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Case Report

Idiopathic recurrent facial palsy: a detailed investigation

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ABSTRACT

The seventh cranial nerve may be partially or completely damaged, resulting in central or peripheral facial palsy. This leads to weakness of facial muscles, distorted facial expressions and drooling on the affected side. Common causes include cold exposure, pregnancy-related fluid retention, middle ear infections and herpes zoster infection. This case report discusses a 33-year-old male, Mr. RSY, who presented with right-sided facial palsy for the fifth time. Previous episodes occurred annually from 2020 to 2023. He is a chef from Erode who presented to the Medicine OPD with mouth deviation, incomplete right eye closure with positive Bell's phenomenon, and mild headache and neck pain. He had no relevant medical history or recent cold exposure. Blood tests were normal and chest X-ray revealed mild hilar lymphadenopathy. ENT examination and HRCT of the temporal bone were normal. The only notable finding was the involvement of the seventh cranial nerve. Management included a seven-day course of corticosteroids, antiviral drugs and physiotherapy. The physiotherapy regimen comprised facial massage, facial exercises and stimulation. A home exercise program was also advised. The patient improved significantly with this combined treatment and recovered within four weeks. This case underscores the importance of early and comprehensive management of facial palsy with corticosteroids and physiotherapy for full recovery. It also highlights some patients' potential seasonal recurrence patterns, warranting further research to elucidate the exact pathogenesis and risk factors associated with facial palsy.

Keywords: Recurrent facial palsy, Idiopathic facial palsy, Facial massage, Exercises, Electrical stimulation

INTRODUCTION

A partial or complete weakness of one side of the face, changes in taste, sensitivity to sound, lacrimation, and salivation are the symptoms of the seventh cranial nerve palsy, also referred to as bell palsy, an idiopathic impairment. Warner (2023) reports that it manifests as a sudden, unilateral onset. It typically affects between 11.5 and 53.3 out of every 1,000 000 individuals annually in various demographics.[1] Bell's palsy is a medical condition that warrants attention because it severely impairs both the patients and their families.[2] Unilateral facial paralysis most commonly results from bell palsy.[3]

Every year, 20 to 30 people worldwide are affected by facial paralysis for every 100,000 people. Epidemiological data show that recurrence rates are 12%, with an annual incidence of 15–23 cases per 100,000 people. Those between the ages of 15 and 45 are the most commonly affected. It affects both men and women equally.[4]

The precise etiology of Bell's palsy remains unclear despite a great deal of research on the disorder.[5] It's still an

idiopathic cause. Strong correlations have been found between autoimmune illnesses, some viral infections (herpes simplex type 1), and nerve inflammation leading to localized oedema, demyelination and ischemia.[6,7] Several investigations have demonstrated a connection between exposure to extremely high temperatures and the occurrence of blood pressure.[8] There is a clear correlation between the number of cases observed and the cold season.[9,10] Increased blood sugar levels, uncontrolled blood pressure, migraines, severe pre-eclampsia, and radiation exposure are some of these risk factors.[11-14]

According to Zhao (2017), a prior study also discovered that Bell's palsy is more common in the spring and summer, peaking in September, and that having BP in the summer is much higher.[15] These findings may contribute to pathological processes and increase an individual's susceptibility to palsy. The precise order and scope of these influences are still unknown, though. Bell's palsy is a unilateral facial paralysis caused by a lower motor neuron type that is accompanied by dysgeusia, facial discomfort, and occasionally hyperacusis and abnormalities in facial feeling.[16]

Additionally, it was observed that salivation and lacrimation have decreased, which appears to be a result of parasympathetic effects.[17] Face impairment manifests in 72 hours, and the degree of facial palsy is correlated with the length of facial dysfunction, the degree of recovery, and the degree of treatment received.[18]

Bell's palsy is managed in a multimodal way which incorporates both medication and physiotherapy. Antiviral drugs and oral corticosteroids like prednisolone are among the therapies being examined for Bell's palsy. Although the precise cause of Bell's palsy is still unknown, inflammation and oedema of the facial nerves are recognized to be the root cause of the symptoms. Corticosteroids have been used because of their ability to lower inflammation.[19] Rehabilitation has been accelerated by the use of physiotherapy, such as tailored facial exercises, massage therapy, electrical stimulation, and thermotherapy. Early face exercise may decrease the number of chronic cases, long-term paralysis, and time to recovery.[20]

CASE REPORT

A 24-year-old male patient, Mr. RSY, visited the medicine OPD at the Erode government district headquarters hospital with a complaint of deviation in the mouth and inability to close his eyes. Previously he stated that he has had the same complaints in the last three years (2020, 2021 and 2022), and he is having the same problem in April. Subsequently, this is the fourth attack of Bell’s palsy.

On examination, he is working as a chef in the hotel industry at Erode. He sleeps in the bed provided by the restaurant. His working hours are from morning 7 am to evening 7 pm. Mr. RSY has complained of mild headaches and neck pain for the past 3 days. Other than that, he denies there is a history of high blood pressure or diabetes. He doesn’t complain about any loss of hearing or taste. There is no history of exposure to cold places recently.

A physician requested some blood investigations, which were found to be normal. Chest X ray is also normal and no abnormalities were detected. There is a query on bilateral hilar lymphadenopathy. The patient was referred to as the ENT surgeon, and no abnormalities were detected. His hearing abilities are normal, and his facial nerves are intact. The doctor advised an HR computed tomography (CT) scan for the temporal bone. Upon the HRCT scan, it was found to be normal.

The neurologist evaluated the patient and found all his higher-center assessments were found to be normal. His cranial nerve assessment is normal, except for the 7th nerve, which causes facial paralysis. His cerebellar signs are negative, his gait is normal, and he has 5/5 muscle power. There is a mild hypermobility of his TMJ joints, and there is a mild tenderness noted on this right TMJ. So, a query is raised as to whether it may be due to TMJ dysfunctions.

The management of the patient started steroids for seven days, and physiotherapy for facial muscles was administered. The patient was assessed continuously with medications and physiotherapy and recovered better. Steroids were tapered after seven days, and the patient completely recovered within four weeks.

DISCUSSION

Bell's palsy is a condition characterized by sudden, temporary paralysis or weakening of the face muscles, which is brought on by malfunction of the facial nerve (cranial nerve VII). Although it is the most common cause of facial nerve paralysis that occurs suddenly, recurrence occurs in 4–7% of cases.[21] On average, the time between recurrences is usually more than a year.

Most individuals experience only one episode, with multiple recurrences being rare. Having more than two episodes is uncommon and experiencing more than four is exceptionally rare. The exact cause of recurrence remains unclear but may be linked to factors such as genetic predisposition, viral reactivation, or immune system responses. Effective management and rehabilitation are essential for optimizing recovery and reducing the risk of complications like permanent facial weakness or synkinesis (involuntary facial movements).

Hypothetical reasons for the idiopathic Bell’s palsy

Viral hypothesis

Bell's palsy is thought to result from an autoimmune inflammatory response triggered by cells or from an interaction between the facial nerve and an infection with

the herpes simplex virus (HSV type 1). Like how herpes labialis is triggered, stress or a certain type of infection is considered to trigger episodes. But because there are no mucocutaneous signs and the virus has a lower recurrence rate than herpes labialis, the viral theory is less reliable.[1,22]

Autoimmune hypothesis

Mononeuritic variation of Guillain-Barré syndrome (GBS) has been suggested to encompass idiopathic facial nerve palsy. A decrease in T suppressor cells and an increase in B lymphocytes in afflicted patients is among the data supporting this, as are elevated serum levels of interleukin-1, interleukin-6, and tumor necrosis factor-alpha.[23] One theory is that an infection or vaccination might cause a mononeuritic immune response to myelin antigens in a peripheral nerve, in this example the facial nerve.[24]

Weather hypothesis

Factors such as exposure to cold weather or sudden consumption of cold products have also been suggested as potential triggers for facial palsy. However, the evidence linking rapid changes in atmospheric temperature and pressure to facial palsy is weak and not conclusively established. The condition may develop in a stepwise manner, starting with inflammation in the ear that leads to edema and swelling, ultimately causing compression of the facial nerve and resulting in palsy.[25,26]

Other disease hypothesis

A neurological condition known as Ramsay Hunt syndrome is brought on by the reactivation of the varicella-zoster virus, which also causes shingles and chickenpox. This virus causes facial paralysis. The condition often presents with facial muscle weakness, pain around the ears, and sometimes hearing loss.[27]

Additional symptoms may include altered taste perception, dry eyes, excessive tearing, sensitivity to loud sounds (hyperacusis), nasal blockage, and difficulty with speech (dysarthria). Vestibulocochlear nerve impairment can result in symptoms such as vertigo, tinnitus, and hearing loss. Vagus nerve involvement may result in hoarseness or difficulty swallowing.[28]

Melkersson-Rosenthal syndrome is an uncommon neurological disorder characterized by recurrent bouts of facial paralysis, lip enlargement (usually affecting the top lip), and lingua plicata, or fissured or furrowed tongue. The facial paralysis may occur on the same side or alternate sides of the face, often recurring alongside swelling of the lips and tongue. The syndrome usually begins in childhood or early adolescence.[29]

TMJ joint hypothesis

Facial palsy associated with the intracapsular temporomandibular joint (TMJ) is a complex issue that has not been thoroughly studied. Most research has focused on how the range of motion (ROM) of the jaw affects facial motor symmetry.[30] Some studies suggest that a reduced range of motion in the TMJ could potentially lead to facial palsy. However, there is no clear agreement on this hypothesis.[31,32]

Other possible hypotheses

It is unclear what variables could make idiopathic facial palsy more likely to reoccur. However, some associations have been suggested with conditions such as malignant hypertension, diabetes, and pregnancy. Rarer causes of peripheral facial palsy include autoimmune disorders including sarcoidosis and Sjogren's syndrome, infections such rickettsia, HIV, meningitis, human herpesvirus 6, mumps, CMV, and rubella virus, and meningitis.[33,34]

Diabetic hypothesis

Diabetes is a common comorbidity in individuals with idiopathic facial nerve palsy.[35] Some researchers have argued that in diabetic patients, facial palsy may represent a form of diabetic mononeuropathy resulting from microangiopathy.[36,37] An observational study by Riga et al found that diabetic patients initially experience more severe facial weakness; however, their recovery outcomes are similar to non-diabetic patients after six months.[38]

Pregnancy hypothesis

Idiopathic facial palsy appears to be more prevalent during pregnancy, particularly in the third trimester. Pregnancy may be the cause of an increased propensity for edema and hypercoagulability. Pre-eclampsia and hypertension are also regarded as important risk factors.[24]

Tumour hypothesis

Tumours located near or on the facial nerve can lead to facial paralysis. Malignant tumours, in particular, may impact the nerves around the face, which could cause multiple symptoms which is similar to Bell's palsy.[39] Compression of the facial nerve can occur as a result of tumor-induced edema and inflammation.[40]

Stroke hypothesis

Facial palsy associated with stroke occurs due to damage to the facial nerve within the brain.[41] This damage can result from oxygen deprivation in the brain tissue and nerves or from pressure exerted on surrounding tissues and nerves due to bleeding.[41]

CONCLUSION

In conclusion, the recurrence of facial palsy is uncommon and its underlying causes remain unclear. Treatment for a recurrent episode should mirror that of the initial

occurrence, with patients being advised to attend regular follow-up appointments.

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