

## PHYSIOTHERAPY MANAGEMENT FOR BELL’S PALSY IN A 17-YEAR-OLD FEMALE: A CASE REPORT

Muhammad Ghofar Aminarto

*Program Studi Profesi Fisioterapi, Fakultas Ilmu Kesehatan Universitas Muhammadiyah Surakarta, Indonesia*

\*Corresponding author: Muhammad Ghofar Aminarto

### Abstract

**Introduction:** Bell’s palsy is an acute, idiopathic peripheral facial nerve paralysis that commonly affects individuals between 15 and 45 years old. It is often attributed to viral reactivation, particularly herpes simplex virus type 1. The sudden onset of facial weakness or paralysis may cause significant psychological and functional impairments, especially in adolescents. Physiotherapy is considered an effective supportive treatment to restore neuromuscular function when pharmacological approaches alone are insufficient.

**Case Presentation:** A 17-year-old female presented with progressive right-sided facial stiffness and pain without apparent cause, eventually leading to noticeable facial asymmetry. Physical examination revealed reduced facial muscle strength (MMT grade 0–3), tenderness in facial and neck muscles, and moderate pain (VAS 5–6). A facial function score of 51 on the Ugo Fisch scale indicated moderate facial paralysis. The patient’s condition also interfered with chewing and social interaction due to altered facial appearance.

**Management and Outcome:** The patient received a three-week physiotherapy intervention including infrared therapy, neuromuscular electrical stimulation, manual massage techniques, and isometric facial exercises. Sessions were held twice per week, complemented by a daily home-based exercise program. Pain levels decreased steadily, and a mild improvement was observed in forehead movement and overall facial function (Ugo Fisch score increased from 51 to 54).

**Conclusion:** Physiotherapy combining infrared, NMES, manual techniques, and facial muscle training proved beneficial in managing Bell’s palsy in an adolescent patient. Consistent home exercises and long-term monitoring are recommended to optimize outcomes and prevent persistent dysfunction.

**Keywords:** *Bell’s Palsy, Facial Paralysis, Physiotherapy, Electrical Stimulation, Infrared Therapy, Facial Exercises*

## **Introduction**

Bell's palsy is a sudden-onset, non-traumatic paralysis affecting one side of the face due to dysfunction of the facial nerve. It is the leading type of lower motor neuron facial paralysis and is commonly marked by facial drooping, weakness of facial muscles, and reduced voluntary movements, often accompanied by pain near the ear or behind the jaw (Tiemstra & Khatkhate, 2007). Although the precise cause is still debated, reactivation of dormant herpes simplex virus type 1 (HSV-1) is the most commonly proposed theory (Zhang et al., 2020).

The annual occurrence of Bell's palsy ranges from approximately 15 to 30 individuals per 100,000, with the highest frequency observed among people aged 15 to 45 (Baugh et al., 2013). Although adolescents are less commonly affected, they may endure considerable emotional and social challenges due to the visible impact on facial appearance during a sensitive stage of development. In non-surgical management, physiotherapy serves as an essential modality, particularly when pharmacological treatment does not yield full neurological recovery. Therapeutic methods such as neuromuscular electrical stimulation, application of infrared heat, soft tissue techniques like massage, and targeted facial exercises are commonly utilized (Yoo et al., 2023). These methods are intended to maintain muscle function, alleviate discomfort, and support neuromotor reactivation.

Contemporary research has highlighted that early initiation of physiotherapy contributes to improved facial movement control and better recovery outcomes. Facial muscle training and NMES have demonstrated potential in restoring symmetry and enhancing strength in facial expressions, especially among adolescent patients (Burelo-Peregrino et al., 2020). Nevertheless, the most effective protocols, including duration and intensity, remain subjects of ongoing investigation.

## **Case Presentation**

A 17-year-old female student reported a gradual onset of discomfort, described as stiffness and pain localized to the right side of her face and the back of her neck. These symptoms emerged without a known trigger and worsened progressively over a few days, eventually resulting in visible asymmetry of the facial muscles. The patient initially sought care at a primary health facility and was later referred to RS Soerodjo Magelang for further evaluation and treatment.

Her medical history was notable for hypertension, with no record of prior trauma or neurological illness. On physical assessment, static observation identified right-sided facial asymmetry. She also expressed tenderness on palpation in the regions of the forehead, cheek, and posterior neck. Muscular palpation revealed spasms in the frontalis, zygomaticus, and scalene muscles on the affected side.

Facial muscle strength testing via Manual Muscle Testing (MMT) revealed reduced strength (grades 0–3) on the right side, while the left side remained normal (grade 5). Pain was evaluated using the Visual Analogue Scale (VAS), which consistently showed moderate pain levels (scores 5–6) in affected muscle groups, particularly during movement or direct pressure.

A facial function assessment using the Ugo Fisch Scale yielded a score of 51 out of 100, corresponding to a moderate degree of facial paralysis. The patient exhibited limited capacity to raise her eyebrows, incomplete eyelid closure, and marked difficulty with facial expressions such as smiling and whistling.

The physiotherapeutic diagnosis included increased muscle tone in isolated facial muscles (b7350), radiating pain in the craniofacial region (b2803), and functional impairment of the facial nerve (s1106). The condition also interfered with her ability to chew (d550) and negatively impacted her social participation due to altered facial appearance.

An integrative physiotherapy program was developed to address pain relief, reduce muscle spasm, and promote facial motor recovery. The intervention consisted of infrared therapy to improve circulation and muscle relaxation, neuromuscular electrical stimulation (Cosmogamma device) to stimulate muscle contraction, manual techniques using effleurage massage, and isometric facial muscle training. In addition, the patient was educated on home-based care, including warm compress application, facial self-massage, and repetition of prescribed facial exercises to maintain therapeutic progress.

## Management and Outcome

The patient underwent a structured physiotherapy program at RS Soerodjo Magelang, Indonesia, spanning three weeks in January 2025. Treatment was administered on an outpatient basis, with two sessions conducted per week, amounting to a total of six supervised visits. Alongside clinical sessions, the patient was also assigned a daily home exercise routine. Each physiotherapy session lasted between 30 and 40 minutes. The primary goals of the intervention were to:

- Reduce localized facial pain
- Restore muscle balance and symmetry
- Stimulate neuromuscular activation
- Improve voluntary facial movements

Table 1. The intervention included the following modalities

Modality	Frequency (F)	Intensity (I)	Time (T)	Type (T)
<b>Infrared Therapy (IR)</b>	2x/week	Moderate heat	10 minutes	Local application to face
<b>Electrical Stimulation (Cosmogamma device)</b>	2x/week	100 Hz, 3-6 mA	10 minutes	Continuous mode
<b>Manual Therapy</b>	2x/week	Light pressure	5 minutes	Effleurage massage technique
<b>Facial Exercise</b>	2x/week	Light (3 repetitions)	5 minutes	Isometric facial exercise

Home Program and Education The patient was instructed to:

- Apply warm compresses to the affected side before exercises to relax facial muscles
- Perform facial massage using circular strokes
- Practice isometric facial movements (e.g., raising eyebrows, smiling, whistling) regularly at home
- Avoid cold wind exposure or sleeping in direct air conditioning

Table 2. Pain Measurement (VAS – 0 to 10)

Muscle	Pain Type	T0	T1	T2
<i>Frontalis</i>	At rest	5	5	4
	On pressure	6	5	5
	On movement	6	5	5
<i>Zygomaticus</i>	At rest	5	5	4
	On pressure	6	5	4
	On movement	6	5	4
<i>Scalene</i>	At rest	5	5	4
	On pressure	6	5	5
	On movement	6	5	5

Pain levels decreased gradually, especially during rest and movement, indicating reduced muscle sensitivity and inflammation.

Table 3. Facial Function Measurement (Ugo Fisch Scale – 0 to 100)

Facial Task	Max Score	T0 (%)	T0 Score	T1 Score	T2 Score
At rest	20	70%	14	14	14
Wrinkling forehead	10	0%	0	0	3
Eye closure	30	70%	21	21	21
Smiling	30	30%	9	9	9
Whistling	10	70%	7	7	7
<b>Total Score</b>	100	-	51	51	54

The Ugo Fisch total score improved from 51 to 54, indicating mild improvement in facial muscle control, particularly in the forehead area.

## Discussion

Physiotherapy plays a vital role in treating Bell’s palsy, particularly during the subacute and healing stages. The use of infrared therapy helps improve local blood flow and facilitates muscle relaxation (Rachmawati et al., 2025). Meanwhile, electrical stimulation can support neuromuscular engagement and reduce the risk of muscle disuse (Teixeira et al., 2011). Facial muscle exercises are beneficial for encouraging neuromotor retraining and enhancing brain plasticity (Woo et al., 2024). While full recovery had not yet been achieved, the moderate increase in the Ugo Fisch score indicated a positive clinical trend. This is consistent with recent evidence showing that noticeable improvement

in facial nerve function typically occurs after four to six weeks of consistent intervention, especially among younger patients (Wamkpah et al., 2020).

## **Conclusion**

The use of a combined physiotherapy approach—including infrared application, neuromuscular electrical stimulation (NMES), manual techniques, and isometric facial training—proved to be effective in supporting the recovery of a teenage patient with Bell’s palsy. To achieve optimal and sustained improvement, consistent home exercises and extended monitoring are strongly recommended.

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