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Effect of Infrared and Myofascial Release in Bell's Palsy: A Case Report

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Abstract

Background: Bell's palsy is a peripheral facial nerve paralysis characterized by unilateral facial weakness, impaired facial symmetry, and reduced facial muscle function. Infrared therapy and myofascial release are physiotherapy modalities that may support facial rehabilitation through tissue relaxation and neuromuscular facilitation.

Objective: This study aimed to analyze the effect of combined infrared therapy and myofascial release on facial function, pain intensity, and facial muscle strength in a patient with Bell's palsy.

Methods: This case report involved a 65-year-old woman diagnosed with right-sided Bell's palsy at RS Soerojo Magelang. The patient underwent six physiotherapy sessions over three weeks. Infrared therapy using non-luminous infrared radiation (780–1400 nm) was administered for 15 minutes, followed by 10–15 minutes of myofascial release using gentle sustained pressure and fascial stretching techniques. A home program consisting of mirror exercises was also prescribed. Outcomes were evaluated using the Numeric Rating Scale (NRS), Ugo Fisch scale, House–Brackmann grading system, and Manual Muscle Testing (MMT).

Results: Pain intensity decreased from 2–3/10 to 0/10 on the NRS. The Ugo Fisch score improved from 63 to 88, indicating improvement from fair to good prognosis. Facial muscle strength and facial symmetry also improved, particularly in the frontal and oral regions. No adverse effects were observed during the intervention period.

Conclusion: The combination of infrared therapy and myofascial release demonstrated potential clinical benefits in reducing pain, improving facial muscle strength, and enhancing facial symmetry in a patient with Bell's palsy.

Keywords
Bell Palsy; Facial Paralysis; Infrared Rays; Myofascial Release; Rehabilitation

Introduction

Bell's palsy is the most common peripheral paralysis of the seventh cranial nerve and is characterized by sudden unilateral facial weakness resulting from dysfunction of the facial nerve. The annual incidence has been reported to range from 11.5 to 53.3 cases per 100,000 population, with approximately 10% of patients experiencing recurrence during their lifetime.[1] The condition commonly presents with unilateral facial drooping, impaired facial expression, dysarthria, drooling, and incomplete eye closure. These impairments may substantially interfere with daily functional activities and reduce quality of life. In more severe cases, incomplete eyelid closure may lead to ocular complications, including corneal irritation, infection, scarring, and permanent visual impairment.[2] In addition to physical dysfunction, persistent facial asymmetry may negatively affect psychosocial well-being, self-confidence, emotional expression, and social interaction.[3]

Although Bell's palsy generally demonstrates a favorable prognosis, recovery rates vary considerably among patients. Approximately 70%–85% of patients experience spontaneous recovery within the first few weeks after symptom onset, while others continue to experience residual weakness, asymmetry, synkinesis, or functional impairment for several months.[2,4] Patients with moderate-to-severe paralysis, delayed recovery, or persistent functional limitation often require structured rehabilitation to optimize facial muscle recovery and prevent long-term complications. Recent clinical recommendations from the French Society of ENT and related rehabilitation literature emphasize the important role of physical rehabilitation in improving facial symmetry, neuromuscular control, and functional outcomes in patients with Bell's palsy.[5]

Various physiotherapy interventions have been used in Bell's palsy rehabilitation, including facial exercise therapy, neuromuscular retraining, massage, mirror exercise, stretching, and manual therapy.[6] Structured facial rehabilitation has been associated with significant improvements in facial motor control, facial symmetry, and functional performance. Among these interventions, infrared therapy has gained increasing attention as a supportive modality because of its physiological effects on circulation and tissue recovery. Infrared radiation promotes superficial vasodilation, increases local blood flow, enhances tissue metabolism, and facilitates muscle relaxation.[7] These effects may help reduce pain and prepare soft tissue structures before manual therapy interventions are administered.

Myofascial release is a manual therapy technique intended to reduce fascial restriction and improve soft tissue mobility through sustained pressure and fascial stretching. In facial rehabilitation, myofascial release may improve tissue extensibility, reduce muscular tightness, enhance vascularization, and facilitate neuromuscular activation of affected facial muscles.[5,8] Previous studies have demonstrated that manual therapy combined with therapeutic exercise may improve facial muscle activation and motor recovery in patients with peripheral facial paralysis.[9] Furthermore, mirror exercise has been reported to improve facial motor control through visual feedback mechanisms that stimulate cortical neuroplasticity and neuromuscular retraining.[10,11]

Despite increasing evidence regarding physiotherapy management in Bell's palsy, most previous studies have focused on isolated interventions, particularly facial exercise therapy and neuromuscular retraining programs. Khan et al. reported that evidence

regarding physical therapy in Bell's palsy predominantly involves facial exercise approaches, whereas integrated multimodal rehabilitation protocols remain limited.[6] Similarly, Martineau et al. demonstrated the effectiveness of mirror exercise in improving facial function in acute Bell's palsy; however, the intervention was not combined with infrared therapy or myofascial release.[10] To date, limited evidence has specifically explored the combined use of infrared therapy as a preparatory modality followed by myofascial release within a structured physiotherapy rehabilitation program.

From a physiological perspective, infrared therapy may enhance the effectiveness of subsequent myofascial release by increasing tissue extensibility, promoting circulation, and reducing muscular tension before manual intervention[6,7] Therefore, integrating infrared therapy, myofascial release, and mirror exercise may provide synergistic effects in improving facial muscle mobility, reducing pain, and restoring facial symmetry in patients with Bell's palsy. However, evidence regarding this multimodal approach, particularly in older adults, remains scarce.

Therefore, this case report aimed to analyze the clinical effects of combined infrared therapy and myofascial release, accompanied by mirror exercise as a home program, on pain intensity, facial muscle strength, and facial functional recovery in a patient with Bell's palsy.

Methods

This study was designed as a single-patient case report describing the physiotherapy management of a patient with Bell's palsy using a multimodal rehabilitation approach consisting of infrared therapy, myofascial release, and mirror exercise. The intervention protocol was selected based on the patient's clinical presentation, which included facial pain, soft tissue tightness, facial muscle weakness, and impaired facial symmetry. Infrared therapy was administered as a preparatory modality to promote local circulation, improve tissue extensibility, and facilitate muscle relaxation before manual therapy application. Subsequently, myofascial release was applied to reduce fascial restriction and improve soft tissue mobility. Mirror exercise was prescribed as a home exercise program to facilitate neuromuscular retraining through visual feedback mechanisms.

The diagnosis of peripheral Bell's palsy was established through medical examination, anamnesis, and physical assessment conducted at RS Soerojo Magelang. Differential diagnoses, including stroke and Ramsay Hunt syndrome, were clinically considered during the diagnostic process. Stroke was excluded because the patient did not demonstrate central neurological signs such as limb weakness, aphasia, impaired consciousness, sensory deficits, diplopia, or coordination disorders. In addition, the patient exhibited peripheral facial weakness involving the forehead musculature, which is more consistent with lower motor neuron facial paralysis. Ramsay Hunt syndrome was also excluded because no herpetic vesicles, severe otalgia, hearing disturbance, or vertigo were identified during examination.

Neuroimaging examinations such as computed tomography or magnetic resonance imaging were not performed because the patient demonstrated a typical clinical presentation of peripheral Bell's palsy without neurological red flags suggestive of central nervous system pathology. Laboratory investigations were also not prioritized because no signs of systemic infection or secondary neurological disorders were identified. The diagnosis was therefore established clinically according to Bell's palsy evaluation guidelines.[5]

The participant was a 65-year-old female patient diagnosed with right-sided Bell's palsy who attended the Physiotherapy Unit of RS Soerojo Magelang. The patient reported pain behind the ear, facial asymmetry, difficulty smiling symmetrically, and fluid leakage during drinking and gargling. Symptoms initially appeared in late July 2025 and were preceded by dizziness and pain in the retroauricular region, followed by stiffness and facial tightness.

The patient was selected because she demonstrated clinically significant facial dysfunction requiring structured physiotherapy rehabilitation. Inclusion criteria included unilateral peripheral Bell's palsy, adult or older age, stable general condition, ability to follow therapeutic instructions, and willingness to participate throughout the intervention period. Exclusion criteria included other neurological disorders, history of facial surgery, severe cognitive impairment, or contraindications to infrared therapy or manual therapy intervention.

The intervention program was conducted at the Physiotherapy Unit of RS Soerojo Magelang over a three-week period from September 17 to October 3, 2025. Treatment was administered twice weekly for a total of six physiotherapy sessions. Primary data were obtained through patient interviews, physical examination, intervention procedures, and serial clinical evaluations. Secondary data were collected from medical records and supporting scientific literature relevant to Bell's palsy rehabilitation.

Prior to intervention, baseline assessment included vital signs, pain intensity, sensory examination, facial functional evaluation, and facial muscle strength assessment. Pain intensity was measured using the Numeric Rating Scale (NRS), which has demonstrated good validity and reliability in musculoskeletal and neurological conditions. Facial function was evaluated using the Ugo Fisch scale and the House–Brackmann Facial Nerve Grading System, both of which are widely used clinical instruments for assessing facial symmetry and facial nerve dysfunction in Bell's palsy.[5] Facial muscle strength was assessed using Manual Muscle Testing (MMT) according to the Daniel and Worthingham grading system.

The clinical management pathway began with patient admission to the Physiotherapy Unit of RS Soerojo Magelang, followed by eligibility assessment based on predefined inclusion and exclusion criteria. A baseline physiotherapy assessment was performed on September 17, 2025, including evaluation of pain, facial function, and facial muscle strength. The patient subsequently underwent six physiotherapy sessions over three weeks consisting of infrared therapy, myofascial release, and a home mirror exercise program. Patient progress and adherence were monitored during each session. A final evaluation was conducted on October 3, 2025, using the same outcome measures to assess changes in pain, facial function, facial symmetry, and muscle strength. The complete clinical workflow is presented in Figure 1.

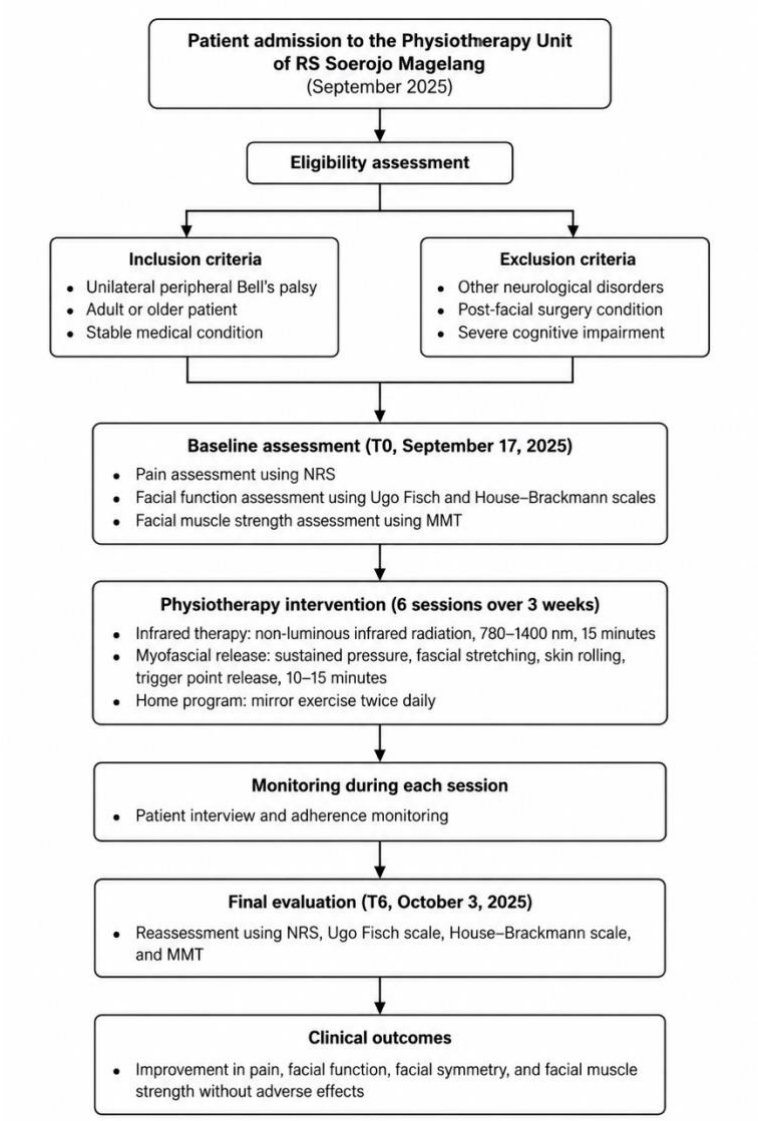

Figure 1. Clinical Workflow of Physiotherapy Management for Peripheral Bell's Palsy

Before intervention, the patient's vital signs were assessed to ensure medical stability and treatment safety. The examination findings are presented in Table 1.

Table 1. Baseline Vital Signs

Examination Parameter	Result
Blood pressure	127/86 mmHg
Heart rate	85 beats/minute
Respiratory rate	20 breaths/minute
Oxygen saturation	98%
Body temperature	36°C

The baseline vital sign assessment demonstrated that the patient was in stable general condition and safe to undergo physiotherapy intervention.

Pain assessment revealed mild pain at rest, during movement, and on palpation of the retroauricular region. Functional facial assessment using the Ugo Fisch scale indicated impaired facial symmetry and motor control, with a total score of 63, corresponding to fair prognosis. Facial nerve dysfunction was additionally classified as Grade III (moderate dysfunction) according to the House–Brackmann grading system. MMT findings demonstrated reduced muscle strength on the affected side, particularly in muscles associated with dynamic facial expression.

Infrared therapy was delivered using a non-luminous infrared device with a wavelength range of 780–1400 nm. The patient was positioned supine, and the infrared lamp was placed at a distance of approximately 45–60 cm from the affected facial region. Treatment duration was 15 minutes per session. Infrared therapy was administered before manual therapy to facilitate tissue relaxation and increase local circulation.

Following infrared application, myofascial release was performed for 10–15 minutes using sustained gentle pressure, fascial stretching, skin rolling, and trigger point release techniques. Intervention targeted the frontalis, corrugator supercilii, zygomaticus, orbicularis oris, and periauricular soft tissue structures according to palpation findings of tissue restriction and tightness. Pressure intensity was applied lightly to moderately without provoking pain, and each application was maintained for approximately 60–90 seconds until decreased tissue resistance was palpated.

In addition to supervised physiotherapy sessions, the patient received a home exercise program consisting of mirror exercise performed twice daily with 5–10 repetitions per movement. Exercises included forehead wrinkling, eye closure, smiling, lip pursing,

and vowel pronunciation performed in front of a mirror. Manual assistance was permitted when facial movement was difficult to initiate. Exercise adherence was monitored through patient self-report and therapist interviews during each treatment session.

Because this study involved a single-case design, inferential statistical analysis was not performed. Clinical outcomes were analyzed descriptively by comparing pre-intervention and post-intervention findings. Clinical improvement in pain intensity was interpreted according to the Minimal Clinically Important Difference (MCID) for NRS, in which a reduction of ≥2 points was considered clinically meaningful. Changes in facial function and muscle strength were interpreted based on observed clinical improvement across serial evaluations.

To minimize measurement bias, all evaluations were performed using standardized assessment procedures and identical clinical instruments by the same evaluator throughout the intervention period. However, subjective assessment bias may still have occurred because no independent assessor was involved in the evaluation process.

This case report was conducted in accordance with ethical principles for clinical case reporting. The patient received a complete explanation regarding the intervention procedures and agreed to participate in the rehabilitation program. Written informed consent for participation and anonymous publication of clinical data was obtained before intervention. Patient confidentiality was maintained according to the principles of the Declaration of Helsinki.

Results

The patient completed all six physiotherapy sessions over a three-week intervention period without adverse effects. The rehabilitation program consisted of infrared therapy, myofascial release, and a home exercise program using mirror exercise. Each supervised treatment session lasted approximately 20–45 minutes depending on patient tolerance and tissue response. The patient also performed mirror exercises independently twice daily with 5–10 repetitions for each facial movement, including forehead wrinkling, eye closure, smiling, lip pursing, and vowel articulation in front of a mirror. Exercise adherence was monitored through therapist interviews and patient self-report during each treatment session. The patient reported good compliance throughout the intervention period.

To improve the clarity and reproducibility of the intervention protocol, the dosage and technical parameters of each physiotherapy modality are presented in Table 2.

Table 2. Physiotherapy Intervention Dosage

Intervention	Dosage
Infrared therapy	Frequency: 2 sessions/week; Distance: 45–60 cm; Duration: 15 minutes; Type: non-luminous infrared
Myofascial release	Frequency: 2 sessions/week; Intensity: light-to-moderate pressure; Duration: 10–15 minutes; Techniques: sustained pressure, fascial stretching, skin rolling, trigger point release
Mirror exercise (home program)	Frequency: 2 times/day; Repetition: 5–10 repetitions; Exercises: smiling, eye closure, forehead wrinkling, lip pursing, vowel pronunciation

Serial clinical evaluation was conducted before the first intervention session (T0) and after completion of the sixth session (T6). Outcome measures included pain intensity, facial functional performance, facial nerve grading, and facial muscle strength. Overall, clinical improvement was observed across all outcome domains following the intervention program.

Changes in pain intensity before and after intervention are summarized in Table 3.

Table 3. Pain Intensity Assessment Using Numeric Rating Scale (NRS)

Pain Category	Baseline (T0)	Final Evaluation (T6)
Pain at rest	2/10	0/10
Pain during movement	2/10	0/10
Pain on palpation	3/10	0/10

The patient demonstrated complete resolution of pain at rest, during movement, and upon palpation following six treatment sessions. The reduction in pain intensity exceeded the Minimal Clinically Important Difference (MCID) threshold of ≥2 points for the Numeric Rating Scale, indicating clinically meaningful improvement.

Facial functional performance was evaluated using the Ugo Fisch scale and House–Brackmann Facial Nerve Grading System. Improvements were observed in facial symmetry, forehead movement, smiling ability, and lip control. The detailed results are presented in Table 4.

Table 4. Facial Functional Evaluation Before and After Intervention

Assessment Component	Baseline (T0)	Final Evaluation (T6)
Resting symmetry	14	20
Forehead wrinkling	7	10
Smiling	9	21
Eye closure	30	30
Whistling/lip pursing	3	7
Total Ugo Fisch Score	63	88
House–Brackmann Grade	III	II

The total Ugo Fisch score increased from 63 to 88, indicating improvement from fair prognosis to good prognosis. The greatest functional improvement was observed in smiling performance and forehead movement, suggesting enhanced activation of facial muscles involved in dynamic facial expression. Similarly, House–Brackmann grading improved from Grade III (moderate dysfunction) to Grade II (slight dysfunction), indicating reduced facial nerve impairment and improved facial symmetry.

Facial muscle strength assessment using Manual Muscle Testing (MMT) also demonstrated improvement in several facial muscle groups after intervention. These findings are summarized in Table 5.

Table 5. Manual Muscle Testing (MMT) Results Before and After Intervention

Muscle Group	Movement	Baseline (T0)	Final Evaluation (T6)
Frontalis and occipitofrontalis	Eyebrow elevation	3	4
Procerus and corrugator supercilii	Forehead wrinkling	3	5
Orbicularis oculi	Eye closure	5	5
Nasalis	Nostril flaring	4	4
Zygomaticus, levator anguli oris, risorius	Smiling	2	4

Orbicularis oris	Lip pursing	4	4

The most notable improvement was observed in the zygomaticus muscle group associated with smiling, which increased from grade 2 to grade 4. Improvement was also identified in the frontal muscle region, reflecting enhanced neuromuscular activation and motor control on the affected side. Orbicularis oculi and nasalis muscle strength remained stable throughout the intervention period.

To provide a chronological overview of symptom progression and rehabilitation outcomes, the patient timeline is summarized in Table 6.

Table 6. Clinical Timeline of the Case Report

Timeline	Clinical Development
Late July 2025	Initial symptoms appeared, including dizziness and pain behind the right ear
Several days later	Facial tightness and facial asymmetry gradually developed
September 2025	Patient attended the Physiotherapy Unit of RS Soerojo Magelang
September 17, 2025 (T0)	Initial physiotherapy assessment and first intervention session
September 17 – October 3, 2025	Six physiotherapy sessions administered over three weeks
October 3, 2025 (T6)	Final evaluation demonstrated improvement in pain, facial symmetry, facial function, and facial muscle strength

Overall, the patient demonstrated favorable clinical improvement following the multimodal physiotherapy intervention. Improvements were observed consistently across pain intensity, facial function, facial nerve grading, and facial muscle strength assessments without any reported adverse events during the rehabilitation period.

Discussion

This case report demonstrated that a multimodal physiotherapy intervention consisting of infrared therapy, myofascial release, and mirror exercise was associated with improvements in pain intensity, facial muscle strength, facial symmetry, and facial functional performance in a patient with Bell's palsy. Clinical improvement was observed consistently across all outcome measures after six treatment sessions over a three-week rehabilitation period. These findings suggest that integrating preparatory thermal therapy, manual soft tissue intervention, and neuromuscular retraining may provide complementary therapeutic effects during facial nerve rehabilitation.

One of the most notable findings in this case was the reduction in pain intensity, particularly in the retroauricular region. Pain decreased from mild intensity at baseline to complete resolution at the final evaluation, exceeding the Minimal Clinically Important Difference threshold for the Numeric Rating Scale. This improvement may be associated with the physiological effects of infrared therapy, which promotes superficial vasodilation, enhances local blood circulation, increases tissue metabolism, and facilitates muscle relaxation.[7] These mechanisms may contribute to reduced nociceptive stimulation and decreased muscular tension surrounding the affected facial nerve. In Bell's palsy, retroauricular pain is frequently associated with inflammatory irritation and increased soft tissue tension around the facial nerve pathway. Therefore, reducing local tissue restriction and improving circulation may help alleviate discomfort during the acute and subacute recovery phases.

The pain reduction observed in this study is consistent with previous evidence demonstrating the analgesic benefits of infrared radiation in musculoskeletal and neuromuscular disorders. Tsagkaris et al. reported that infrared therapy may reduce pain and improve tissue recovery through thermal and circulatory mechanisms.[7] In the present case, infrared therapy was administered before manual therapy intervention, which may have enhanced tissue extensibility and reduced tissue resistance prior to myofascial release application. This sequence may have optimized patient comfort and improved the effectiveness of subsequent manual therapy. Although direct evidence regarding infrared therapy in Bell's palsy remains limited, the current findings support its potential role as an adjunctive modality within multimodal facial rehabilitation.

In addition to pain reduction, substantial improvement was observed in facial functional performance, particularly in smiling ability, forehead movement, and facial symmetry. The Ugo Fisch score increased from 63 to 88, indicating progression from fair prognosis to good prognosis, while House–Brackmann grading improved from Grade III to Grade II. These findings suggest clinically meaningful recovery of facial motor control and reduced facial nerve dysfunction. Importantly, improvement was not limited to static facial symmetry but also involved dynamic facial expressions, which are essential for communication, emotional expression, and psychosocial interaction.

Functional recovery in this case may be explained by the combined effects of myofascial release and mirror exercise. Myofascial release is intended to reduce fascial restriction and restore soft tissue mobility through sustained pressure and fascial stretching techniques.[6,8] Bell's palsy may lead to altered muscle tone, reduced facial movement, and compensatory tissue stiffness due to prolonged asymmetrical activation of facial musculature. By improving fascial mobility and reducing soft tissue restriction, myofascial release may facilitate more efficient neuromuscular activation and improve movement quality. Bi et al. demonstrated that myofascial induction therapy contributed to improved functional recovery in patients with acute facial palsy through enhanced tissue flexibility and neuromuscular facilitation.[8]

The improvement in smiling performance identified in this study may also reflect enhanced recruitment of the zygomaticus and perioral muscle groups following multimodal intervention. Manual Muscle Testing demonstrated improvement from grade 2 to grade 4 in muscles associated with smiling, indicating increased motor activation and improved functional movement capacity. Santiago et al. similarly reported that structured facial stretching combined with exercise significantly improved facial muscle function in patients with Bell's palsy.[9] The present findings therefore support the concept that combining manual therapy with active neuromuscular rehabilitation may provide greater functional benefit than isolated intervention alone.

Mirror exercise was prescribed as a home-based neuromuscular retraining strategy and may have contributed substantially to functional improvement. Mirror-based rehabilitation utilizes visual feedback to stimulate cortical reorganization and improve motor learning.[11] This mechanism is particularly relevant in peripheral facial paralysis because repeated visual correction of asymmetrical movement may reinforce more coordinated facial muscle activation patterns. Previous studies have reported that mirror therapy and neuromuscular retraining can improve facial symmetry, motor control, and emotional expression in patients with Bell's palsy.[10–12] In the current case, the patient reported improved confidence during smiling, drinking, and social interaction, suggesting that the intervention may have provided both functional and psychosocial benefits.

An important aspect of the present study is the integration of multiple rehabilitation components into a structured physiotherapy protocol. Most previous studies have focused primarily on isolated facial exercise programs or neuromuscular retraining approaches.[6] The current case highlights the potential value of combining infrared therapy as a preparatory modality with myofascial release and mirror exercise to address pain, soft tissue restriction, and motor dysfunction simultaneously. From a

physiological perspective, infrared therapy may increase tissue pliability before manual intervention, whereas myofascial release may optimize soft tissue mobility prior to active neuromuscular retraining. This sequential approach may explain the consistent improvement observed across multiple clinical outcomes in this patient.

Nevertheless, interpretation of the present findings should be approached cautiously because Bell's palsy is known to have a relatively high spontaneous recovery rate, particularly during the early stages after onset.[2,4] Natural recovery may therefore have contributed partially to the clinical improvement observed in this patient. Consequently, the present case report cannot establish a direct causal relationship between the intervention and recovery outcomes. However, the magnitude of improvement across several clinical parameters, including pain reduction, facial grading improvement, and enhanced muscle strength, suggests that the multimodal physiotherapy intervention may have facilitated functional recovery during the rehabilitation process.

Potential placebo effects and contextual healing responses should also be considered when interpreting the results, particularly regarding subjective outcomes such as pain perception and self-reported facial comfort. Furthermore, the absence of a control condition and the single-case design limit the generalizability of the findings. Another limitation of this study is the relatively short follow-up duration, which prevents evaluation of long-term outcomes such as recurrence, persistent asymmetry, or synkinesis development. Longitudinal assessment would be necessary to determine the durability of treatment effects over time.

Despite these limitations, this case report provides clinically relevant information regarding the application of multimodal physiotherapy in an older patient with Bell's palsy. The intervention protocol was safe, well tolerated, and easily implemented in an outpatient physiotherapy setting. The findings may therefore contribute preliminary evidence supporting the integration of infrared therapy, myofascial release, and mirror exercise within comprehensive Bell's palsy rehabilitation programs. Future studies with larger sample sizes, controlled designs, and longer follow-up periods are necessary to confirm the effectiveness and clinical applicability of this multimodal intervention approach.

Conclusion

This case report demonstrated that a multimodal physiotherapy intervention consisting of infrared therapy, myofascial release, and mirror exercise was associated with improvements in pain intensity, facial muscle strength, facial symmetry, and facial functional performance in a patient with Bell's palsy. Clinically meaningful improvement was observed in the Numeric Rating Scale, Ugo Fisch score, House–Brackmann grading, and Manual Muscle Testing outcomes after six intervention sessions.

The findings suggest that combining preparatory thermal therapy, manual soft tissue intervention, and home-based neuromuscular retraining may provide complementary therapeutic benefits during Bell's palsy rehabilitation. This intervention approach was well tolerated, non-invasive, and feasible for implementation in outpatient physiotherapy settings, particularly for older adults requiring structured facial rehabilitation.

Although spontaneous recovery may have contributed to the observed improvement, the consistent clinical changes across multiple outcome measures indicate the potential supportive role of multimodal physiotherapy in facilitating facial functional recovery. Future studies using controlled designs, larger sample sizes, and longer follow-up periods are recommended to further evaluate the effectiveness and long-term clinical applicability of this intervention approach.

Author Contribution

Conny Aktifa Novaliana: Conceptualization, Data curation, Writing original draft
Umi Budi Rahayu: Conceptualization, Writing review and editing
Dyah Wahyu Utami: Writing review and editing

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Conflict of Interest Statement

The authors declare no conflict of interest related to this publication.

Funding Sources

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Ethics Statement

This case report was conducted in accordance with ethical principles for clinical case reporting and the Declaration of Helsinki. The patient received a complete explanation regarding the purpose, procedures, and expected benefits of the physiotherapy intervention and provided written informed consent for participation and anonymous publication of clinical data. Patient confidentiality was maintained throughout the study. Because this report involved a single clinical case and all interventions were part of routine physiotherapy management, no additional experimental procedures were performed.

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