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Case Report / Olgu Sunumu

Bilateral facial paralysis in a patient with B-cell low grade lymphoma and its rehabilitation

Düşük gradlı B hücreli lenfomalı bir hastada iki taraflı fasiyal paralizi ve rehabilitasyonu

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ABSTRACT

Simultaneous bilateral facial paralysis is an uncommon condition. It may be idiopathic or associated with various disorders including Lyme disease, Guillain-Barre syndrome, sarcoidosis, viral infections, syphilis, pontine gliomas, and leukemia. A 63-year-old male was admitted to the Hematology clinic with a complete blood count showing excessive leukocytosis and a two-week history of right-sided complete facial weakness. On the seventh day of hospitalization, he also developed facial weakness on the left side. The patient with a diagnosis of bilateral peripheral facial paralysis was referred to the Physical Medicine and Rehabilitation department. He was started on a rehabilitation program including electrotherapy, manual massage, and exercise. Galvanic current was applied to the facial muscles of both sides as three sessions per week. After 12 sessions of electrotherapy, daily massage, and exercise for four weeks, a significant improvement was achieved on both sides in terms of sensation and facial muscle strength. Further improvement was noted at 12 weeks during follow-up. In this report, we present an extremely rare case of bilateral peripheral facial paralysis due to B-cell low grade lymphoma and the improvement with electrotherapy and rehabilitation techniques.

Keywords: Facial paralysis; lymphoma; rehabilitation.

ÖZ

Eş zamanlı iki taraflı fasiyal paralizi, nadir bir hastalıktır. İdiyopatik veya Lyme hastalığı, Guillain-Barre sendromu, sarkoidoz, viral enfeksiyonlar, sifiliz, pontin gliomlar ve lösemi gibi çeşitli hastalıklarla ilişkili olabilir. Altmış üç yaşında erkek hasta tam kan sayımında aşırı lökositoz ve yüzün sağ tarafında iki haftadır süren güçsüzlük ile hematoloji kliniğine başvurdu. Hastane yatışının yedinci gününde, yüzünün sol tarafında da güçsüzlük gelişti. Hasta iki taraflı fasiyal paralizi tanısı ile Fiziksel Tıp ve Rehabilitasyon kliniğine sevk edildi. Elektroterapi, el masajı ve egzersizden oluşan bir rehabilitasyon programına başlandı. Her iki taraftaki yüz kaslarına haftada üç seans galvanik akım uygulandı. Dört haftalık elektroterapi, günlük masaj ve egzersiz ile 12 seans sonunda, yüzün her iki tarafında da, duyu ve yüz kası kuvveti bakımından anlamlı iyileşme elde edildi. Takip sırasında 12. haftada ilave iyileşme kaydedildi. Bu yazıda, düşük gradlı B hücreli lenfomaya bağlı iki taraflı fasiyal paralizi olan son derece nadir bir olgu ve elektroterapi ve rehabilitasyon teknikleri ile elde edilen iyileşme sunuldu.

Anahtar sözcükler: Fasiyal paralizi; lenfoma; rehabilitasyon.

Unilateral peripheral facial nerve paralysis is a relatively common condition which is mostly idiopathic without an obvious cause (Bell's palsy) or secondary to a detectable cause (secondary facial nerve palsy).[1] However, simultaneous bilateral facial palsy (facial diplegia) is an extremely rare clinical finding with a prevalence of 0.3 to 2% of facial palsies and an annual incidence of approximately 1 per 5 million.[2] It may be idiopathic (bilateral Bell's palsy) or have different etiologies including Lyme disease, Guillain-Barre syndrome, sarcoidosis, Moebius syndrome, viral infections, syphilis, basilar skull fractures, pontine gliomas, leukemia, and lymphoma.[2] There is a limited number of case reports of bilateral facial paralysis in patients with lymphoma.[1-3] Facial paralysis due to lymphoma is a medical emergency which requires an extensive chemotherapy protocol with a comprehensive rehabilitation program.

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Herein, we present a case of bilateral facial paralysis secondary to B-cell low grade lymphoma and the management approach using rehabilitation techniques.

CASE REPORT

A 63-year-old male patient was referred to the department of Hematology with an abnormal complete blood count showing leukocytosis and a two-week history of right-sided complete facial weakness. The laboratory test results were significant for white blood cell count (WBC) of 153,000/mm^3 (82.1% lymphocyte), hemoglobin of 12.0 g/dL, hematocrit of 37.9%, and a platelet count of 182,000/mm^3. Based on bone marrow aspiration and biopsy specimens, the patient was diagnosed with B-cell low grade lymphoma. Since the patient developed facial weakness on the left side of his face on the seventh day of his hospitalization, he was referred to the department of Physical Medicine and Rehabilitation.

The initial assessment of the patient revealed facial weakness of all facial nerve branches, inability to close or wink the eye, to close the mouth and to droop the brow or the corner of the mouth, dry eye and numbness on both sides. Physical examination also revealed bilateral weakness of the facial muscles including orbicularis oris, orbicularis oculi, frontalis, and corrugator supercilii. Regarding the diagnostic test, cerebral magnetic resonance revealed cerebral and cerebellar atrophy which is consistent with the patient's age. Temporal computed tomography showed right mastoiditis and chronic sinusitis. Electroneuromyography revealed bilateral total paralysis of the facial nerve. Then, the patient was assessed in terms of the House-Brackmann facial nerve grading system and diagnosed with bilateral facial nerve palsy of grade 6 and 5 on the right and the left side, respectively (Figure 1).

A written informed consent was obtained from the patient. The patient was started on a rehabilitation program including electrotherapy, manual massage, and exercise. Exercise program included emotional expression exercises, mime therapy, coordination exercises, and neuromuscular retraining. During this program, the patient was asked to observe each muscle's functional capacity in the mirror. As a result, he was able to identify the specific area of dysfunction. Then, he was requested to perform the movements slowly and gradually to control abnormal movements, in other words, synkinesis. This approach led to an improvement in the isolated muscle movement and coordination. Pulsed galvanic current at 80 peaks/sec for 10 min/each session was applied to the facial muscles of both sides as three sessions per week. After daily massage and exercise for four weeks and 12 sessions of electrotherapy, the patient was re-assessed. A significant improvement was detected on both sides in terms of sensation and facial muscle strength. According to the House-Brackmann scale, the patient improved one grade on both sides (grade 5 on the right and grade 4 on the left side). When the patient was evaluated at the 12th week follow-up, further improvement was detected on both sides (grade 4 on the right and grade 3 on the left side). The facial muscle strength was consistent with the improved hematological variables: WBC count decreased to 6,060/mm^3 with a percentage of %21.7 lymphocytes.

DISCUSSION

There are various causes of bilateral facial paralysis, most of which are benign. These include bilateral Bell's palsy, diabetes, Guillain-Barre syndrome, viral infections, syphilis, basal skull fractures, pregnancy, brainstem encephalitis, cryptococcal meningitis, systemic lupus erythematosus, bulbospinal muscular atrophy and borreliosis.[1-3] However, it can be associated with malignant diseases such as leukemia and lymphoma.[3]

In the differential diagnosis of bilateral facial paralysis, the medical history and examination findings are of utmost importance. For instance, the history of

Figure 1. Clinical presentation of the patient on admission. *Photography was used with patient's consent.*

previous infection with generalized motor weakness on physical examination may suggest the diagnosis of Guillain-Barre syndrome.[4] On the other hand, the antecedent lingual herpetic infection may suggest the viral polyneuritis.[4] History of trauma in a patient with bilateral facial paralysis may raise concerns about a basal skull fracture.[1] In this content, the exclusion of the life-threatening disorders such as Guillain-Barre syndrome, meningitis, encephalitis, and malignancies has a priority. In case of a suspected life-threatening condition, differential diagnostic tests (i.e., cerebral magnetic resonance imaging, computed tomography of the temporal bone, or electrophysiological studies) should be carried out under close observation in the hospital setting. Otherwise, the work-up can be done as an outpatient basis.[4]

In malignant diseases, the paralysis of the facial nerve may be due to the perineural infiltration of the temporal bone or facial nerve, central nervous system lymphoma or invasion to the meninx, infection and hemorrhage around the facial nerve, chemotherapy associated toxicity to the nerve and reactivation of the latent viral infection.[1,5-7] Central nervous system involvement is more common in non-Hodgkin's lymphoma.[8]

Bilateral facial paralysis, particularly at the beginning of lymphoma, is a rare presentation which requires additional attention,[9] since it is also related with a poor prognosis. The primary goal is to cease the progression of lymphoma prior to the irreversible degeneration of facial nerve. On the other hand, adjuvant treatments such as rehabilitation may be of benefit. Nevertheless, recovery from this state is usually partial, at best.[4]

Physical treatment of peripheral facial nerve palsy comprises superficial heat therapy (hot pack or infrared), electrical stimulation, massage, exercise, and biofeedback training.[10] Superficial heat reduces the skin resistance, while enhancing the local circulation.[10] However, since facial nerve palsy is related to a malignant disease in our case, no forms of heat therapy were performed. Electrical stimulation of the facial muscles not only preserves the muscle bulk in complete paralysis, but also has a psychological benefit. The present case received three sessions of galvanic stimulation per week for four weeks, which resulted in a favorable outcome. Once active muscle contraction is achieved, electrical stimulation should be terminated and exercises should be ordered to improve the functional recovery. Facial biofeedback training in front of a mirror (mime therapy) and electromyographic biofeedback training are successful in preventing synkinesis.[10] The present case was managed with electrotherapy, massage, and exercise after which he gained an improvement of one grade regarding the House-Brackmann scale on both sides. He also experienced further improvement on both sides (by one grade) at 12 weeks during follow-up.

In conclusion, in this report, we present an extremely rare case of bilateral peripheral facial paralysis due to B-cell low grade lymphoma and the improvement with electrotherapy and rehabilitation techniques. Acute bilateral facial nerve palsy (facial diplegia) is a medical emergency which may be the initial finding of serious disorders such as malignancies. Therefore, it is of paramount importance to be vigilant regarding the differential diagnosis of this uncommon condition and to assist the patient with a comprehensive rehabilitative approach.

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