

## Use of mirror therapy and PNF in bell's palsy - Case report.

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### Abstract

**Bell's palsy is a neurological condition involving VII Cranial nerve characterized by facial drooping and weakness. This is a case study on Bell's palsy involving 32-year old women, Mrs. who was referred to physiotherapy (PT). The patient reported primary complaints of difficulty drinking, drooling of saliva, trouble speaking clearly and right eye dryness. Cranial Nerve VII examination findings found right sided facial droop and drooping at the corner of her right eye and right side of her mouth. The PT intervention included patient education, facial muscle strengthening, mirror therapy, PNF exercises. Following PT intervention, Mrs. G increased her facial muscle strength, with a near complete recovery at 2 weeks, and was discharged from PT. In the future, more high quality research and evidence is needed to support the role of PT in treating Bell's palsy.**

**Keywords:** Bell s palsy, Ear infection, Drooling, Mirror therapy.

### Introduction

Bell's palsy is an acute-onset peripheral facial neuropathy and is the most common cause of lower motor neuron facial palsy. It can occur at any age, but it is most common between 15-60 years of age, and is believed to be a possible reaction to a viral infection that causes inflammation and swelling to CN VII that occurs in 11–40 cases per 100,000 annually [1-3] recent studies have shown that neuromuscular retraining is effective in treating people with palsy. [4,5] PNF provides outpatient rehabilitation programs to help patients regain symmetrical facial expressions and ease or eliminate speech and swallowing problems.

This case study describes a patient with Bell's palsy who presents with moderate-severe symptoms of facial drooping and weakness on the right side leading to difficulties with drinking, speaking and controlling the muscles of facial expression. This report aims to describe methods for testing and managing Bell's palsy and help physiotherapist create a treatment plan in the absence of high-quality evidence.

### Patient information

- Name-G
- Age - 34

- Gender – Female
- Occupation – Farmer (own field)
- Dominance – Right
- Address – Wanadongri

Chief complaint – Drooling of saliva from left corner of mouth, smiling, difficulty in drinking water, unable to close left eye, trouble speaking clearly, left side facial weakness. Social History: Works as a farmer in her field. Lives with her husband who is a farmer, with 2 children in a 2-story home.

### History of Present Illness

A 34 year old female farmer by occupation had a complain of pain in her right ear which was disturbing her associated with slight difficulty in closing her eyelids, she then visited hospital where Dr. prescribe her some medication and eye drops which should be continued for 3-4 days [6]. Foe that week she started experiencing difficulty in facial expression, drooling of saliva not able to smile and puff the cheeks, she then again visited the hospital and after some diagnosis Dr. diagnosed she as a case of Bell's palsy associated with recent ear infection. She was then prescribed with some other medications and referred her to take physiotherapy treatment. As a result of her symptoms

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she is complaining with drooling of saliva, unable to close left eye, trouble speaking, smiling.

### Diagnostic Assessment

- Patient profile- 34 year old female
- Present illness- drooling of saliva, unable to close left eye, trouble speaking, smiling
- Social history-farmer by occupation lives with her husband, 2 children
- Observation: Facial droop on left side, drooping at corner of left eye and left side of the mouth

### CN VII testing

- Sensation testing: Taste to anterior 2/3 of tongue-intact
- Test: cotton swab dipped in salt vs sugar (Table 1)

### Outcome measure

House-Trackman Facial Nerve Scale: grade 4 (moderately severe dysfunction)

- Forehead – grade 4 ( obviously weakness or disfiguring asymmetry)
- Eye – grade 4 ( incomplete eye closure )

c) Mouth – grade 4 (asymmetry at rest)

### Functional status

Speech slightly slurred, noticeable effort when talking.

### Physiotherapy diagnosis

This case presented a patient, Mrs Age 32, with a diagnosis of Bell’s palsy, who presented with acute left -sided facial muscle weakness and facial droop, dry eye and functional difficulty with speaking and drinking. Her facial weakness is classified as moderately severe on the House-brakeman facial nerve scale. The patient’s primary concerns were eye pain, functional difficulties with speaking and drinking and closing left eye (Table 2) (Table 3).

### Follow up & outcome

At the time of initial assessment, it was discussed with Mrs. G that the prognosis for Bell’s palsy is very good and an almost full recovery would be expected at 2 weeks. Initially Mrs. G received PT daily until her level of functional disability was decreased such that her CN VII testing score was 4/6 and most of her patient goals were met. When these milestones were achieved, treatment sessions were reduced to biweekly until she scored a grade 2 on the House-BrackeOn Facial Nerve Scale.

Table 1. CN VII Testing.

Side of Face	Lift corner of mouth/ smiling	Raise eyebrow	Wrinkling of forehead	Puff cheeks	Open mouth	Total
Right side	Complete	Complete	Complete	Complete	Complete	06-Jun
Left side	Incomplete	Incomplete	Incomplete	Incomplete	Complete	02-Jun

Table 2. Problem List.

Body Structure and Function	Activity	Participation
Right-sided facial muscle weakness	Unable to drink fluids without spilling	Trouble speaking on the phone at work
Dry left eye	Unable to speak clearly/words are slurred	Unable to work a full day in front of the computer
Facial droop on left side	Difficulty eating hard/crunchy foods due to jaw pain	Challenges with in-person Communication due to trouble making facial expression

Table 3. Therapeutic intervention.

Intervention	Frequency	Intensity	Rationale	Additional Notes
Mirror exercises				
Eye closing and opening exercises	5 reps every hour	Active Assisted (if needed)	Improve lubrication of the eye to decrease eye dryness And strengthen the eye lid muscles.	Focus on point 5 feet ahead of you on the ground and practice closing eyes fully.
smile, eyebrow raise, frown, pucker lips, scrunching face	10 reps 3 times daily	Isometric hold working up to 10 seconds	Exercises to help Strengthen facial muscles.	Do exercises in front of mirror for visual feedback.
Mouth Blowing and puffing exercises With straw and balloon	10 reps 3 times daily	Activate muscles as much as possible.	Exercises to help Strengthen facial muscles.	Activate muscles around lips ,cheeks and buccinators muscles
PT Modalities like IG current is used for activating the muscles	3set 30 repetition to all affected muscles including upper and lower facial trunk.	Ask the patient to do active movements along with IG current	Reeducation of muscles	In front of mirror to get a visual feedback
<b>PNF exercises</b>	<b>Action</b>	<b>Procedure</b>	<b>Frequency</b>	
Frontalis	Raise eyebrow wrinkled	Apply resistance medially and downward on normal side and assistance of affected side	5 repetition 5 sec hold	
Zygomaticus major	Smile	Downward and medial pressure to corner of mouth	5 repetition 5 sec hold	
Corrugator supercilii	Frowning and eye close	Assisting on affected side .resisting on normal side	5 repetition 5 sec hold	

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After 2 weeks of therapy, Mrs. G reported that she had no issues with speaking, and no resting facial droop. Mrs. Gunjan Bante had demonstrated significant improvement in CN VII testing results. She completed 5/6 tests on the left side with the squint test remaining incomplete. Mrs. Gunjan Bante also achieved a grade 2 on the House-Brackmann Facial Nerve Scale [7]. At this time, Mrs. Gunjan Bante was discharged and encouraged to continue with the facial muscle exercises at home until she was back to her baseline function. Given that Bell's palsy has good recovery outcomes, and most cases resolve on their own, it was unnecessary for Mrs. Gunjan Bante to continue PT until fully recovered.

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### ***Patient perspective***

Mrs. G was happy and satisfied towards the end of treatment as she had regained the functions and movements of face, overcome her difficulties and was able to actively participate in community.

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