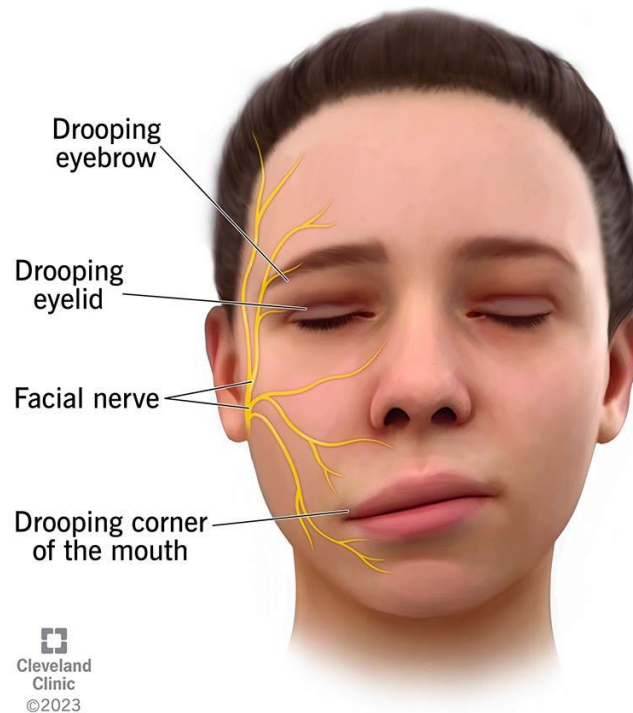


Bell's Palsy

Maxime Coles MD

Bell Palsy is an unexplained episode of facial muscle weakness or paralysis which begins suddenly and worsened in 48 hours. It results from damage to the facial nerve (7th Cranial Nerve). Pain and discomfort occur generally on one side of the face or the head and people experiencing the palsy develop a droopy appearance generally on one side but occasionally on both side of their face. This can be a transient condition with the tendency of disappearance in some months without any treatment.

Bell's palsy



"Bell's Palsy "is a transient paralysis affecting the muscles on one side of the face giving a lopsided smile (drooping corner of the mouth) and an eyelid unable to close fully. Rarely, it may affect both sides of the face. (Picture from the Cleveland Clinic)

Bell's palsy is a condition that causes temporary facial paralysis (palsy). The facial muscle is generally involved on one side and it looks like the face is drooping, affecting also the forehead, the eyebrow, the eye and the eyelid and most, the corner of the mouth. The symptoms of Bell's palsy have a tendency in appearing suddenly to reach a pick in severity in the 48 to 72 hours. Some may have more

symptoms than others with a mild facial muscle weakness to a complete paralysis of the face. It is difficult to make full expression with Bell's palsy. Winking your forehead, blinking or grimacing may become difficult on the affected side. The side of the face may feel numb or heavy but one can still feel heat or coolness. So, symptoms like drooling, dry eyes, difficulty in speaking, eating or drinking, facial or ear pain, Headache, loss of taste, ringing in the ears (tinnitus), sensitivity to sounds.

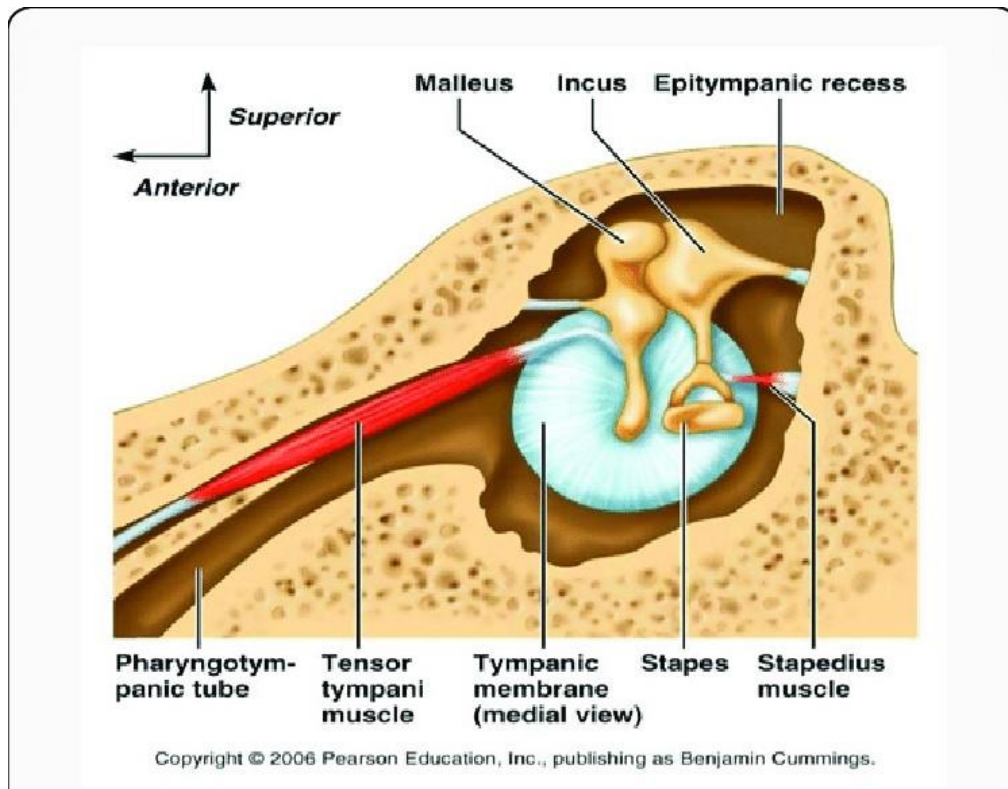
Do we have any early signs for a Bell's palsy or at least some premonitory signs? Perhaps a slight fever and a pain behind the ear have been described as early warning sign although there is nothing that can be done to stop the Bell's palsy to develop... more, one can have these earlier signs and not develop a Bell's palsy. This palsy is seen in presence of inflammation or compression or swelling of the seventh cranial nerve: Facial.

The Facial nerve controls the facial movements and expressions. It is also involved in taste and control tears in your eyes. Each person has a pair of facial nerves controlling one side of each face. It became well known that some viral infection may trigger the inflammation of the Facial nerves and cause the facial palsy (Bell's Palsy). This seventh cranial nerve has different fibers divided into motor, sensory and parasympathetic (senso-motor) providing the innervation of many areas of the head and neck. Anatomists found that this nerve has three nuclei but the main one is "Motor", innervating the muscles of the facial expression and the stapedius, muscle involved in the auditory middle ear reflex. This last muscle plays a crucial role in protecting the auditory system from damage.

The Stapedius muscle is the smallest muscle of the human body, measuring approximately only 6 millimeters in length. This muscle is connecting the pyramidal eminence of the tympanic cavity (origin), in the middle ear to the petrous part of temporal bone and the posterior aspect of the neck of the Stape bone (insertion). This muscle is innervated by the stapedial branch of the facial nerve. These autonomic fibers enable the muscle to be involved in the auditory middle ear reflex, having a crucial role in protecting the auditory system. It dampens vibrations passed to the cochlea via the oval window.

Viral infections able to trigger a Bell's palsy are Herpes simplex (Cold sore), Varicella-zoster (Chickenpox and Shingles), Epstein-Barr virus (Mononucleosis) as well as COVID-19 virus. Clinicians believe that a weakened immune system may as well trigger such palsy. Although a clinician is often unable to find a cause to justify the presence of a Bell's palsy, there may be risk factors on which we can rely to assess the diagnosis like Pregnancy and Diabetes Mellitus. We can also try to blame a Bell's palsy on stress, illness, sleep deprivation, physical trauma and

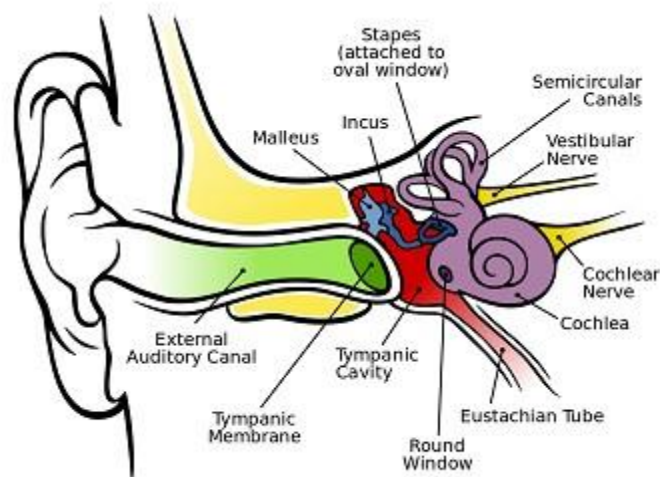
even on any auto-immune condition, but it will be difficult to prove it. The same way obesity, high blood pressure and even a pathology like a pre-eclampsia may encourage such pathology. Lastly, the fact that one had a previous Bell's Palsy may explain the recrudescence of the symptoms.



The Stapedius muscle complex is the smallest muscle in the body with 6 mm in length, protecting the auditory system. This muscle is also innervated by the tympanic branch of the facial nerve.

Can we diagnose a Bell's palsy and do we have any test that can be requested to assess the clinical diagnosis. A good physical examination is really what we have to assess the diagnosis and evaluate all the facial muscles to contemplate a partial or complete palsy. Other conditions including a stroke, Lyme disease, Sarcoidosis, middle ear bacterial infection, multiple sclerosis or any tumor near the distribution of the facial nerve can be ruled out. Tests ruling out such infections may be ordered if there is a suspicion by the clinician. Blood test for Lyme disease and Sarcoidosis are encouraged. An Electromyography (EMG) may help in predicting the recovery. A magnetic resonance imaging (MRI) study can predict a quick recovery. A lumbar puncture (Spinal tap) to rule out any meningitis. Can Bell's palsy be treated? Most Bell's palsy improves without any treatment but some various therapies can enhance a faster recovery.

Eye care with artificial tears may be useful for the irritated eyes and if the eyelid refuses to close an eye patch may be used to protect the involved eye from drying. And also avoiding further injuries. Oral corticosteroids like prednisone can help in the neuritis allowing the return of the eyelid or the facial motion, faster. Antiviral medications may also speed the recovery in the treatment of Bell's palsy but strangely, they work better when they are taken with oral corticosteroids. Finally, many providers may recommend electrical stimulation to prevent fascial muscle loss.



Rarely, we may find a recalcitrant case with persistent deformity and a last option resides in a functional facial plastic surgery procedure to correct the facial asymmetry and specially to allow the eyelid to close. Predict any new or any recurrent Bell's palsy is not in the power of any physician. Recently, I had the sister of a good friend who was visiting and she had a history of a recent episode of Herpes Zoster (Zona) eruption on the right arm and shoulder almost 4 months prior to her visiting him. This is the first time she has ever suffered from such an infection. She is a heavy smoker and like to drink alcohol. She does not take any drugs. She is normotensive but suffer from Diabetes for which she is taking Metformin medication.

A recent physical with her PCP before travelling, has proven her to be in a perfect health with a negative Chest X-rays. Suddenly, she woke up, a morning with the suspicion of a Left Facial Palsy (Bell's palsy) with drooping of the corner of the mouth on the right side. She has no headache. She is normotensive with a well-controlled diabetes for which she is medicated with Metformin. We thought first at a mild stroke but she did not have any extremity involvement. Next, perhaps, an

episode of Amaurosis fugax but the symptoms appeared to be more demarcated over the following days with further drooping of the right side of the mouth and profuse tearing to the left eye, until she developed days after, a weakness of the left eye-lid and finally an eyelid drop with the inability to completely close the eye.

. She experiences also left ear-ache and inability to lay her head on a pillow to sleep, and occasionally, left shoulder pain. All of those symptoms in a short period of time (one week). She was only given eye drops (hypo tear) and Tylenol medication after her visit to a PCP. A CT scan was ordered to rule out a mild stroke. In the two weeks following the episode, almost all the signs fade away. The CT scan study was negative as expected and we discussed the need for an MRI study. It looks to us, that the previous viral infection may have triggered the current symptoms although no work-up was performed with spinal tap to rule out Lyme disease or other bacterial infections. Lab studies were in the normal limits with the diagnosis of Bell's Palsy except for the blood sugar in the high limits. The symptoms appear to have been triggered by the previous Zoster viral infections.

To conclude, I would like to say that although nobody can prevent a new facial palsy, there is nothing else which could have been done to prevent such Palsy. Diabetes may have been a risk factor but she did not have a hypertensive episode. Bell's palsy generally last few weeks to six months. The symptoms may start gradually to improve within three to six months. Symptoms are not generally permanent but I have in memory my older cousin who presented with signs of chronic (permanent) bell's palsy and lived with her disability until her death. She had also a history of Herpes Zoster infection and high blood pressure. Most patients will suffer from this disease (Bell's palsy) after the age of 60, which normally will resolve within six months.

Unfortunately, people with a bilateral facial palsy may have persistent symptoms with especially a decrease in salivation and long-lasting fascial weakness. Always remember that facial drooping is also a sign of a serious medical condition like a stroke. Taking cortisone soon after these symptoms started, may help speed the recovery. Other symptoms like Chronic eye irritation, dehydration from difficulty in swallowing can be also seen. Hearing loss with or without dizziness or vertigo may be seen.

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