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CASE REPORT

# A Rare Occurrence of Bell's Palsy Following Granular Myringitis: Case Report

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## ABSTRACT

***Background:*** Bell's Palsy After Granular myringitis is a quite rare condition. Bell's palsy presents as a form of facial nerve paralysis involving lower motor neurons, the etiology of which remains unidentified.[1] The annual occurrence rate of Bell's palsy ranges from 20 to 30 cases per 100,000 individuals. While this condition can manifest at any point in a person's life, it typically emerges between the ages of 15 and 30 years.[2] Myringitis refers to inflammation of the tympanic membrane (TM), which can affect its outer surface and sometimes the nearby bony external auditory canal. This condition can present either acutely or chronically.

***Objective:*** The aim of this case study is to enhance understanding regarding the involvement of physiotherapy in the management of Bell's Palsy following Granular myringitis.

***Discussion:*** This case report delves into the discussion of the disease, alongside its medical and physiotherapy management, presented briefly.

***Conclusion:*** Patient suffering from Bell's Palsy After Granular myringitis can benefit from a holistic approach with the combination of medicine and physiotherapy.

## KEYWORDS

• Bell's Palsy • Granular myringitis • Physiotherapy • Holistic Approach

## INTRODUCTION

Bell's palsy presents as a form of facial nerve paralysis involving lower motor neurons, the etiology of which remains unidentified.[1] The annual occurrence rate of Bell's palsy ranges from 0.02 to 0.03% per one hundred thousand individuals. While this condition can manifest at any point in a person's life, it typically emerges between the ages of 15 and 30 years.[2]

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As Bell's palsy is idiopathic, the exact cause remains unknown. Exposure to cold, swelling, and resulting pressure on the nerve trunk within the rigid fallopian canal can cause blood flow issues, potentially leading to Bell's palsy. Other significant causes of sudden facial paralysis include purulent ear infections, shingles, head injuries, Guillain-Barré syndrome, sarcoidosis, and multiple sclerosis.[3]

Clinical manifestations of Bell's palsy include the inability to wrinkle the forehead, close the eye (resulting in upward and outward turning of the eyeball known as Bell's phenomenon), maintain lip separation on the affected side while showing the teeth, whistle, observe flattening of the nasolabial fold, experience drooping of the mouth angle on the affected side, dribble saliva during expiration, puff cheeks, accumulate food between teeth and the paralyzed cheek, as well as fluid leakage while drinking.[3]

Myringitis refers to inflammation of the tympanic membrane (TM), which can affect its outer surface and sometimes the nearby bony external auditory canal. This condition can present either acutely or chronically. Chronic types of TM inflammation include granular myringitis (GM) and eczematoid myringitis (EM). Acute variants encompass bullous myringitis (BM), also known as bullous hemorrhagic myringitis, and fungal myringitis (FM). Although these conditions may exhibit similar symptoms, their causes and treatment approaches differ considerably, with certain types potentially causing long-term ear health issues for those affected.

**Case Report:** Informed consent was obtained from the patient. A 35-year-old male suffering from Bell's palsy presented to our clinic with facial muscle paralysis. He reported a history of continuous right ear problems, hearing loss, giddiness, ringing sensation, and right facial weakness for 11 months. There was no pain in and around the ear or mastoid process, but a history of cold exposure was present.

The patient's medical record revealed no allergies or significant past medical events. Upon general examination, the patient's vital signs were within the normal range, with a heart rate of 114 beats per minute and a blood pressure of 116/82 mm Hg. Cardiovascular, respiratory, and gastrointestinal systems showed no abnormalities. A dental evaluation confirmed no inflammatory conditions or cavities, with all findings, including radiographic results, appearing normal.

However, the patient exhibited impaired closure of the eye and mouth, along with the cessation of involuntary blinking and flattening of the nasolabial fold, indicative of facial asymmetry. There was food accumulation on the affected side and drooping of the mouth's angle. Sensory examination did not reveal any loss, and Bell's phenomenon was observed. Ectoplasm and hemifacial spasms were absent.

Manual muscle testing (MMT) revealed weakness in various facial muscles, including the frontalis, orbicularis oris, mentalis, levator labii superioris, corrugator supercilii, orbicularis oculi, buccinator, zygomaticus major and minor, and depressor labii inferioris.

In a previous corneal reflex test, absence was noted, indicating potential nervous system dysfunction. The RD test was negative, suggesting no reaction of degeneration, while the SD curve examination indicated a leftward and downward deviation with a present kink, suggesting partial innervation of the 7th cranial nerve.

At the time, treatment intervention aimed to expedite recovery, enhance facial muscle strength, and prevent corneal complications associated with Bell's palsy. Pharmacological measures included administering Prednisolone for its anti-inflammatory properties and supplementing with Vitamin B complex for proper nervous system functioning.

Furthermore, the treatment plan emphasized regular monitoring and adjustments to optimize therapeutic outcomes while minimizing potential side effects. Patient education on the condition and adherence to prescribed treatments were also integral components of the management plan.

Physiotherapy intervention included utilizing electrical stimulation (SF Current) targeting individual muscles of the face. The patient was advised to perform facial exercises in front of a mirror to enhance sensory feedback and facilitate learning. The exercise protocol included various movements such as raising eyebrows, furrowing eyebrows, frowning, squeezing the eyes, closing the eyes, smiling, smiling wide to show teeth, expressing sadness, and articulating vowels (a, e, i, o, u). Additionally, the patient was instructed to hold

a straw in their mouth and perform sucking and blowing motions, display anger, and repeatedly make the 'o' shape with their lips. Each exercise was repeated 10 times to achieve significant symmetrical facial movement.

Massage techniques were also administered to improve perceptual awareness, enhance circulation, and relax overactive muscles on the unaffected side. Techniques such as effleurage, finger or thumb kneading, wringing, hacking, tapping, and stroking were employed. Additionally, facial proprioceptive neuromuscular facilitation (PNF) techniques and tapping exercises were utilized to strengthen the facial muscles.

The patient was also advised on general care practices, such as avoiding exposure to cold winds and preventing infections, particularly in the ears and eyes. Oral hygiene was emphasized, with instructions to gargle after meals. Protective measures like wearing glasses to shield against wind and dust, regular eye washing, and using artificial tears or ointments (e.g., methylcellulose) were recommended. An eye patch was advised during sleep for added protection and comfort.

## DISCUSSION

This patient represents a rare case of Bell's Palsy following Granular Myringitis. He was chosen for this study due to the positive response to medical treatment combined with appropriate physiotherapy, which significantly improved muscle strength and overall well-being. Limited studies exist on the use of physiotherapy in Bell's Palsy cases following Granular Myringitis, so further extensive research is warranted over extended periods. This initiative can also contribute to raising awareness and challenging the common belief that merely preserving the patient's condition and preventing complications is enough. While the condition itself remains incurable, such patients can experience enhanced vigor, stamina, and overall quality of life.

Currently, no established evidence-based standard protocol exists for managing patients with Bell's Palsy arising from Granular Myringitis, and no relevant research has been identified.

## CONCLUSION

This case study highlights that individuals afflicted with Bell's Palsy subsequent to Granular Myringitis can benefit from a comprehensive approach integrating pharmaceutical interventions and physiotherapy. Notably, the patient's facial musculature and overall well-being can witness marked improvements through physiotherapy interventions. Additionally, more research is needed to build a stronger body of evidence regarding the efficacy of physiotherapy in this therapeutic context.

***Declaration by Patient:*** Informed written consent was signed by the patient.

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***Conflict of Interest:*** None

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