Case study

TITLE: - IMPACT OF BALANCE TRAINING AND CO-ORDINATION EXERCISES IN POST-OPERATIVE LEFT CEREBELLOPONTINE ANGLE TUMOR: A CASE REPORT

ABSTRACT:

Introduction: Acoustic neuromas are most common tumors of CP angle, accounting more than 90% of all such tumors. Meningoma, primary cholesteatoma and facial nerve schawnnoma are the different type of tumours. Acoustic neuroma is a benign tumour situates in CP angle which has a fibrous growth and originates from the division of vestibularchochlear nerve.

Aim: Impact of Balance Training and Co-ordination Exercises in Post-Operative Left Cerebellopontine Angle Tumor

Case Presentation: A 40 year old male with right hand dominance was reffered to physiotherapy department. On examination he presented with mild impairement in balance and co-ordination,assisted walk with support. On examination he presented mild impairement in balance and co-ordinaion, assisted walk with support.

Discussion: This case report is a boon to the published literature on rehabilitation of a patient with CPA tumor, as it presents the sequential management is the patients post CPA tumor.

Conclusion: Acoustic neuroma is most common CPA tumor. Management of CPA tumor is important to improve quality of life. As per reference articles and the exercises planned can

progressively improve balance and co-ordination of patient. Physiotherapy plays important role in managing balance training in CPA tumor patients.

Key words- CP angle tumor, sensorineural hearing loss, tinnitus, physiotherapy, case report.

Introduction:

The cerebellopontine (CP) angle is formed anterolateral by the posterior aspect of the petrous temporal bone, posteromedial by the cerebellum and pons (1).Various types of CP angle tumours are epidermoids, meningiomas, metastases, acoustic neuroma and neurinomas of jugular foramen(2).The bulk of these tumours about 80% are acoustic neurinomas(2).

A benign tumour of eighth cranial nerve is known as an acoustic neuroma (AN) (VIII). Vestibular schwannoma, or more precisely vestibulocochlear schwannoma, is a benign tumour of the inner ear.(3)Physicians are conscious of the fact that lesions of the cerebello-pontine angle, particularly acoustic neuromas, can cause a rapid loss of hearing(4). Hearing loss caused by a CPA mass is thought to be caused by one or more of the following theories: 1. pressure on the 8th nerve; 2. inner ear vascular compromise; 3. biochemical changes (4).Tinnitus is termed as a auditory perception of sound though it is absent or surrounding is quiet. Thus, may be lead to hearing loss. It is a rather common condition, with prevalence ranging from 7 to 20%(5)Acoustic neuroma should be suspected if you have unilateral hearing loss and tinnitus(6).

Patient Information:

A 40-year-old right-handed man, presented with complaint of weakness of left upper and lower extremity since 2-3 months; difficulty in swallowin; reduced hearing since October 2018(since 3 yrs) from left ear, unable to hear whispers gradually progressive in nature; left

ear ringing sensation since 3 yrs low pitched ,on and off in nature; giddiness since 3 yrs on and off in nature , lasting for 10 minutes, not associated with positional changes. Patient had initially visited local practitioners and was managed conservatively then visited private hospital and was adivised surgical management. Patient was admitted to AVBRH on 28 September 2021.On 10th October 2021 patient underwent under app under a temporary transorrhaphy of left eye performed under local anesthesia in supine position. Patient had history of alcohol intake since17 yrs, last intake 7 months ago and khara chewing since 15 yrs. No family history.

Clinical Findings:

The patient was examined after taking the consent. Patient was conscious oriented to time,place,and person,well cooperative and can follow commands. On examination he presented mild impairement in balance and co-ordination, walk with support. Motor examination showed normal muscle tone,intact sensations,normal ROM. His score on MMSE is 26.

His deep tendon reflexes are exggaerated.

CRANIAL NERVES	FINDINGS
Optic nerve	Loss of vision on left side
Facial nerve	No facial expressions on left side No frowning because of clips attatched to left eye Mouth deviation to right side

Vestibulocochlear nerve	Hearing loss on left side

Therapeutic Interventions:

The physiotherapy interventions focused on cerebellar impairments and a limitation of activity. (7)

The most frequently used physiotherapy interventions are Habituation exercises, Proprioceptive Neuromuscular facilitation exercises, Frenkel's exercises and exercises for improving static and dynamic balance in standing. (7)

Conservative physiotherapy exercise programme 3 days each week over a period of four weeks.(8).

Physical therapy exercises started with individual leg movements in the sitting position, progressed to static and dynamic standing balancing activity, as well as assisted walking with minimal support.

All the above mentioned exercises are done with task oriented exercises for 35-45 minutes along with ergonomic exercises (10).

Follow-up and outcomes:

There was a tremendous improvement in the Berg balance scale score, DGI Score, and the WHO-QOL post-rehabilitation.

Results:

Early rehabilitation for patients with operated case of CP angle tumor proves beneficial in improving balance and co-ordination. He is under regular follow-up and rehabilitation in our department.

Discussion:

CPA tumours accounts for 5-10% of all intracranial tumours. The majority of CPA tumours are benign, with vestibular schwannomas accounting for over 80% of all tumours(11).Early rehabilitation in CPA tumours includes balance and coordination training. This review showed some evidence that physiotherapy can help persons with cerebellar impairment improve their gait, and activity limitations. Many researches have shown that central vestibular disorders proves improvement in balance (7). In this patient we gave balance exercises, gait training, and frenkles exercises which proved to be beneficial.

Conclusion:

Acoustic neuroma is most common CPA tumor.Management of CPA tumor is important to improve quality of life.As per reference articles and the exercises planned can progressively improve balance and co-ordination of patient.Physiotherapy plays important role in managing balance training in CPA tumour patients.

Informed consent: A proper informed consent was taken from the patient prior.

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