

**[CASE REPORT]****Management of Bell's Palsy in an Elderly Patient with Dementia using Kinesiology Tape: A Case Report**Ryan Fraser<sup>1</sup><sup>1</sup>BPhy(Hons), MScMed, MPH, University of the Sunshine Coast, Queensland, Australia

Bell's palsy is an idiopathic nerve lesion involving the facial nerve and is the most common cause of lower motor neuron facial palsy. The management of Bell's palsy involves the administration of corticosteroids and antiviral medications, physiotherapy including the use of kinesiology tape and time. This case report aims to use kinesiology tape as a rehabilitation tool for Bell's palsy in an elderly patient with dementia. Due to the patient's cognitive deficits associated with dementia, she had minimal participation in active rehabilitation and subsequently developed secondary impairments of drooling and ectropion. Kinesiology tape was applied to the patient's face to improve facial symmetry, provide support and proprioceptive feedback. Following 10 weeks of application, the patient had reduced ectropion and eye irritation, improved facial symmetry and reduced drooling. The use of kinesiology tape in the rehabilitation of Bell's palsy may be beneficial in those patients who have reduced capacity to participate in active rehabilitation programs.

**Keywords :** Bell's palsy, dementia, kinesiology tape, facial rehabilitation, physiotherapy.

**Introduction**

Bell's palsy is an idiopathic peripheral nerve lesion involving the facial nerve and is the most common cause of lower motor neuron facial palsy<sup>[1]</sup>. The annual incidence of Bell's palsy is between 15 to 30 per 100,000 people<sup>[2]</sup> with no preference for gender or ethnicity<sup>[3]</sup>. The incidence of the condition is slightly higher after the age of 40 years<sup>[4]</sup> with diabetes, pregnancy, obesity and hypertension risk factors<sup>[3]</sup>. Although the exact pathophysiology is unknown, viral and inflammatory mechanisms have been hypothesised<sup>[5]</sup>.

The diagnosis of Bell's palsy is based on the exclusion of other causes of unilateral facial paralysis. Commonly, Bell's palsy causes ipsilateral facial paralysis with drooping of the eyebrow and face, flattening of the nasolabial fold and inability to fully close the eye, pucker the lips or raise the corner of the mouth<sup>[3]</sup>. These symptoms typically develop within hours and are maximal around three days later<sup>[6]</sup>. Often, patients with Bell's palsy are unable to close the affected eye, which can lead to irritation, ectropion and corneal ulceration<sup>[2]</sup>. Similarly, facial

asymmetry, muscular contractures and increased tone can lead to synkinesis, difficulty speaking, swallowing and cosmetic worries. Facial muscle recovery occurs in approximately 70% of cases, with permanently impaired function occurring in 13% to 16% of patients<sup>1</sup>.

The management of Bell's palsy usually involves the use of corticosteroids within the first 72 hours and lubricating eye drops and an eye patch to reduce eye irritation<sup>[7]</sup>. Physiotherapy may assist in recovery as neuromuscular training with biofeedback has been shown to improve function in patients with moderate paralysis<sup>[8]</sup>. Kinesiology tape may be beneficial as it may provide proprioception stimulation, which results in a facilitation effect of cutaneous mechanoreceptors for motor unit recruitment in the facial muscles. Additionally, it may also improve facial symmetry and reduce eye drooping, eye irritation and paralytic ectropion. This case report will demonstrate the use of kinesiology tape to improve proprioceptive input and facial symmetry in an elderly patient with Bell's palsy and dementia.

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### Case Presentation

The patient was 89-year-old Caucasian female, who was living in aged care facility due to her comorbidities. The patient had a history of vascular dementia and Alzheimer's disease, rheumatoid arthritis, osteoarthritis, osteoporosis and hypertension but was otherwise healthy. She was transferred to the local emergency department due to an acute onset of left sided facial weakness and slurred speech. Following a brain computed-tomography scan and full blood tests, she was diagnosed with Bell's palsy. She was not prescribed corticosteroids due to her history of osteoporosis but was provided with an eye patch and lubricating ointment and advised on oral care.

The physical examination revealed a House-Brackmann grade of 6 (Table 1) and Sunnybrook Facial grade of 15 (Table 2). The patient demonstrated no active movement on the left side of her face as she was unable to close her eyes, smile, puff out cheeks, purse lips and had an asymmetrical grimace. An ectropion was present.

**Physiotherapy Management:** Due to the patient's cognitive status, she was unable to complete facial

rehabilitation exercises. However, she would partially participate in active movements with activities such as blowing kisses, putting on make-up and smiling. Kinesiology tape (Dynamic Tape) was applied in three locations by placing an anchor, pulling approximately 30% and finishing with an anchor (Figure 1). The main aims were to provide proprioceptive feedback and reposition skin to reduce secondary complications such as drooling from the mouth and ectropion. The tape was changed daily with barrier cream placed on the skin prior to changing to avoid skin irritation. After the tape was changed, the patient was encouraged to complete active facial movements, with minimal success due to her cognitive and attentional deficits.

Throughout treatment, the patient had reduced compliance with wearing an eye patch due to behavioural issues, causing the development of a moderate ectropion. Neuromuscular rehabilitation continued with soft tissue therapy added to reduce the tone which developed in her facial muscles. She tolerated the kinesiology tape, with minimal skin reactions. As demonstrated in Table 1 and 2, the patient had improved facial symmetry.

**Table 1:** The House-Brackmann Grading Scale

Grade	Description	Characteristics
1	Normal	Normal facial function in all areas
2	Mild dysfunction	Gross: slight weakness noticeable on close inspection, may have slight synkinesis At rest: normal symmetry and tone Motion: forehead – moderate to good function, eye – complete closure with minimal effort, mouth – slight asymmetry
3	Moderate dysfunction	Gross: obvious but not disfiguring difference between the two sides, noticeable but not severe synkinesis, contracture or hemifacial spasm At rest: normal symmetry and tone Motion: forehead – slight to moderate movement, eye – complete closure with effort, mouth – slightly weak with maximum effort
4	Moderately severe dysfunction	Gross: obvious weakness and or disfiguring asymmetry At rest: normal symmetry and tone Motion: forehead – none, eye – incomplete closure, mouth – asymmetric with maximum effort
5	Severe dysfunction	Gross: only barely perceptible motion At rest: asymmetry Motion: forehead – none, eye – incomplete closure, mouth – slight movement
6	Total paralysis	No movement

**Table 2:** The Sunnybrook Facial Grading System

Sunnybrook Facial Grading System											
Resting Symmetry			Symmetry of Voluntary Movement					Synkinesis			
Compared to normal side			Degree of muscle EXCURSION compared to normal side					Rate the degree of INVOLUNTARY MUSCLE CONTRACTION associated with each expression			
Eye (choose one only)			Unable to initiate movement/no movement Initiates slight movement Initiates movement with mild excursion Movement almost complete Movement complete					<b>NONE:</b> No synkinesis or mass movement <b>MILD:</b> Slight synkinesis <b>MODERATE:</b> Obvious but not disfiguring synkinesis <b>SEVERE:</b> Disfiguring synkinesis/ Gross mass movement of several muscles			
normal	0										
narrow	1										
wide	1										
eyelid surgery	1										
Cheek (naso-labial fold)											
normal	0										
absent	2										
less pronounced	1										
more pronounced	1										
Mouth											
normal	0										
corner dropped	1										
corner pulled up/out	1										
<b>Total</b>	<input type="checkbox"/>										
Resting symmetry score	<b>Total × 5</b>										
Patient's name _____											
Dx _____											
Date _____											
			<b>Voluntary movement score:</b> Total × 4 <input type="checkbox"/>					<b>Synkinesis score:</b> Total <input type="checkbox"/>			
			<b>Vol mov't score</b> <input type="checkbox"/> - <b>Resting symmetry score</b> <input type="checkbox"/> - <b>Synk score</b> <input type="checkbox"/> = <b>Composite score</b> <input type="checkbox"/>								

Ross, Fradet, Nedzelski 1992

**Table 3:** Outcome measures over a 12-week period

Outcome	Week 0	Week 2	Week 4	Week 6	Week 8	Week 10	Week 12
House-Brackmann Grading Scale	6	5	5	4	4	4	3
Sunnybrook Facial Grading System	15	15	14	12	12	10	10
Ectropion	Mild	Moderate	Severe	Severe	Moderate	Moderate	Moderate



**Figure 1:** Location of applied kinesiology tape to the left side of the face

**Discussion**

Physiotherapy management of Bell’s palsy is based on the principle of neuromuscular training, with the focus on facial symmetry, muscle activation and control, movement perception and the reduction of synkinesis<sup>[9]</sup>. The addition of biofeedback, often with the use of a mirror is used to ensure the patient demonstrates good technique and to reduce

maladaptive compensations<sup>[10]</sup>. However, cognitive impairments such as vascular dementia and Alzheimer’s disease limits the use of this therapy as patients display reduced concentration, confusion, difficulty understanding speech, visual and auditory hallucinations and inappropriate behaviour<sup>[11]</sup>. Therefore, the use of kinesiology tape provided additional benefits, where the patients cognitive status reduced the efficacy of traditional therapy methods.

The rationale for the use of kinesiology tape was to improve facial symmetry through physical support, in addition to the reported benefits of muscle facilitation, added proprioceptive input and inhibition of inappropriate muscle activation<sup>[12]</sup>. A previous case study demonstrated benefits of kinesiology tape in facial muscle weakness, as its use led to improvements in facial symmetry in a patient with Ramsay Hunt Syndrome<sup>[12]</sup>. The use of taping

may also reduce secondary complications, such as drooling, ectropion and corneal irritation. For example, non-elastic tape has been used in a case series of patients who developed paralytic ectropion, with results indicating reduced complications<sup>[13]</sup>.

The aims of using kinesiology tape in this case study was to reduce the paralytic ectropion and drooling as well as to facilitate muscle activation as the patient had poor compliance with exercise based therapy. However, there is little evidence to support the use of kinesiology tape to enhance proprioceptive input<sup>[14]</sup>, reduce musculoskeletal pain<sup>[15]</sup> and enhance muscle performance<sup>[16]</sup>. As the tape was applied to reposition the facial skin and folds, this did result in decreased drooling and improved static facial symmetry. Additionally, as there were no adverse reactions from the tape, it was continued to provide any chance of improvement.

Overall, it appeared the use of kinesiology tape was useful in improving facial symmetry, reducing drooling and minimising an ectropion in a patient with dementia. Although, clinical implications from this case must be cautious, as these improvements may have been due to gradual recovery of the facial nerve function. Kinesiology tape was useful in this patient with cognitive changes as it required no active participation and provided a mechanical support. However, further research is required to investigate the benefits of kinesiology tape in the general population through a randomised controlled trial.

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