The Eye-Q Newsletter
Eyelid Spasms
Part 2 – Myokymia and Hemifacial Spasm

Introduction: Eyelid Spasms can present in several ways. The most common forms are eyelid twitching (myokymia), Benign Essential Blepharospasm, and Hemifacial Spasm. In Part 1 we looked at Benign Essential Blepharospasm and Apraxia of Eyelid opening. Part 2 of Eyelid Spasms will focus on Myokymia and Hemifacial Spasm.

What causes minor eyelid twitching (myokymia)?: Myokymia is characterized by an involuntary, fine continuous muscle contraction involving a portion of the orbicularis oculi muscle or other facial muscles. It is often described as a twitch or flickering of the lid. Myokymia is most commonly unilateral, but bilateral cases have been reported. It tends to occur in young, healthy individuals and may last several hours to days. There may be a history of excessive physical exertion, fatigue, lack of sleep, stress, or excess caffeine or nicotine consumption. A localized orbicularis myokymia may also be seen after almost any type of eyelid surgery.

Myokymia generally requires no treatment as it commonly resolves spontaneously. Obtaining adequate sleep, reducing caffeine intake and decreasing stress are helpful. If the twitches persist on a daily basis for two months or longer they can generally be abolished with a mild muscle relaxant or an injection of Botulinum toxin (see later). Myokymia that begins with one eyelid but spreads to include other muscles of the face requires further investigation.

Surgery: Surgical removal of the eyelid and brow squeezing muscles (myectomy) is available but is generally reserved for those cases not responding to botulinum injections. The myectomy procedure for the upper lids involves a meticulous dissection and removal of the orbicularis, corrugator and procerus muscles through an eyebrow incision. In some cases a lower eyelid myectomy is also required at a later date. The myectomy procedure requires hospitalization for 2 to 3 days and the healing process can take up to a year. In most cases the patients are able to keep their eyes open immediately following the operation. However, considerable swelling, hematoma, lymphedema, and edema (varying greatly from patient to patient) may be present in the early postoperative period. Myectomy will improve the disability in approximately 90% of cases. Botulinum toxin injections may be required in some patients after the procedure for residual spasms.

The side effects of myectomy include numbness of the forehead, chronic lymphedema (lid swelling), exposure keratitis, ptosis, lid retraction, and ectropion. Most of these
problems resolve with time. Only a small number of patients require touch-up procedures.

**What is Hemifacial Spasm?:** Hemifacial spasm is a benign, uncontrollable twitching of the muscles on one half (hemi-facial) of the face. It is a *unilateral* facial squeezing disorder unrelated to Essential Blepharospasm. Hemifacial spasms affect only those muscles innervated by the facial nerve. It usually begins around the eye with periodic twitching and spasms of the eyelids that close the eye partially or completely. It slowly spreads to involve other facial muscles on the same side as well as superficial muscles of the neck (figures 1a and 1b). The condition does not cause pain but it may with time slowly cause weakness of the facial muscles involved.

Hemifacial Spasm differs etiologically from Essential Blepharospasm. It is most commonly caused by compression of the facial nerve by normal and abnormal vascular structures at the level of the brainstem; for example, a tortuous, distended basilar artery may stimulate the facial nerve as well as cause auditory dysfunction. Several different types of benign tumors, such as dermoids, most commonly occurring outside of the brain but compressing the facial nerve, are the apparent causes in some cases. In others a cause cannot be identified even after neuroimaging and exploratory surgery. Although radiographic studies are not of value in investigating patients with Benign Essential Blepharospasm, computed tomography (CT) with the use of contrast agents or magnetic resonance imaging (MRI) should be performed to look for posterior fossa disease in those patients presenting with signs consistent with Hemifacial Spasm.

**How is Hemifacial Spasm treated?:** Hemifacial Spasm may be treated with medication, injection of botulinum toxin or surgery.

Drug therapy is usually only of benefit in mild cases and involves the administration of a muscle relaxant such as *orphenadrine citrate* (Norflex), *baclofen*, or the anticonvulsant *clonazepam* (Rivotril). Botulinum toxin therapy is relatively simple to perform and can be very effective in diminishing the spasms. Unlike its use in blepharospasm, Botox seems to have a longer duration of effect in hemifacial spasm often providing relief for 4 to 6 months, and occasionally for as long as 9 months. The medication is injected into the periocular area as it is with blepharospasm. Common side effects include ptosis, poor lid closure with exposure, and diplopia. It may also be injected over the cheek area to decrease some of the lower facial muscle spasms. However, if the medication is given too close to the mouth, the patient will lose function of the perioral musculature and may have difficulty with talking, chewing food, and facial expression. Fortunately, these effects are temporary and resolve as the effects of the medication wear off.

A neurosurgical microvascular decompression procedure (Janetta procedure) for Hemifacial Spasm may relieve the pressure of the artery on the nerve. Microvascular decompression is a non-destructive procedure which aims to treat the root cause of the disorder, rather than simply treating the symptoms. By separating the blood vessels from the nerve with a small sponge the symptoms of spasm may be relieved. Under general anesthesia a small incision is made behind the ear on the affected side and a small
opening is made in the bone about the size of a quarter. The area in the brainstem where the 7th nerve is running is visualized with the aid of a microscope. The blood vessels are separated from the affected nerve or lateral brain stem. Small implants made of shredded Teflon are used to maintain the separation. The offending blood vessels rest on the Teflon instead of the nerve. The operation takes 2 to 3 hours and patients remain in hospital for about 72 hours, on average. While it is generally successful, it is a neurologic operation and serious complications are possible. These include meningitis, stroke, permanent facial paralysis or hearing deficit, post-operative blood clots, and even death. The complications are rare but factor heavily in the decision to undergo surgery. Complete cure for hemifacial spasm is achieved in 80% of patients, 10% show marked improvement and 10% fail. Recurrence after successful surgery is infrequent with spasms recurring in only 4% to 6% of patients. Although the treatment of hemifacial spasm by microvascular decompression involves a neurosurgical approach, it is relatively safe in skilled hands. Operative mortality is negligible and significant morbidity such as hearing loss, stroke, infection, or other problems occur in less than 5% of patients. At this point it remains a viable alternative for those individuals intolerant of or not responding to drugs or botulinum toxin.