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A Case Report on Acoustic Neuroma in Cerebellopontine Angle Tumor&its Management with Retro-sigmoid Craniotomy.

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Abstract:

Introduction: A vestibular Schwanoma is known as an acoustic neuroma, it is the most common type of mass detected in this area.In that hearing loss, tinnitus, and vertigo can all be symptoms of Cerebellopontine Angle Masses. Vestibular schwannomas, meningiomas, and arachnoid cysts are common pathologic entities in the CPA, accounting for 10% of all primary brain neoplasms. The surgical approach to the CPA depends on the tumor size, location, and the patient's preoperative neurologic performance.

Presenting complaints and investigation: A 56-year-old female patient was admitted to Neuro ICU at tertiarycare rural hospital, Wardha.With the chief complaints of difficulty while talking, Headachesincesix months, left sidehearing problem for several months, difficulty while talking, vomiting since one week, and feeling left-sided side facial weakness since one month.After all general and physical examinations and routine investigations were carried out.The doctor identified a case of acoustic neuroma with a cerebellopontine angle tumor.

Management:A left retro sigmoid craniotomy was performed. For the treatment inj. Ceftriaxone 2 gm BD, Inj. Vancomycin 1 gm BD, Tab. Pantoprazole 40 mg OD , Tab. Emset 4 mg SOS, and syp. Duphalac 30 ml HS was given.

Conclusion:She responded to medical treatment and physician counselling. Her symptoms has now resolved.

Keywords: Cerebellopontine Angle Tumor, Acoustic Neuroma, Retro Sigmoid Surgery, etc.

Introduction:

Cerebellopontine angle tumors are the most prevalent intracranial tumors, accounting for 5–10% of all intracranial malignancies.[1] The majority of CPA tumors are benign, with acoustic neuromas, lipomas, vascular malformations, and hemangiomas accounting for over 85% of all cases. Because of their near closeness and adhesion to the cranial nerves and the brain stem, the cerebellopontine angle attracts attention. [2]

Extra axial masses developing from the 8th nerve (acoustic neuroma) or the meninges make up most cerebellopontine angle cancers (meningioma). A tumor arising from the brain parenchyma may occasionally extend laterally, mimicking the clinical and radiological appearance of the much more common extra-axial lesions. [3]

Acoustic neuroma, sometimes called vestibular schwannoma, is a noncancerous tumor that grows on the major (vestibular) nerve that connects the inner ear to the brain.[4]Surgical removal of a cerebellopontine angle tumor carries a high risk of harming the contents of the internal auditory canal. Although intraoperative monitoring of facial nerve function has been proven to be useful, similar monitoring of auditory function has yet to be proven.[5]

Adults are more likely to develop cerebellopontine angle (CPA) lesions, which account for 5–10% of all brain malignancies.[6]However, they are uncommon in youngsters, with an incidence of only 1% and acoustic neuromas accounting for 78 percent of all cases.Mostly on the vestibular branch and other CPA masses are meningioma's CN schwannomas, dermoid tumors, lipomas, metastatic tumors, and vascular tumors.[7]

Patient Information:
A 56-year old female, came to Neuro ICU at tertiary care rural hospital with chief complaints of frequent headaches from the last six months and noticed a left - hearing impairment for several weeks, difficulty while talking, vomiting since one week; feeling left side weakness since one month, left eye-watering with the inability to open left eye sided 2-3 months. After a physical examination and investigation, the doctor diagnosed a case of acoustic neuroma with a Cerebellopontine angle tumor. To manage that, surgery of left retro sigmoid craniotomy was done.
Medical,family, and psychosocial history: She doesn't have any past history related to diabetes mellitus, hypertension, tuberculosis and cancer, etc. patient belongs to a nuclear family. She does not have any significant history in her family. She was mentally stable and conscious. She maintained a good interpersonal relationship with family members, doctors, nurses, and other patients. Her bowel and bladder pattern were normal, and her sleeping habit was disturbed due to severe Headache.
Timeline: She was apparently alright before six months, and then she developed a headache; for that, she went to the private hospital for the same complaints; before that, the doctor gave medicine (medication details not available), but did not resolve her symptoms. Now she comes to our hospital for further treatment.
Clinical Findings:
She was afebrile, with a blood pressure of 110 / 80 mm of Hg,pulse of 84 beats per minute, and a respiratory rate of 20 breaths per minute. The patient was conscious, co-operative, and well oriented to time, place, and person.She looked depressed and dehydrated. She did not maintain person hygiene properly. Patient weight was 55 kg, and the height was 1.55m with a body mass indexof 22kg/m^2.Bilateral pupils sluggishly 2mmRTL, 7^{TH} Facial Nerve Palsy Present, Left hemiparesis 3/5.
Diagnostic evaluation:
On the basis of patient's history, physical and neurological examinations were done.Routine investigations weredone,hemoglobin 10.8gm% was decreased,WBC count of 17100/microliter was increased, chloride 118 millimol/L was increased, HbsAgand HCV were reactive& HIV test were non-reactive. Vitamin B 954 pg. /Ml, **X-ray and ECG** revealed no abnormality.**CT**imaging of CPA tumors shows compression of the pons and left cerebellar peduncle on the left side, measuring 4.3 *3.8 mm. **MRI**was done. Ophthalmic examination was 15/15 Pupil, cranial nerve weakness with unilateral**,** audiometry was done.
Diagnosis: After a physical examination and investigation doctor diagnosed a case of acoustic neuroma Cerebellopontine angle tumor, and for the management of that, surgery of left Retro sigmoid craniotomy was done.
Follow-up and outcomes: After surgery**,** her condition improveddoctor advised regular follow-up necessary for her health.
Prognosis: Although some risk of morbidity accompanies all surgical procedures, the prognosis for acoustic neuroma or benign tumor surgery is good.
Therapeutic Interventions:
Medical and surgical management were provided to the patient. The initial care of the patient was saline to correct dehydration. Surgical side-dressing has been done, inj. Ceftriaxone 2 gm BD (antibiotic),Inj.Vancomycin 1 gm BD, Tab. Pantoprazole 40 Mg OD , Tab. Emset 4 Mg sos, Tds, SypDuphalac 20 Ml Hs, Protein Powder 2 Tsf,Strict input and output chart monitoring, TPR was charting 6 hours, spo2 and blood pressure monitoring of the patient.

Discussion:
In this case, a 57-year-old female admitted to tertiary care rural hospital in Neuro ICU with the chief complaints of headache, difficulty in talking, and vomitingsince one week. She was admitted in hospital for the further treatment on acoustic neuroma in the cerebellopontine angle tumor, and for the management of that, surgery of left retro sigmoid craniotomy was done after surgery medication are given. The patient's condition was satisfactory.
The majority of acoustic neuromas present with unilateral hearing loss because of that cochlear nerve interruption or impairment of blood supply to the nerve. Other clinical features include tinnitus, decreased word understanding, vertigo, headaches, and facial numbness.
The CPA is a triangle space between the pyramid and the cerebellum, located posterior to the pyramid, inferior to the tentorium, lateral to the pons, and ventral to the cerebellum. The cerebellopontine fissure's superior and inferior limbs form the fissure. [8]

Specifically, epidermoid tumors, particularly those on the CPA, appear to be well-suited to endoscopic treatment due to their avascular and non-infiltrative character.[9,10]
A current literature review was carried out on vestibularSchwanoma and meningioma, relevant cranial nerves, vascular involvement, and anatomical placement in relation to the cerebellopontine angle are discussed. The most important aspects impacting surgical outcomes are discussed, with a focus on facial and cochlear nerve function, as well as cerebrospinal fluid leaking. When compared to the middle fossa technique, the retro sigmoid approach has a similar success rate for hearing conservation and possibly a better outcome in terms of facial nerve function[11-13].
A researcher has mentioned that, the authors analyze the microanatomical variations in location of the facial and cochlear nerves in the cerebellopontine angle (CPA) relation with acoustic neuromas .The authors base these findings on their experience with 1006 consecutive patients who underwent surgery via a retrosigmoid or translabyrinthine approach. With this knowledge, they present certain technical lessons that may be useful in preserving nerve function during surgery and, in doing so, hope to provide neurosurgeons and neurootologists with valuable information that may help to achieve optimum outcomes in patients.[14-17]
Carbamazepine is an excellent temporary treatment for TN with intracranial tumors, according to Bullitt and colleagues. The patients in the research tended to respond to the medicine at least momentarily, with symptom alleviation; nevertheless, no patient was pain-free for more than one year. The authors also found that an early response to carbamazepine cannot be utilized to rule out the possibility of a tumor diagnosis. Gabapentin has also been reported to be effective for TN.[18-23]

Conclusion:
Most CPA tumors are benign, and total excision results in favorable long-term outcomes. The only exception to complete tumor removal is when the goal is to preserve function, such as when treating vestibular schwannoma, which affects the only hearing ear. In this case, a patient having acoustic neuroma in the cerebellopontine angle tumors for the management of left retro sigmoid was done after taking treatment. Now patient's progresswas good.

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