

Overview On Blepharospasm

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Abstract—The focal dystonia known as blepharospasm is typified by episodic, spasmodic, and involuntary closure of the eyelids. It's a degenerative illness that can become incapacitating and lower one's quality of life. Blepharospasm has a complex aetiology that can include both voluntary and involuntary control over the closing of one's eyelids, as well as damage to the corneal blink reflex. In clinical practice, the two most common types of involuntary eyelid closure observed are hemifacial spasm and benign essential blepharospasm. Because botulinum neurotoxin is so effective and has little side effects, it is currently the first line of treatment for blepharospasm.

Benign essential blepharospasm (BEB) is a type of craniofacial dyskinesia that is typified by involuntary contractions of the corrugator, procerus, and orbicularis muscles that occur repeatedly.

Key Words— Blepharitis, Blepharospasm, dystonia, dyskinesia, myectomy, myokymia.

INTRODUCTION

Any aberrant contraction of the orbicularis oculi muscle is referred to as blepharospasm. It is important to distinguish this illness from myokymia, also known as fasciculation, which is a more common but less severe involuntary trembling of the eyelid. The majority of the time, blepharospasm symptoms pass within a few days and don't require medical attention; nevertheless, in many instances, the twitching is chronic and persistent, posing lifetime problems. The symptoms in these situations are frequently severe enough to cause functional blindness. The person feels as though their eyelids are tightly closed and require significant effort to open. Individuals with normal eyes occasionally become effectively blind because they are unable to open their eyelids. The reflex blepharospasm, on the other hand, is brought on by any kind of pain in or near the eye. It is classified as either essential or reflex blepharospasm. A focal dystonia, or neurological movement disease characterized by prolonged, involuntary contractions

of the muscles surrounding the eyes, is what is known as benign essential blepharospasm, or BEB. Although the reason is unknown, weariness, tension, or an irritant may be contributing causes, as indicated by the phrase essential. Sometimes the benign fasciculation syndrome includes blepharospasm.

Myectomy is a surgical surgery that may possibly be helpful. With approximately one case per 20,000 Americans, BEB is a relatively uncommon condition. The name comes from the Greek words *σπασμός* / *spasmos*, an uncontrollably contracted muscle, and *βλέφαρον* / *blepharon*, eyelid. [1]

HISTORY

- 1) In Scottish ophthalmologist Sir William Mackenzie described a little girl who had uncontrollably spasmodic eyelid closing in a case report that was published in 1857.
- 2) He postulated that chloroform, a sedative, might be able to alleviate the condition and surmised that the illness might have a psychosomatic component.
- 3) The patient was able to walk unassisted and see everything around her after a few treatments.
- 4) This patient had benign essential blepharospasm (BEB), a type of focal facial dystonia that affects about 30% of people in the world.
- 5) Although the exact etiology is yet unknown, a crude schema points to a malfunctioning blink reflex.
- 6) The central control center is shorted by stimuli like intense light, ocular surface irritation, pain, or emotional stress, which causes an excessive blinking response.
- 7) BEB can seriously hinder day-to-day activities. [2]

Objective

Using modern facial expression software, involuntary eye closures captured from patient videos are automatically quantified, and the results are compared with clinical rating scales for the severity of blepharospasm. [3]

Treatment objectives may include:

- 1) Reduce muscle spasms & improve vision.
- 2) Enhance quality of life.
- 3) Minimize side effects.
- 4) Long term management

Signs &Symptoms

Uncontrollably closing one or both eyelids for longer periods of time than usual during excessive blinking or spasms of one or both eyes. The spasming episodes could last for several minutes or even hours. Uncontrollably twitching or contracting the muscles around the eyes and face. Twitching symptoms in the nose, cheeks, face, and even the neck area affect certain patients. Eyes that are dry sensitivity to bright light and the sun. [1]

The sign symptoms develop as follows:

- 1) Spasms brought on by specific stimuli, like weariness or bright lights
- 2) Whether or not the triggers are present, spasms happen more frequently during the day and cause the eyelids to stay closed for hours at a time. They also cause the eyebrows to drop towards the eyes. [4]

Fig. 1 Eye Twitching



- OTHER NAMES :-
1. Eye Dystonia
 2. Eye Twitching
 3. Eye Spasm [5]

ETIOLOGY

The exact causes of blepharospasm are still unknown, but there are several factors that are believed to contribute to its development. these include:

- 1) Genetic tendency: some studies suggest that there may be genetic component to blepharospasm as it tends to run in families.
- 2) Abnormal brain function: blepharospasm thought to be cause by abnormal functioning of the basal ganglia, a region of the brain involved in movement control.
- 3) Environmental factor: Certain environmental factor, such as exposure to bright lights or eye strain, can trigger or worsen blepharospasm in some individuals.
- 4) Stress & anxiety: emotional stress and anxiety have been known to enhance the symptoms of blepharospasm.
- 5) Medication : some medications such as antipsychotics or certain types of antidepressants have been associated with the development of blepharospasm as a side effect

Non-Inherited Risk Factor :-

Inherited Risk Factors :-

1.Non-Inherited Risk Factor :-

- 1) A variety of environmental risk factors have been linked to an increased likelihood of developing benign essential blepharospasm. High levels of urbanization and people performing 'white-collar' jobs linked with a stressful lifestyle are examples. [6]
- 2) Driving, reading, stress, strong lighting, and other activities have all been linked to blepharospasm. Singing, humming, walking, talking, and relaxing can all help reduce blepharospasm, and in rare situations, applying pressure to 'trigger points' can also help. [7]

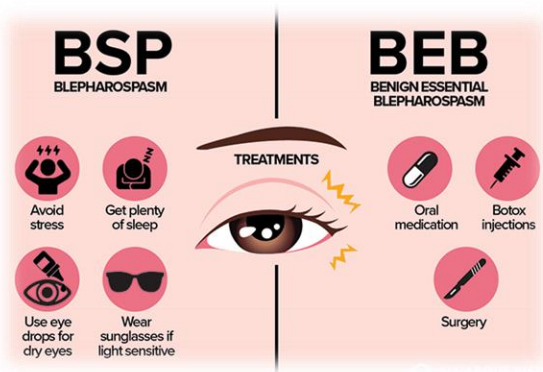
2.Inherited Risk Factors :-

- 1) The discovery of numerous sick individuals within families suggests a genetic link to the condition.
- 2) The inheritance pattern appears to be autosomal dominant with low penetrance in such situations. BEB formation has been linked to the genes GNAL, CIZ1, TOR1A, DRD5, and REEP4. [6]
- 3) Blepharospasm is an inherited condition. Individuals with hereditary blepharospasm suffer widespread dystonia.

- 4) Dystonia is a neurological disorder that causes muscle spasms. [8]

MANAGEMENT

- 1) Oral drugs are only somewhat helpful in treating medical or surgical conditions. Treat the primary etiology in cases when blepharospasm has secondary causes.
- 2) Since the patients frequently have dry eyes as well, which might irritate the eyes and lead to more reflexive blepharospasm, artificial tears should be advised.
- 3) Blepharitis, which can exacerbate blepharospasms, can be minimized by using baby shampoo or another non-irritating soap to scrub the eyelids.
- 4) In addition to reducing light sensitivity (photophobia) and strong light triggers, dark sunglasses (FL-41 colored) can help reduce spasms. [9]

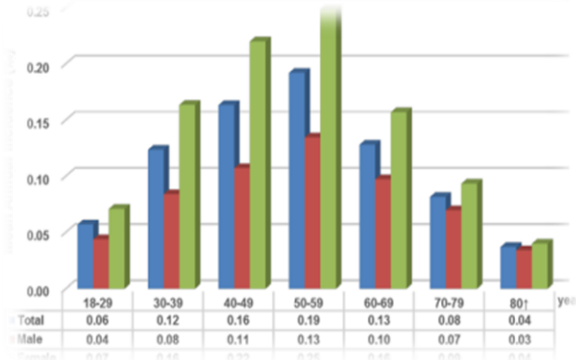


[10]
Fig.2 Management of blepharospasm

EPIDEMIOLOGY

- 1) Despite being one of the most prevalent types of adult-onset dystonia, BSP is still considered rare, affecting just 16–133 cases per million.
- 2) According to most research, primary cervical dystonia (primary CD) is more common than BSP; however, this is not the case in Italy or Japan, where the prevalence of BSP is higher than that of CD.
- 3) Patients with BSP may also tremble in their upper limbs or head. [11]
- 4) The BSP differs from cervical and upper limb dystonia in that it is more likely to extend to

neighboring body parts (typically during the first five years of history), prefers females, and peaks in age between the fifth and seventh decade. [12]



[13]
Fig.3 Epidemiology of blepharospasm

TREATMENT

Although blepharospasm has no known cure, there are therapies that can lessen your discomfort.

- 1) Infusions. Your eye doctor can halt the twitching in your eyelid muscles by injecting a medication called Botox. For most people, shots are required every three to four months.
- 2) Operation. In the event that injections are ineffective for you, your physician might suggest a myectomy. To help stop the twitching, a surgeon will perform a myectomy, which involves removing part of the muscle or nerve tissue from your eyelids.
- 3) A change in lifestyle that includes stress management, getting enough sleep, and reducing caffeine-containing foods and beverages (such as soda, coffee, and tea) may also be beneficial. [5]
- 4) For now, there is no effective treatment for blepharospasm.
- 5) Injections of botulinum toxin (Botox) into the muscles of the eyelids are a recognized treatment. Oral medications tend to help in a small minority of cases and have variable effects when treating the condition.
- 6) Another treatment option is a myectomy, which is a surgical procedure that removes the muscles and nerves in the eyelids. This procedure is not commonly used. [14]

ORAL MEDICATIONS

Several medications, including clonazepam, lorazepam, haloperidol, diazepam, and zolpidem, have been found to be helpful in treating blepharospasm, although many have not been FDA approved, offering hope for effective treatment. [16]



[15]

Fig.4 Treatment for blepharospasm (Eye Drop)

SURGERY

Blepharospasm can be treated with surgery, such as a myectomy, which involves removing affected muscles and potentially requiring botulinum toxin injections post-surgery. [16]

SPECTACLES TESTING

The patient is asked to identify the specific temporal and periorbital area that triggers the ST, and the appropriate nose pad diameter. A prototype ST frame is created, and the patient applies digital pressure to reduce spasms. The finished spectacle kit components are numbered for easy identification and replacement, allowing for precise positioning in patients with BEB condition. [17]



[18]

Fig.5 Spectacles testing in blepharospasm

DRUGS USED IN TREATMENT OF BLEPHAROSPASM

No.	Drug	Adverse Effect
I.	Levodopa	Hypotension, Orthostatic, Drowsiness
II.	Botox	Muscle Weakness, Dry Mouth/Eye, Hypoesthesia
III.	Baclofen	Drowsiness, Fatigue, Confusion
IV.	Methylphenidate	Weight Loss, Cardiac Arrhythmia, Restlessness
V.	Zolpidem	Sedation

[19]

CONCLUSION

- 1) REEP4 sequencing in larger blepharospasm cohorts, as well as functional research, will be required to further understand the link between REEP4 and the disease. [20]
- 2) We found no changes in any primary outcome measure, quality of life, or depression between the patient-initiated therapy paradigm and standard care for persons with BEB or HFS.
- 3) However, the patient-initiated treatment strategy has the potential to lower healthcare costs and anxiety.
- 4) Patients who used this new approach were equally satisfied with the service and confidence in their care as those who received standard care. [21]

RESULT

- 1) Blepharospasm is treated by using treatment of various drugs like levodopa, Botox, baclofen, methylphenidine, zolpidem this having side effects such as hypotension, muscle weakness, drowsiness, weight loss, sedation.
- 2) Blepharospasm rating scale revealed minor functional limitation but identified some symptoms to be improved.

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