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Bell Palsy

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Introduction

Bell's palsy is the most common peripheral paralysis of the seventh cranial nerve with an onset that is rapid and unilateral. The diagnosis is one of exclusion and most often made on physical exam. The facial nerve has both an intracranial, intratemporal, and extratemporal course as its branches. The facial nerve has a motor and parasympathetic function as well as taste to the anterior two-thirds of the tongue. It also controls salivary and lacrimal glands. The motor function of the peripheral facial nerve controls the upper and lower facial muscles. As a result, the diagnosis of Bell's palsy requires special attention to forehead muscle strength. If forehead strength is preserved, a central cause of weakness should be considered. Although the utility of antivirals has been called into question, treatment is medical with most sources recommending a combination of corticosteroids and antiviral medication.[1] [2][3]

Etiology

Bell's Palsy (BP) is by definition idiopathic in nature. Increasing evidence in the literature demonstrates multiple potential clinical conditions and pathologies known to manifest, at least in part, with a period of unilateral facial paralysis. The literature has highlighted several viral illnesses such as herpes simplex virus, varicella-zoster virus, and Epstein-Barr virus. Providers may ambiguously (and incorrectly) refer to a diagnosis of Bell's palsy in the setting of a potentially known etiologic mechanism. This can occur, for example, in the setting of known associations (e.g. Ramsay-Hunt syndrome and Lyme disease).[4]

While there are many potential causes, including idiopathic, traumatic, neoplastic, congenital, and autoimmune, about 70% of facial nerve palsies wind up with a diagnosis of BP.

Epidemiology

The annual incidence is 15 to 20 per 100,000 with 40,000 new cases each year and the lifetime risk is 1 in 60. There is an 8% to 12% recurrence rate. Even without treatment, 70% of patients will have complete resolution. There is no gender or racial preference, and palsy can occur at any age, but more cases are seen in mid and late life with the median age of onset at 40 years. Risk factors include diabetes, pregnancy, preeclampsia, obesity, and hypertension.[5]

Pathophysiology

Bell's palsy is thought to result from compression of the seventh cranial nerve at the geniculate ganglion. Due to the narrow opening of the facial canal, inflammation causes compression and ischemia of the nerve. The most common finding is a unilateral facial weakness that includes the muscles of the forehead.

History and Physical

Patients present with rapid and progressive symptoms over the course of a day to a week often reaching a peak in severity on 72 hours. Weakness will be partial or complete to one-half of the face, resulting in weakness of the eyebrows, forehead, and angle of the mouth. Patients may present with an inability to close the affected eyelid or lip on the affected side.

The key physical exam finding is a partial or complete weakness of the forehead. If forehead strength is preserved, a central cause should be investigated. Patients may also complain of a difference in taste, sensitivity to sound, and changes to tearing and salivation.

Evaluation

History and physical examination guide the evaluation. The House-Brackmann Facial Nerve Grading System can be used to describe the degree of facial nerve weakness. This grading system goes from a grade of I (no weakness) to VI (complete weakness). If the presentation is consistent with Bell's palsy, there are no required lab or radiographic tests. If there are atypical features, patients may need to be evaluated for a central cause of their symptoms. Likewise, Lyme disease testing is based on a history of possible tick-borne illness. The routine testing for Lyme disease is not recommended without other findings of the disease such as a history of tick bite, skin rash or arthritis. Diabetic testing should not be performed as facial nerve palsy is not considered diabetic neuropathy. There is no consensus on the optimal timing of imaging for Lyme disease, but most sources recommend after 2 months of no improvement of the facial palsy. MRI is the imaging modality of choice. MRI can detect facial nerve inflammation as well as ruling out other conditions such as schwannoma, hemangioma or a space-occupying lesion.[6]

There is a grading system for clinical evaluation of Bell palsy. The grading system ranges from mild to severe dysfunction.

Treatment / Management

Corticosteroids are the main treatment with a common regimen consisting of 60 mg to 80 mg a day for approximately 1 week. There is also some evidence stating corticosteroids and antivirals combined improved the outcome of Bell's palsy compared with corticosteroids alone. A meta-analysis in 2009 found that steroids alone were the treatment of Bell's palsy and the addition of antivirals did not meet statistical significance. For patients with severe facial nerve palsy (House-Brackmann IV or greater) can be offered combination therapy with steroids and antivirals. There was no significant increase in adverse reactions from antivirals compared with either placebo or corticosteroids. Patients should be instructed to use eye lubrication and patch the affected eye at bedtime to reduce the likelihood of a corneal abrasion. Surgical options can be considered when there is no improvement in symptoms after weeks or months. Techniques to present eye desiccation range from eyelid weights to muscle transfers. Facial nerve decompression has not been found to be a recommended treatment option and is considered on a case by case basis. Prior studies evaluating facial nerve compression have been of poor quality. It is recommended to refer to a specialist (plastic surgery, neurology, otolaryngology) sooner rather than later if no improvement has been seen in 4 weeks to explore more aggressive treatments.[7][8][9]

Differential Diagnosis

Causes of peripheral seventh nerve palsy such as Lyme disease and Ramsey Hunt syndrome should be excluded. Other less common causes of facial palsy include tuberculosis, HIV, trauma, sarcoidosis, vasculitis, and neoplasm. There is a reported 10.8% misdiagnosis rate from specialty referral centers. Also, if there are episodes of recurrence, clinicians should consider Melkersson-Rosenthal syndrome. This is a rare neurocutaneous syndrome with a recurrence of facial palsy, orofacial edema, and a fissured tongue. Melkersson-Rosenthal is more commonly diagnosed in females.

Prognosis

In 71% of untreated cases, Bell's Palsy resolves completely without treatment. Treatment with corticosteroids has been found to increase the likelihood of improved nerve recovery. Recurrence does occur, and one study found a recurrence rate of 12%.[8] Another study reported up to 10% of patients afflicted with BP will experience symptomatic recurrence after a mean latency of 10 years [10].

Postoperative and Rehabilitation Care

Continued monitoring of patients with Bell Palsy is required to ensure that recovery is taking place. If the EMG studies show that less than 25% of muscles are involved, then supportive care is recommended. But if the paralysis is severe, the patient will need counseling.

Consultations

- Ophthalmologist
- Neurologist
- ENT surgeon

Pearls and Other Issues

As stated, the misdiagnosis rate can be up to 10.8%, so careful history, and physical exam is essential. The focus on the physical exam is the forehead muscles. Since Bell's palsy is a peripheral facial nerve palsy, there needs to be involvement of the forehead muscles. The history and physical guide testing for causes of the facial nerve weakness. It is not recommended that all patients be tested for Lyme disease, only those that have a history of tick bite or manifestations of rash and arthritis. Patients may be treated at home medically with close follow up to assure improvement of symptoms. There should be a consideration for timely specialty referral if there has been little improvement in the first few weeks of disease. There are no known preventative measures, and 8% to 12% of patients will have a recurrence.

Enhancing Healthcare Team Outcomes

Bell palsy is the commonest cause of unilateral facial paralysis. While benign, the condition does have moderate morbidity. The cause of Bell palsy remains unknown, and its treatment remains controversial. While steroids and/or antiviral medications are often prescribed, there are no randomized clinical trials to determine which is better or effective. The problem is compounded by the fact that the majority of cases resolve spontaneously. However, in individuals with long-standing facial paralysis accompanied by poor speech, incomplete eyelid closure or poor aesthetics, treatment needs to be addressed by an interprofessional team. Because the disorder affects different organ systems, a multidisciplinary team of clinicians has proven effective. The most important feature of treatment is to be patient-focused rather than symptom focus.

The availability of botulinum toxin has helped reduce the long-term burden of this disorder. Surgery is the last resort treatment and may be required in chronic cases. The facial muscles do remain viable for several years, and in these cases, complex reconstructions are available. However, rather than subject the patient to complex surgery with no guarantee of improvement, early recognition, and initiation of steroidal therapy is recommended.[11] (Level lll)

Outcomes

Evidence-based medicine is lacking when it comes to treatment and outcomes for Bell palsy. The problem is made more difficult because many cases resolve spontaneously. The majority of outcomes have been from case reports or small case series. While recovery does occur in most patients, it often takes months or even years for full recovery. Because there are several types of treatments available besides medications, an interprofessional team should be involved in the management since not everyone responds to the same treatment. [12](Level V)

Questions

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