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CASE REPORT

Bell's Palsy in an Elderly Patient with Type 2 Diabetes Mellitus

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Abstract: Bell's palsy, a common peripheral facial nerve paralysis, presents as acute unilateral facial weakness without an identifiable cause. This case report describes a 74-year-old male with type 2 diabetes mellitus who presented to the outpatient department with sudden-onset right-sided facial deviation and slurred speech. The patient had a similar episode 40 years ago and was currently on oral hypoglycemic medications for diabetes management. Clinical examination revealed right-sided facial weakness with normal vital signs. Laboratory investigations, including serum electrolytes, thyroid profile, and complete blood count, were within normal limits. Magnetic Resonance Imaging showed bilateral age-related cerebral and cerebellar atrophy with grade I chronic small vessel ischemia. The patient was treated with a combination of oral acyclovir, prednisolone, and supportive medications. Physical therapy, including electrical stimulation of facial muscles and facial exercises, was initiated under professional supervision. The patient showed significant improvement during the three-week hospital stay and continued to recover during the six-month follow-up period. This case highlights the importance of prompt medical intervention, comprehensive treatment approach, and the role of physiotherapy in Bell's palsy management. The favorable outcome in this elderly patient with comorbid diabetes mellitus demonstrates that appropriate medical management combined with rehabilitation can lead to successful recovery, even in complex cases.

Keywords: Bell's palsy; Facial nerve paralysis; Type 2 diabetes mellitus; Corticosteroids; Physical therapy.

1. Introduction

Bell's palsy represents a common cranial neuropathy characterized by acute unilateral facial paralysis affecting the seventh cranial nerve. The condition presents with an annual incidence of 15-30 cases per 100,000 individuals, with equal distribution among genders and a peak incidence between 15-45 years of age [1]. While traditionally considered idiopathic, recent evidence suggests multiple potential etiological factors, including viral infections, inflammatory processes, and vascular ischemia [2]. The facial nerve, being a mixed cranial nerve, carries motor fibers to the facial muscles, parasympathetic fibers to the lacrimal and salivary glands, and sensory fibers for taste sensation to the anterior two-thirds of the tongue. This complex anatomical arrangement explains the diverse symptomatology observed in Bell's palsy patients [3]. The characteristic presentation includes sudden onset of unilateral facial weakness, which typically progresses within 72 hours, accompanied by impaired facial expression, difficulty in eye closure, and mouth deviation toward the unaffected side [4].

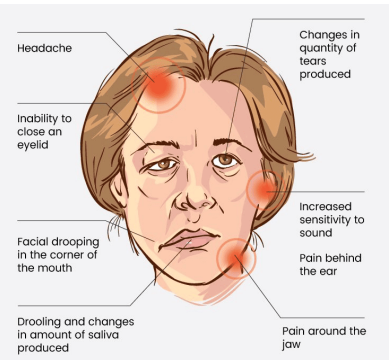

Figure 1. Signs and Symptoms of Bell's Palsy

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Several risk factors have been associated with Bell's palsy, including diabetes mellitus, pregnancy, hypertension, and upper respiratory infections. Particularly in diabetic patients, the presence of underlying microangiopathy and altered immune responses may contribute to both increased susceptibility and potentially prolonged recovery periods [5]. The relationship between diabetes and Bell's palsy has gained significant attention, as diabetic patients often experience more severe symptoms and may require more aggressive management approaches [6]. Diagnosis of Bell's palsy remains primarily clinical, based on careful history taking and physical examination. The House-Brackmann facial nerve grading system is widely used to assess the severity of facial nerve dysfunction and monitor recovery progress [7]. While laboratory investigations are generally not required for diagnosis, imaging studies may be warranted in cases with atypical presentations or in patients with risk factors for other neurological conditions [8].

The management of Bell's palsy has evolved significantly over the past decades. Current evidence supports the early administration of corticosteroids, ideally within 72 hours of symptom onset, as the cornerstone of treatment [9]. The role of antiviral therapy, particularly in combination with corticosteroids, remains controversial, though it may be beneficial in selected cases with suspected viral etiology [10]. Additionally, supportive measures including eye protection, physical therapy, and facial exercises play crucial roles in preventing complications and promoting recovery [11]. Prognosis in Bell's palsy is generally favorable, with approximately 70% of patients achieving complete recovery without treatment. However, factors such as age, comorbidities, and initial severity of paralysis can influence recovery outcomes [12]. The presence of diabetes mellitus, in particular, may complicate the recovery process and necessitate more prolonged rehabilitation periods [13]. This case report presents an elderly patient with type 2 diabetes mellitus who developed Bell's palsy, highlighting the importance of a comprehensive treatment approach.

2. Case Presentation

2.1. Chief Complaint

A 74-year-old male patient presented to the outpatient department with acute onset of facial asymmetry and slurred speech that developed the previous evening at approximately 7:00 PM. The primary manifestation included rightward deviation of the mouth and difficulty in speech articulation. The development of symptoms was rapid yet there were no associated complaints of unconsciousness, limb weakness, or autonomic dysfunction

2.2. Past Medical History

The patient's history was significant for a similar episode of facial paralysis approximately 40 years ago, for which he underwent treatment for two decades before discontinuation. He had been managing type 2 diabetes mellitus for the past ten years with a combination therapy of glimepiride 1 mg and metformin 500 mg administered thrice daily. Regular monitoring of blood glucose levels and medication adherence was reported.

2.3. Clinical Examination

Initial assessment revealed stable hemodynamic parameters with a blood pressure of 130/80 mmHg and a regular pulse rate of 70 beats per minute. The respiratory rate was maintained at 18 cycles per minute, and the patient remained afebrile. Oxygen saturation was 98% on room air, while random blood glucose measured 176 mg/dL, indicating adequate glycemic control. Consciousness assessment using the Glasgow Coma Scale demonstrated a score of E4M6V5, confirming normal mental status

2.4. Neurological findings

Detailed neurological examination revealed classic signs of right-sided lower motor neuron facial palsy. The patient demonstrated marked facial asymmetry with evident weakness of the right facial muscles. Notable findings included incomplete right eye closure (lagophthalmos) and rightward mouth deviation during attempted facial movements. Taste sensation remained preserved, and no additional cranial nerve involvement was observed. Motor strength, sensory function, deep tendon reflexes, and coordination were intact in all extremities

2.5. Laboratory investigations

Comprehensive laboratory evaluation included complete blood count, serum electrolytes, thyroid function tests, and lipid profile, all of which returned within normal reference ranges. Urinalysis showed no significant abnormalities, effectively excluding common metabolic and systemic causes of facial paralysis.

2.6. Radiological assessment

Magnetic Resonance Imaging of the brain demonstrated age-appropriate bilateral cerebral atrophy and grade I chronic small vessel ischemic changes. The study revealed no evidence of acute infarction, hemorrhage, or space-occupying lesions. The brainstem anatomy appeared normal, and the facial nerve showed no signs of compression or pathological enhancement.

2.7. Disease Progression

The temporal course of the condition was meticulously documented from initial symptom onset through treatment and recovery phases. Symptoms appeared suddenly on the evening before presentation, progressing rapidly over 24 hours. The patient's hospital course extended for three weeks, during which progressive improvement was observed. Follow-up continued for six months post-discharge, culminating in substantial recovery of facial function.

2.8. Final Diagnosis

Based on the characteristic clinical presentation, temporal profile, and systematic exclusion of alternative etiologies through diagnostic testing, a definitive diagnosis of right-sided Bell's palsy was established. The concurrent type 2 diabetes mellitus was identified as a significant comorbidity requiring careful consideration in therapeutic planning and outcome prediction.

3. Treatment and outcome

3.1. Treatment Protocol

Following confirmation of diagnosis, a comprehensive therapeutic approach was initiated. The cornerstone of medical management included oral acyclovir 500 mg administered thrice daily and oral prednisolone (Wysolone) 40 mg once daily. Supportive therapy comprised Ecospirin-AV (combination of atorvastatin calcium 40 mg and aspirin 75 mg) and pantoprazole 40 mg daily for gastric protection. The patient's diabetic management continued with glimepiride 1 mg and metformin 500 mg thrice daily. Neurotropic supplementation was provided through Nurokind tablets administered at bedtime. On the second day of admission, parenteral ondansetron was added to the regimen to manage associated nausea.

3.2. Rehabilitation Protocol

Physical therapy was initiated within 24 hours of admission, incorporating both passive and active therapeutic modalities. The rehabilitation program included electrical stimulation of affected facial muscles and targeted facial exercises under professional physiotherapy supervision. The protocol emphasized gradual progression from passive to active exercises, with careful monitoring of muscle response and prevention of synkinesis.

3.3. Monitoring Parameters

Throughout the treatment period, systematic monitoring included daily assessment of facial nerve function using the House-Brackmann grading scale. Vital parameters were recorded at regular intervals, with particular attention to blood pressure control. Random blood glucose measurements were performed thrice daily to maintain optimal glycemic control, considering the potential impact of corticosteroid therapy on glucose homeostasis.

3.4. Clinical Outcome

The patient demonstrated progressive improvement over the three-week hospitalization period. By the time of discharge, significant recovery in facial muscle function was evident, with improved symmetry and voluntary movement control. The six-month follow-up period, which included regular physiotherapy sessions and application of thermal compresses, resulted in near-complete resolution of facial weakness. Maintenance therapy for diabetes continued with the prescribed oral hypoglycemic agents.

4. Discussion

Bell's palsy in elderly patients with diabetes presents unique therapeutic challenges requiring careful consideration of multiple factors. The present case highlights several important clinical aspects of management. Firstly, the early initiation of combination therapy with corticosteroids and antivirals within 72 hours of symptom onset likely contributed to the favorable outcome [14]. The role of diabetes as a comorbidity warranted careful glycemic monitoring, particularly during corticosteroid therapy, as poor glycemic control could potentially impact recovery [15]. The implementation of early rehabilitation protocols proved crucial in this case. Previous studies have demonstrated that facial exercises and electrical stimulation, when initiated promptly, can prevent muscle atrophy and promote nerve regeneration [16]. The positive outcome in our elderly patient supports existing literature suggesting that age alone should not be considered a limiting factor in recovery potential [17]. Our case also emphasizes the importance of a multidisciplinary approach involving neurologists, physiotherapists, and diabetes specialists. The management of concurrent diabetes required careful balance between glycemic control and the necessary corticosteroid therapy [18]. Regular monitoring and appropriate dose adjustments ensured optimal therapeutic outcomes without significant complications. The six-month follow-up period demonstrated the importance of sustained rehabilitation efforts in achieving optimal recovery. This observation aligns with current evidence suggesting that continued physical therapy beyond the acute phase contributes significantly to functional improvement and prevention of long-term sequelae [19].

5. Conclusion

This case report demonstrates successful management of Bell's palsy in an elderly diabetic patient through a comprehensive therapeutic approach combining medical management and rehabilitation. The favorable outcome emphasizes the importance of early intervention, careful monitoring, and sustained rehabilitation efforts. The case shows that advanced age and presence of diabetes mellitus, while important considerations, do not preclude successful recovery when appropriate therapeutic strategies are implemented.

6. Abbreviations

OPD- Out Patient Department; PFP- Peripheral Facial Palsy; MRI-Magnetic Resonance Imaging; PM-Post Meridiem; GCS-Glassgow Coma Scale; mmHG-Millimeters of Mercury; mg-Milligram; dL-Deciliter

Compliance with ethical standards

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Conflict of interest statement

The authors declare that they have no competing interests or financial relationships that could have appeared to influence the work reported in this paper. No funding was received for the preparation of this case report.

Statement of ethical approval

This case report was conducted in accordance with the ethical standards of our institutional review board and the 1964 Helsinki Declaration and its subsequent amendments. As per institutional protocol, case reports do not require ethics committee approval.

Statement of informed consent

Written informed consent was obtained from the patient for publication of this case report and any accompanying clinical data. All identifying information has been removed to maintain patient confidentiality in accordance with HIPAA guidelines and international standards for patient privacy.

References

[1] Peitersen E. Bell's palsy: the spontaneous course of 2,500 peripheral facial nerve palsies of different etiologies. Acta Otolaryngol Suppl. 2002;(549):4-30.

[2] Holland NJ, Weiner GM. Recent developments in Bell's palsy. BMJ. 2004;329(7465):553-557.

[3] Gilden DH. Clinical practice. Bell's palsy. N Engl J Med. 2004;351(13):1323-1331.

[4] Baugh RF, Basura GJ, Ishii LE, et al. Clinical practice guideline: Bell's palsy. Otolaryngol Head Neck Surg. 2013;149(3 Suppl):S1-S27.

[5] Pecket P, Schattner A. Concurrent Bell's palsy and diabetes mellitus: a diabetic mononeuropathy? J Neurol Neurosurg Psychiatry. 1982;45(7):652-655.

[6] Riga M, Kefalidis G, Danielides V. The role of diabetes mellitus in the clinical presentation and prognosis of Bell palsy. J Am Board Fam Med. 2012;25(6):819-826.

[7] House JW, Brackmann DE. Facial nerve grading system. Otolaryngol Head Neck Surg. 1985;93(2):146-147.

[8] Gronseth GS, Paduga R. Evidence-based guideline update: steroids and antivirals for Bell palsy: report of the Guideline Development Subcommittee of the American Academy of Neurology. Neurology. 2012;79(22):2209-2213.

[9] Sullivan FM, Swan IR, Donnan PT, et al. Early treatment with prednisolone or acyclovir in Bell's palsy. N Engl J Med. 2007;357(16):1598-1607.

[10] Engström M, Berg T, Stjernquist-Desatnik A, et al. Prednisolone and valaciclovir in Bell's palsy: a randomised, double-blind, placebo-controlled, multicentre trial. Lancet Neurol. 2008;7(11):993-1000.

[11] Sarella PN, Dadishetti JP, Asogwa PO, Kakarparthy R. Pharmacological and Non-pharmacological Management of Bipolar Disorder with Comorbid Huntington's Disease: A Case Report. Journal of Clinical and Pharmaceutical Research. 2023 Apr 30:5-8.

[12] Kanazawa A, Haginomori S, Takamaki A, Nonaka R, Araki M, Takenaka H. Prognosis for Bell's palsy: a comparison of diabetic and nondiabetic patients. Acta Otolaryngol. 2007;127(8):888-891.

[13] Madhok VB, Gagyor I, Daly F, et al. Corticosteroids for Bell's palsy (idiopathic facial paralysis). Cochrane Database Syst Rev. 2016;7(7):CD001942.

[14] Kim YH, Choi IJ, Kim HM, Ban JH, Cho CH, Ahn JH. Bilateral simultaneous facial nerve palsy: clinical analysis in seven cases. Otol Neurotol. 2008;29(3):397-400.

[15] Pereira LM, Obara K, Dias JM, Menacho MO, Lavado EL, Cardoso JR. Facial exercise therapy for facial palsy: systematic review and meta-analysis. Clin Rehabil. 2011;25(7):649-658.

[16] Pavlidis P, Cámara RJ, Kekes G, Gouveris H. Bilateral Bell's palsy: a systematic review. J Laryngol Otol. 2020;134(2):105-110.

[17] Zhang W, Xu L, Luo T, Wu F, Zhao B, Li X. The etiology of Bell's palsy: a review. J Neurol. 2020;267(7):1896-1905.

[18] Nicastri M, Mancini P, De Seta D, et al. Efficacy of early physical therapy in severe Bell's palsy: a randomized controlled trial. Neurorehabil Neural Repair. 2013;27(6):542-551.

[19] Sarella PN, Dadishetti JP, Asogwa PO, Kakarparthy R. A Case Report on Organic Psychosis Induced by Antitubercular Drugs in A Young Female. Asian Journal of Hospital Pharmacy. 2023 May 28:1-3

Author's short biography

Mahe Naz Shayeed

Mahe Naz Shayeed, a PharmD intern at JNTUK (Jawaharlal Nehru Technological University Kakinada), is dedicated to advancing the field of pharmacy through a blend of scientific knowledge and compassionate patient care. With a strong foundation in pharmaceutical sciences, I am motivated to enhance healthcare outcomes by prioritizing patient-centred approaches. As I navigate the fast-evolving landscape of pharmacy practice, my goal is to merge clinical expertise with a genuine commitment to improving patient well-being.

Parash Niroula

A committed PharmD student of JNTUK (Jawaharlal Nehru Technological University Kakinada) with experience as a medical laboratory technician from CTEVT, Nepal, who is passionate about healthcare and patient well-being, actively participates in clinical rotations and research with an emphasis on clinical pharmacy and pharmaceutical science. I really enjoy using my medical expertise and outstanding communication skills to support research and care plans that are maximized while upholding patient safety and ethical standards. My goals are to improve my abilities and give back to the community.

Bobby Samba

Bobby Samba is a Doctor of Pharmacy (PharmD) student at Jawaharlal Nehru Technological University Kakinada (JNTUK), passionate about implementing comprehensive pharmaceutical care to enhance patient health outcomes. Her academic focus encompasses patient counseling and drug therapy optimization. With a strong foundation in theoretical knowledge, she is eager to apply her expertise in clinical settings. Bobby demonstrates exceptional work ethic, adaptability, and commitment to advancing her education in clinical pharmacy.

Dhanya Siri Singari

Dhanya Siri Singari is a Doctor of Pharmacy intern with keen interest in understanding pathological conditions and their therapeutic management to improve patients' quality of life. She believes that patient care is a manifestation of compassion and considers serving patients a privileged opportunity. This conviction led her to pursue a career in pharmacy, where she currently serves as a PharmD intern, focusing on direct patient care and therapeutic interventions.