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Marcus Gunn Jaw-Winking Phenomenon in a Newborn: A Case Report

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Abstract

Marcus Gunn jaw-winking phenomenon (MGJWP), a rare form of congenital synkinetic ptosis, is characterized by involuntary eyelid movement synchronized with jaw motion. We report a case of MGJWP in a 1-month-old male patient presenting with upper eyelid retraction during feeding and discuss its clinical presentation, embryological basis, differential diagnosis, and management. Emphasis is placed on early recognition and multidisciplinary care, particularly in settings where functional, aesthetic, and psychological outcomes intersect. Awareness among paediatricians, dentists, and ophthalmologists is crucial for timely diagnosis and management.

Keywords: Marcus Gunn phenomenon, jaw-winking syndrome, congenital ptosis, synkinesis, newborn, misdirection syndrome

Introduction

Marcus Gunn jaw-winking phenomenon (MGJWP) is a rare congenital synkinetic movement disorder characterized by abnormal elevation of the upper eyelid in association with jaw movement. The condition results from aberrant neural connections between the motor branch of the trigeminal nerve (CN V3) and the levator palpebrae superioris muscle, which is innervated by the superior division of the oculomotor nerve (CN III).

MGJWP accounts for approximately 2–13% of cases of congenital ptosis and is usually unilateral, with a slight predominance on the left.

Clinically, the hallmark feature is synkinetic elevation of the ptotic eyelid during jaw movement, such as sucking, chewing, smiling, or lateral mandibular deviation. Associated ocular abnormalities such as strabismus, amblyopia, and refractive errors may occur and require early identification and management.

The present case highlights an early diagnosis of MGJWP in a neonate noticed during breastfeeding, emphasizing the importance of early clinical recognition and timely ophthalmologic evaluation.

Case Report

A 36-year-old female presented to the dental centre for dental treatment and was accompanied by her 1-month-old male infant. Following completion of the dental procedure, the mother expressed concern regarding an unusual movement of the infant's eyelid observed during breastfeeding.

She reported that the infant's right upper eyelid suddenly elevated whenever the child moved his jaw during suckling. The infant had an unremarkable perinatal history, with no history of birth trauma, neonatal intensive care unit admission, or maternal infections during pregnancy. There was no similar family history. Developmental milestones appropriate for gestational age were noted.

On clinical examination, the infant appeared alert and responsive. At rest, mild unilateral ptosis of the right eyelid (~2 mm) was observed. During suckling, intermittent elevation of the same eyelid synchronized with mandibular movement was noted (Fig 1). The corneal light reflex was symmetrical and ocular alignment appeared normal.

No craniofacial anomalies, cleft palate, or other syndromic features were identified. There were no clinical signs suggestive of hemifacial microsomia, Goldenhar syndrome, or Duane retraction syndrome.

Based on the characteristic clinical findings, a provisional diagnosis of Marcus Gunn jaw-winking phenomenon was made. The patient was referred to a pediatrician and ophthalmologist for further evaluation, where the diagnosis was confirmed.

The parents were counselled regarding the benign nature of the condition and advised periodic ophthalmologic follow-up to monitor for the development of amblyopia or strabismus, which are commonly associated with this condition.

Follow-up evaluations at 6 weeks and 3 months of age revealed persistence of the jaw-winking reflex without progression of ptosis or development of ocular misalignment.

Given the mild degree of ptosis and absence of visual impairment, surgical intervention was deferred. The patient was advised continued monitoring with a plan for reassessment at 3 years of age to evaluate the need for surgical correction for functional or cosmetic reasons.

Figure 1: Infant with Marcus Gunn Jaw-Winking Phenomenon

Discussion

MGJWP is usually sporadic, though rare familial cases with autosomal dominant inheritance have been reported. The left side is slightly more commonly affected, though bilateral involvement has been reported in 5% of cases. [1] Marcus Gunn first identified the syndrome in 1883.

Etio Pathogenesis: The aetiology and mechanism of the condition are explained by two main theories. The aberrant connection theory, which has been suggested to be neural misdirection syndrome, is supported by electromyography studies. This theory states that fibers from the motor division of the trigeminal nerve are mistakenly guided into the levator and superior pterygoid muscles from birth.[1,4] This seeming connection could be the result of things that happen in utero.[6] The second idea, known as the release theory, contends that the apparent connections between the trigeminal mesencephalic nucleus and the oculomotor nucleus are a remnant of an ancient reflex that was suppressed during

evolutionary development. It is believed that the discovery of a rudimentary pathway led to this notion.

Epidemiology: Marcus Gunn jaw-winking syndrome/ phenomenon affects between 2% and 13% of people with congenital ptosis. It can manifest at any age, even though it is usually present at birth in the affected people. Although there have been reports of bilateral occurrences, it is more common on the left and is typically unilateral. Males and females are equally impacted, and there is no gender predisposition.

Clinical features: MGJWP usually manifests during the first few weeks of life or at birth. It is characterised by an upward pulling and retraction of the affected eyelid that is brought on by chewing, suction, lateral mandibular movements, smiling, sternocleidomastoid contraction, or protruding tongue. Ptosis that gets better when moving the jaw, particularly during sucking, chewing, or lateral jaw deviation, is the distinguishing characteristic. Ptosis can range in severity from minor to severe. Strabismus (in 50–60%), amblyopia (in 30–50%), refractive defects (anisometropia), or abnormalities in head posture are examples of associated characteristics. These associated conditions, if untreated, can lead to significant visual morbidity. The ptosis may be inherited or acquired, unilateral or bilateral

Detailed clinical examination includes Visual acuity (in infants and youngsters, it's critical to rule out amblyopia), Pupillary examination and Cycloplegic refraction primarily to rule out anisometropia, Bell phenomenon adequacy, as it might be diminished with superior rectus or double elevator palsy, Fundus evaluation, extraocular motility test, and cover test to rule out superior rectus or double elevator palsy

Head position: The youngster may elevate their chin for improved eyesight due to ptosis. It is crucial to rule out amblyopia if a youngster with moderate-to-severe ptosis is not making an effort to lift their chin.

Ptosis evaluation: After breaking the fusion with brief ocular closure and while the jaw is immobilized in a central position, the degree of ptosis should be evaluated. There are three levels of ptosis: mild (maximum 2 mm), moderate (3 mm), and severe (at least 4 mm).

When measuring the marginal reflex distance (MRD), the eyes are in the prime gazing posture. The corneal response to the central upper lid margin is measured by MRD1. The corneal response to the central lower lid margin is measured by MRD2. The measurement of LPS resection in ptosis surgery is based on MRD3, which is the distance between the corneal reflex and the central upper-lid margin when the patient looks in extreme up gaze.

The lever function measures how far the upper lid moves from downward to upward gaze while the frontalis muscle is securely restrained at the brow area. Levator function can be classified as poor (less than or equal to 4 mm), good (12–14 mm), fair (5–11 mm), or normal (at least 15 mm).[1-5]

Differential Diagnosis

Condition	Key Differentiating Feature
Duane Retraction Syndrome	Limited horizontal eye movement, globe retraction
Horner's Syndrome	Ptosis, miosis, anhidrosis
Congenital third nerve palsy	Fixed ptosis, ophthalmoplegia
Blepharophimosis syndrome	Bilateral ptosis, epicanthus inversus, telecanthus
Synkinesis due to birth trauma	History of perinatal trauma or forceps delivery

Diagnostic Evaluation

Diagnosis is largely clinical, especially in neonates. However, imaging modalities like MRI may be warranted if neurological or syndromic associations are suspected. The hallmark of MGJWP is winking movement of the eyelid synchronized with jaw actions. Electromyography and neuroimaging can help confirm aberrant innervation in uncertain cases.

Management

Conservative Approach: Some patients may learn to control synkinesis and thus may show improvement in the condition with time.

In cases of mild ptosis and absent amblyopia, regular follow-up is advised and may require surgical correction as the child grows up.

Amblyopia Management: Early treatment with occlusion therapy or corrective lenses is crucial to prevent visual developmental delays.

Surgical Treatment: Surgery if required, is typically postponed until 3–5 years of age, when the child is cooperative. The aim is to eliminate jaw-winking and correct ptosis.

Frontalis Suspension: Gold standard in severe cases with poor levator function

Levator Excision + Frontalis Sling: Recommended to abolish synkinetic movement

Bilateral Sling Surgery: Often advised to achieve symmetric lid height

Newer surgical techniques involve adjustable slings and levator disinsertion. Studies report 70–90% improvement in aesthetics and function. [7-14]

Conclusion

Marcus Gunn jaw-winking phenomenon is an uncommon congenital synkinetic disorder that may present early in infancy. Recognition of the condition during feeding, as observed in the present case, provides an opportunity for early diagnosis and appropriate ophthalmologic monitoring. Although the condition is usually benign, associated ocular abnormalities such as amblyopia and strabismus necessitate periodic follow-up. Early parental counseling and a multidisciplinary approach involving pediatricians, ophthalmologists, and other healthcare professionals are essential to ensure optimal visual development and cosmetic outcomes.

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