty keeping their eyes open, which can affect their vision [3,4]. In some cases, this condition may also cause amblyopia (lazy eye), where the brain favors one eye, resulting in poor vision in the other.

Age-related ptosis

As people age, the muscles that control eyelid movement can weaken and stretch, leading to ptosis. This form of ptosis is often associated with the natural aging process and may develop gradually over time. The levator palpebrae superioris becomes less efficient, resulting in sagging eyelids. This is the most common cause of ptosis in older adults and is sometimes referred to as senile ptosis [5,6].

Neurological causes

Neurological conditions affecting the nerves controlling the eyelids can lead to ptosis. The oculomotor nerve, which controls the levator palpebrae superioris muscle, may be damaged due to several factors, including:

Third cranial nerve palsy: This is a rare but serious condition often caused by an aneurysm, brain tumor, or stroke. It results in ptosis along with other symptoms such as double vision and pupil abnormalities [7].

Horner's syndrome: A disruption in the sympathetic nerves that control the eyelid muscles can lead to ptosis. This condition is typically associated with a smaller pupil, ptosis, and lack of sweating on one side of the face [8]. Horner's syndrome can be caused by a variety of issues, including stroke, trauma, or tumors affecting the neck or chest.

Myasthenia gravis: This autoimmune disorder affects the neuromuscular junction and results in muscle weakness, including the muscles controlling the eyelids. People with myasthenia gravis often experience ptosis that worsens with fatigue and improves with rest [9].

Muscle-related causes

The levator palpebrae superioris muscle itself can be damaged or weakened by certain medical conditions, leading to ptosis. Some of these include:

Chronic progressive external ophthalmoplegia (CPEO): A condition that causes progressive muscle weakness and affects the muscles responsible for eye movements, leading to ptosis.

Trauma or injury: Any direct injury to the eyelid or eye area, such as from surgery or accidents, can damage the muscles or nerves controlling eyelid movement, resulting in ptosis.

Symptoms of ptosis

The primary symptom of ptosis is the drooping of the upper eyelid, which may interfere with vision in severe cases. In mild ptosis, there may be only slight sagging that is barely noticeable. Additional symptoms include:

Fatigue or discomfort in the eyelid due to the effort of raising the eyelid manually.

Double vision (if the drooping eyelid interferes with vision).

Difficulty closing the eye completely, leading to dryness and irritation.

Amblyopia (in children with congenital ptosis), which can cause visual developmental issues if left untreated.

***Corresponding author:** David Kato, Department of Optometry and Visual Science, Mbarara University of Science and Technology, Uganda, Email: david_k@gmail.com

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Diagnosis of ptosis

To diagnose ptosis, an ophthalmologist or neurologist will conduct a comprehensive eye exam, including a detailed patient history and visual acuity tests. In some cases, additional diagnostic tests may be needed, such as:

Neurological examination: To evaluate if there are any underlying nerve issues, such as third cranial nerve palsy or myasthenia gravis [10].

Imaging studies: MRI or CT scans may be ordered to rule out structural causes, such as tumors or aneurysms.

Blood tests: To check for underlying conditions such as diabetes or autoimmune diseases like myasthenia gravis.

Conclusion

Ptosis is a condition characterized by the drooping of the upper eyelid, which can affect one or both eyes. While it may simply be a cosmetic concern in some cases, it can also signal a more serious underlying condition such as nerve damage, trauma, or systemic disease. The condition can significantly affect vision and quality of life, especially if the drooping eyelid obstructs the line of sight. Timely diagnosis is crucial in determining the underlying cause of ptosis, as treatment varies depending on the cause and severity. While surgery is often the most effective treatment for acquired ptosis, non-surgical options can be explored for less severe cases. Individuals experiencing ptosis, especially if it is sudden or associated with other neurological symptoms, should seek medical attention promptly to ensure proper

evaluation and management.

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