What is Hemifacial Spasm?

Dystonia Educational Series

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Hemifacial spasm refers to involuntary synchronous twitching of muscles of one side of the face caused by compression of the nerve which supplies the muscles of the face.
**Symptoms**

- spasms start in the upper or lower eyelid, and can spread to the cheek, corner of the mouth, jaw, and neck
- involuntary closure of the eye
- occurs on one side of the face
- spasms are worsened after voluntary facial movement such as when patient squeezes eyes and mouth closed

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- Usually, symptoms begin in middle age though occasionally symptoms may begin in younger adulthood or in old age. The hemifacial spasm is more common in women and in people of Asian descent. Usually, this problem occurs only on one side of the face though rarely symptoms may have bilateral hemifacial spasm in which case the spasms occur in an asynchronous fashion on the 2 sides of the face. The spasms usually begin with twitching of the upper or lower eyelid and then spread to involve the lower face including the cheek, corner of the mouth, jaw, and superficial portion of the neck. The twitching resulting in involuntary closure of the affected eye is the most bothersome symptom and can significantly interfere with vision. This interference with vision may interfere with driving, reading, and other day-to-day tasks. Spasms of the lower face can be both embarrassing as well as uncomfortable. The spasms are usually worsened after voluntary facial movement such as after talking or after the patient voluntarily squeezes the eyes shut or grimaces with the lower face.
Most commonly, hemifacial spasm is caused by compression of the facial nerve by a small tortuous blood vessel where the nerve exits the brain stem. Rarely, a tumor compressing the facial nerve may be the cause. As a result, all patients with hemifacial spasm should undergo MRI scan of the brain to exclude causes other than compression by a blood vessel.

This does not appear to be a genetic disorder.
The diagnosis is based on clinical examination and recognition of the nature of the movements. Usually, the diagnosis as well as treatment is directed by a neurologist. MRI scan of the head as noted previously is used to exclude other causes of compression of the facial nerve.
It is important to differentiate hemifacial spasm from other involuntary movement disorders which may affect the face. The most common of these is Bell’s palsy which is a weakness of the face caused by a lesion of the facial nerve. In Bell's palsy, patients typically have a relatively sudden onset of weakness of one side of the face caused by a viral infection affecting the facial nerve. As the facial nerve recovers over several weeks, patients may develop twitching of the face due to abnormal regrowth of the facial nerve to the various facial muscles. Patients may develop twitching of the lower face when they voluntarily blink or blinking when they smile due to misguided growth of the nerve fibers to different parts of the face resulting in abnormal activation of the lower face when blinking or the upper face when smiling.

Blepharospasm is a form of focal dystonia affecting the eyelids. In this disorder patients develop involuntary eyelid closure involving both eyes due to an abnormal motor program in the brain for control of eyelid muscles. This is usually easily differentiated from hemifacial spasm since only the eyelids are involved (not the lower face) and both eyes are affected. The severity of the eyelid closure is often more severe and the effect on vision also more severe in patients with blepharospasm than hemifacial spasm. Tics involving the face are the most common sort of tics. They may occur in isolation or as part of the generalized tic disorder known as Tourette syndrome. Tics usually vary tremendously in frequency, severity, and area affected, are usually made in response to an urge to make the movement, and may be suppressed by the patient voluntarily or may improve with distraction.
There are three major forms of treatment for hemifacial spasm. Injections of the involved facial muscles with botulinum toxin are the most common treatment. This is effective in the vast majority of patients. Surgeries to decompress the facial nerve at the level of the brain stem may be occasionally used and is also very effective. A variety of oral medications have been tried for hemifacial spasm, but these are usually ineffective.
The most commonly used and effective treatment for hemifacial spasm is injections of botulinum toxin. The injected medication selectively weakens the overactive muscles in order to reduce the excess eye blinking and lower facial spasm. The effect of the injection comes on gradually over several days with the peak effect in usually about 2 weeks. The effect is not permanent and lasts on average 10 to 12 weeks. As a result, patients typically need periodic injections every 2½ to 3 months. The dose and pattern of injections need to be customized from patient to patient depending on which muscles are more involved and the individual sensitivity to the botulinum toxin.
Injection of botulinum toxin for hemifacial spasm usually does not have any general or systemic side effects. Local side effects may occur including drooping of the upper eyelid or drooping due to spread of the botulinum toxin from the eye closing muscles to the eye opening muscles and drooping of the lower face due to excessive weakness of the muscles responsible for normal smiling. Eye dryness may occur due to reduction in tear production caused by the injections or due to incomplete eye closure of the injected eyelid caused by excessive weakening. Blurred vision may also occur due to excessive dryness or incomplete eyelid closure causing irritation of the cornea. Rarely, double vision may occur due to spread of the toxin to the muscles which help to control eye movement. Lastly, excessive weakening of the muscles surrounding the lips may cause an incomplete seal when drinking leading to leakage when drinking or, rarely, drooling. All of these adverse effects are transient and usually improve within a few days to a few weeks.

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<th>Botulinum Toxin Side Effects</th>
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<tr>
<td>• ptosis, or drooping of the eyelid</td>
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<tr>
<td>• also drooping of face</td>
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<tr>
<td>• dry eye</td>
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<tr>
<td>• excessive weakening due to incomplete eye closure</td>
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<tr>
<td>• diplopia, or double vision (rare)</td>
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<tr>
<td>• blurred vision due to dry eye or keratitis</td>
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Side effects usually improve within a few weeks
Surgery is performed uncommonly because botulinum toxin injections are very effective for most patients and has a lower risk than surgery. However, surgery may be an appropriate option for patients who have an inadequate response to botulinum toxins or adverse effects from the injections. Microvascular decompression is a major surgical procedure on the brain in which a small pad is placed between the compressed facial nerve and the blood vessel compressing it.
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Most patients become free of the facial spasms over 2 to 3 months. Approximately 80 to 95 percent of patients have significant improvement.

This surgery is not without possible complications which may include brain infection, leakage of fluid surrounding the brain, damage to the facial nerve resulting in permanent facial weakness, damage to the adjacent nerve important for hearing which may cause deafness, or damage to the blood vessels of the brain which may cause a stroke.
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