
| RESEARCH ARTICLE

Right Hemifacial Paralysis in a 6-Year-Old Boy: An Overlooked Case Report of Bell's Palsy in Children

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| ABSTRACT

This study focuses on a case of Bell's Palsy in a 6-year-old boy. Bell's Palsy is the most common type of facial nerve paralysis in children. The causes can be either congenital factors (traumatic malformations, symptomatic, non-syndromic, or hereditary conditions) or acquired factors (infections, inflammations, neoplastic, or traumatic factors). Bell's Palsy is commonly caused by viral infections, especially the herpes simplex virus. In this case, a child experienced rapid-onset right hemifacial paralysis, and he had no history of trauma or other systemic symptoms. A diagnosis of Bell's Palsy was made, and the child received treatment with corticosteroids and a rehabilitation program. The results of this study indicate that treatment with methylprednisolone for 3 days and a rehabilitation program involving relaxation exercises and massages to reduce muscle stiffness yielded a good response. Proper clinical observation and evaluation are crucial in diagnosing Bell's Palsy in children. A multidisciplinary approach through collaboration between pediatricians and physiotherapists plays a significant role in managing such cases. Good follow-up is necessary to reduce the risk of prolonged facial nerve paralysis in the future.

| KEYWORDS

Bell's Palsy, Right Hemifacial Paralysis, Children Facial Paralysis, Peripheral Facial Nerve Palsy

| ARTICLE INFORMATION

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1. Introduction

Facial nerve palsy in children can have different origins, either congenital or acquired, and sometimes the exact cause may remain unknown. Among the various types of facial paralysis, Bell's palsy is the most common in children. The incidence of Bell's Palsy is more than 6 per 100,000 individuals under 15 years old. Facial paralysis in children can arise from various factors, categorized as congenital (involving traumatic, symptomatic, non-syndromic malformations, or hereditary conditions) or acquired (involving infectious, inflammatory, neoplastic, or traumatic factors). The sudden appearance of unilateral weakness in both upper and lower facial muscles on one side of the face is clinically referred to as peripheral facial nerve palsy (PFNP). Facial nerve palsy can be classified as either a peripheral lesion of the facial nerve (also known as peripheral facial nerve palsy or FNP) or a central upper motor neuron lesion caused by injury above the facial nucleus between the cerebral cortices, resulting in central facial paralysis. (Bilge, 2022) (Wohrer 2022)

The most widely accepted theory behind PFNP is viral infection, most commonly associated with the herpes simplex virus. Bell's palsy is an idiopathic FNP acquired, which is an idiopathic facial paralysis characterized by paralysis or weakness of the facial muscles (Cynthia 2021) (Wang 2010). A missed or delayed diagnosis can significantly affect the quality of life of a patient. Thus, in this case report, we will present an overlooked case report of Bell's palsy in a 6-year-old boy.

2. Case Illustration

A 6-year-old boy was admitted to the emergency ward with right hemifacial paralysis 1 day prior to admission. His mother also reported that he had incomplete eyelid closure and lip closure disorder before the onset of the symptoms that resolved on their own. These symptoms have never happened to him before. The patient's mother confirmed that there was no facial trauma or contact with sick individuals. The patient also did not experience any recent fever, nausea, vomiting, or other systemic symptoms. Significant findings upon physical examination were found normal blood pressure (112/60 mmHg), Facial asymmetry with total right facial nerve paralysis of the lower motor neuron type was observed, affecting the right eye and eyebrows. The remainder of the examination was normal, without any sensory dysfunction. Initial investigations of otoscopic examination showed a normal structure intact tympanic membrane with no sign of ear infections. Due to no facial trauma or any sensory dysfunction, we did not perform any CT Scan or MRI. A diagnosis of right hemifacial Bell's palsy with House-Brackmann Stage III was made. Upon admission, he received a course of methylprednisolone 2x20mg IV and artificial tears for three days. The approach to rehabilitation was assessed with massage on motor point stimulation on the periorbital area twice a day. The patient was discharged on the 5th hospital day, followed by six months of supervision at our pediatric and rehabilitation clinic.



Fig.1 Clinical presentation of right hemifacial Bell's palsy with House-Brackmann Stage III



Fig.2 Positive Bells' Sign

2. Discussion

Bell's Palsy, alternatively referred to as acute idiopathic peripheral facial nerve palsy, is a condition characterized by sudden onset facial nerve paralysis of unknown cause. The characteristic of Bell's Palsy is sudden paralysis of the nerve facial that carries motoric function towards facial muscles and sensory function, which supplies the anterior two thirds of taste buds, saliva and lacrimal gland. (Babl, 2017) The sudden paralysis evolves swiftly and develops within two days maximum. Older children tend to encounter facial numbness, dry eyes, loss of taste, mainly in the anterior area, drooping mouth and difficulties to eat and speak. (Hussain 2011) Some studies reported it took 12 months of full recovery in children, while some children left with some impairment, which took longer than a year to recover. (Cynthia 2021) The major etiology remains idiopathic.

Meanwhile, there are some identifiable causes such as infection, inflammation, traumatic or neoplasm. Reports said not only Varicella Zooster Virus activated in the facial nerve can lead to Bell's palsy, but also Herpes Simplex Virus was found in the perineural fluid. Moreover, Epstein-Barr virus, cytomegalovirus, adenovirus and human herpes virus tick exposure may impact peripheral facial nerve palsy. (Lee 2020) Based on our case reports, the patient experienced right hemifacial paralysis, incomplete eyelid closure and lip closure disorder 1 day prior to admission. Based on the physical examination, the clinical suspicion is that it is Bell's Palsy. The child showed facial asymmetry with a complete lower motor neuron type right facial nerve paralysis, affecting the right eye and eyebrows. There were no reported recent fever, nausea, vomiting, or other systemic symptoms. According to Braugh et al., the suspected pathogenesis of Bell's palsy is infection ahead to inflammation and edema, which cause the part of the facial nerve that travels through narrow canals to experience damage and compression. It leads to face distortion and drooping

eyelids and corners of the mouth unilaterally. (Baugh 2013) American Academy of Otolaryngology-Head and Neck Surgery Foundation recommended routine laboratory investigation in certain situations if the diagnosis leads to malignancy or Lyme disease. (Wohrer 2022) So does diagnostic imaging; it is required for patients with recurrent paralysis, complex symptoms, suspected malignancy or no improvement after 3 weeks of treatment. (Pavlou 2010). In this patient, we have found no significant findings on laboratory examination.

Even though the incidence of Bell's palsy is low, it is important to look through medical evaluation to verify any other neurological signs and symptoms. The first thing to do is evaluate the intracranial pathology, which is related to the prognosis. (Keels 1987) If a patient came with flattening muscles of the forehead caused by palsy, it was probably PFNP at birth, considering traumatic or syndromic cases. When it comes to trauma, consider bone imaging or, even better, CT scans and MRI. If there are any possibilities with vascular lesions, otitis media or secondary causes, use a suitable antibiotic or antiviral treatment for underlying causes. Recurrent attacks with facial swelling and a fissured tongue could lead to Melkersson-Rosenthal Syndrome or malignancy. If there were no previous findings, it is possible to diagnose Bell's Palsy because it should be a diagnosis of exclusion. (Bilge, 2022) The prognosis of Bell's palsy is dependent on the severity of facial nerve palsy based on the House-Brackmann grading system, the common tool. Grading is the severity of paresis.

Approach treatment in children must be holistic; it often involves multidisciplinary teams consisting of a pediatrician, otolaryngologist, neurologist, ophthalmologist, physiotherapist, and even plastic surgeon. Even in most cases in which children recover spontaneously, medication is still needed to reduce effects such as facial spasms. (McCaul 2014) Using corticosteroids is suggested for at least 3 days. Prednisone is the favourable choice, with a dose of 1-2 mg/kg per day for 10 days. Other drugs are dependent on underlying causes like VZV, should be treated not only with corticosteroid but also with an antiviral agent such as acyclovir with a dose of 80 mg/kg per day every 6 hours or valacyclovir with a dose of 20 mg/kg three times per day. In case of other syndromes or acquired palsy, corneal protection with artificial tears to prevent corneal lesions. Even needed to refer the patient to a plastic surgeon to add some weight to the upper eyelid (Dushyant 2013) (Khan et al. 2012). meta-analysis' reviewed that facial exercise therapy concludes it is more effective to do in the acute phase rather than the chronic phase. Whilst both make a greater outcome, when it's done in an acute phase, it could reduce the sequelae. De Almeida (2014) and Monini et al. (2017) conclude that recovery time is shorter if the therapy consists of steroid therapy and physical therapy (Monini 2017), as our case reports have assessed pharmacology therapy (methylprednisolone and artificial tears) for 3 days, combined with a rehabilitation programme by relaxation exercise with massage to reduce muscle stiffness.

3. Conclusion

The diagnosis of Bell's Palsy in children primarily relies on clinical observations, and appropriate tests are conducted to eliminate other potential conditions with similar symptoms and respond well with a multidisciplinary approach with a pediatrician and physiotherapist through a combination therapy of prednisolone and a rehabilitation programme. Proper follow-ups should be needed to reduce the risk of sequelae facial paralysis in the future.

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