# MARCUS GUNN PHENOMENON : A CASE REPORT

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## Abstract

Marcus Gunn Jaw Winking Phenomenon/Trigemino-oculomotor synkinesis was first described by Marcus Gunn, an ophthalmologist, in 1883. It consists of elevation or depression of the eyelid on chewing/suckling movement and may occur in one or both eyes, with or without congenital ptosis. We present a case of 42-year-old male, who reported to the Department of Oral Medicine & Radiology of Haldia Institute of Dental Sciences & Research, with elevation of eyelid on chewing and side by side jaw movements.

**Key Words** Marcus gunn phenomenon, congenital ptosis, synkinesis, amblyopia

## INTRODUCTION

It is an autosomal-dominant clinical disorder, with incomplete penetrance, characterised by rhythmic upward jerking of unilateral ptotic upper eyelid concomitant with movements of the jaw.[1] This condition is characterized as a synkinesis: two or more muscles that are independently innervated have either simultaneous or coordinated movements.[3] This phenomenon is also known as Marcus Gunn Jaw-Winking Syndrome, Trigemino-Oculomotor Synkinesis and Maxillo-Palpebral Synkinesis. It was first described by Robert Marcus Gunn, a British Opthalmologist in 1883. It is often associated with the following clinical features: amblyopia, anisometropia, strabismus, unequal focusing, elevator palsy, and paralysis of rectus superior. Associated syndromes & diseases include: congenital nystagmus, Duane syndrome, Congenital fibrosis syndrome, Martin Amat Syndrome, Oro-Facial Digital Syndrome, Retinitis Pigmentosa, Facio-Palpebral Synkinesis, Cleft lip/palate, Renal calculi, Supernumerary incisiors.[1,2,4]

## CASE REPORT

A 42-year-old male patient came to the Department of Oral Medicine & Radiology of Haldia Institute of Dental Sciences & Research with a chief complaint of pain in lower left back teeth region since 1 week. On clinical examination, it was noted that the patient has ptosis of his left eyelid when his mouth was at rest. On through clinical examination following features were noted: 1. There was retraction of his left upper eyelid during mouth opening, leading to wide opening of his left eye. 2. When the patient performed lateral movements of the mandible there was rhythmic upward movement of his left upper eyelid. Patient's familial history in this regard was negative.

## PATHOPHYSIOLOGY

The pathogenesis of this syndrome is controversial with the most accepted theory being stimulation of the trigeminal nerve by contraction of the lateral pterygoid muscle leading to the excitation of a branch of oculomotor

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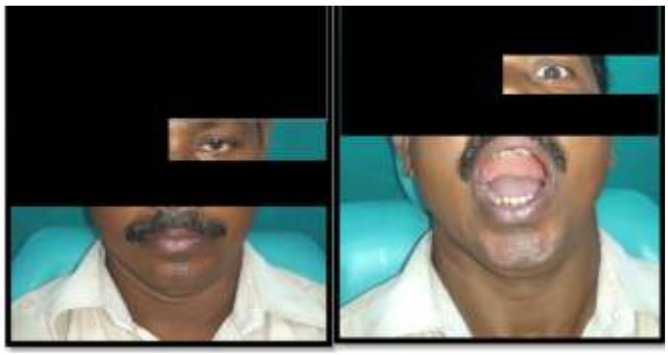

nerve that innervates levator Palpebrae Superioris ipsilaterally resulting in rhythmic upward jerking of the upper eyelid. Marcus Gunn Jaw Winking Syndrome consists of elevation or depression of the eyelid on chewing/suckling and may occur in one or both eyes, with or without congenital ptosis.[5,6] It is hypothesized that axons, intended to travel within the motor branch of the trigeminal nerve (Cranial Nerve V) to innervate the ipsilateral pterygoid muscle, aberrantly (deviating from the normal course) innervate myofibers of the Levator Palpebrae Superioris (LPS)- the muscle that elevates and retracts the upper eyelid, which is normally innervated by a branch of Cranial Nerve III.[5] These aberrant connections maybe of four types : 1. Cortical/subcortical connection. 2. Faulty distribution 3. Infra nuclear connection 4. Peripheral connection.1,7 Another theory states that there is functional interference (three types) : 1: irritation of a normally dormant connection, 2. Inhibition of pre existing more primitive mechanisms, 3. Spread of impulses by irradiation. The third theory is of atavistic reversion: a weak levator Palpebrae superioris elevates the eyelid when the oblicularis oris is reflexly relaxed by jaw opening.

## DISCUSSION

The term "Jaw-Winking" is a misnomer because this phenomenon involves raising and not winking of the affected eyelid, which in turn is synchronous with, and proportionate to the opening of the mouth. This response is followed by a rapid return to normal position. The amplitude of the wink tends to be worse in down gaze. This rapid, abnormal motion of the eyelid can be the most disturbing aspect of the jaw-winking syndrome. The amount of jaw winking is the excursion of the upper eyelid with synkinetic mouth movement. It is measured with a millimeter ruler. Jaw-winking is assessed as: Mild < 2 mm; Moderate 2–5 mm; Severe ≥ 6 mm. The jaw-wink is considered cosmetically significant if it is 2 mm or more.[4]

Treatment includes: pharmacologic management and occlusion therapy for amblyopia, and correction of anisometropia prior to any surgery for ptosis.[4] Surgical intervention depends upon the severity of ptosis. If the ptosis is mild, the patient may not proceed with surgery. If moderate, a levator resection may be indicated. In severe ptosis, a super maximum (>30 mm) levator resection or frontalis suspension is necessary.1 Clinical implications for dental surgeon include: 1. Mandatory wearing of protective eye shields by the patient, 2. Mouth opening for short durations, 3. Less time consuming appointments[9].

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