

Case Report on Unilateral Right Acoustic Schwannoma operated for open decompression craniotomy

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Abstract

Background: A benign tumor known as an acoustic neuroma can form on the auditory nerves that connect the inner ear to the brain and control balance and hearing. Hearing loss and unbalance could result from the tumor's pressure on the nerve. **Case presentation:** A 52 years old female patient came to the medicine outpatient department with the chief complaint of headache for 8 days and vertigo while walking for 10 days then she develops a hearing loss in the right ear and later imbalance while walking in the previous month. She had a history of accidental injury to the left eyelid, eyebrow, and left cheek. Firstly, computed tomography (CT) scan has been done and after that magnetic Resonance Imaging (MRI) was advised to the patient. Currently, she is operated on for open decompression craniotomy where excision of the tumor was done under general anesthesia after obtaining physical fitness for surgery. Afterward, she was treated with antibiotics, analgesics, and anti-inflammatory medicines, and post-surgery CT was done. **Conclusion:** Schwann cells that surround the vestibular nerve, typically in the internal auditory canal, can give rise to benign tumors called acoustic schwannomas. Although the findings on CT and MRI were unusual for acoustic schwannomas, minor acoustic schwannomas might also be found and removed during surgery in addition to the huge cysts.

Keywords: computed tomography (CT), magnetic Resonance Imaging (MRI), tumor.

INTRODUCTION

One type of benign tumor that develops from the balance and hearing nerves in the inner ear is called a vestibular schwannoma, also known as an acoustic neurinoma or an acoustic neurilemoma. Overgrowth of Schwann-type cells, which maintain and insulate nerve fibers and surround them with onion skin, is the cause of it. Increased vestibular schwannoma damages the nerves that regulate hearing and balance, causing one-sided or asymmetrical hearing loss, tinnitus, and loss of balance. (1) An estimated 10-15/million people are affected by these tumors each year. A larger incidence rate than previously believed may be due to the increased use of cranial imaging investigations for the diagnosis and treatment of several neurological diseases. This has led to the early discovery of these tumors. (2)

CASE PRESENTATION

We are presenting a case of 52 years old female patient who came to the medicine outpatient department with the chief complaint of headache for 8 days which was insidious in onset and gradually progressive in nature and vertigo while walking for 10 days. The patient was advised for CT and MRI and later she was shifted to the neuro ward under the opinion of an otologist. As narrated by the patient she met with an accident a month ago where she had an injury to the left eyebrows, eyelids, and left cheek near the labial fold and she was treated in the emergency department for that.

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As per her verbalization, she was completely alright 6 months back when she first developed hearing loss in the right ear and later imbalance while walking in the previous month. Initially, when the physical examination was carried out patient's looks were dull, and weak. Hearing and balance while walking was found in the examination.

With the following complaints, she has undergone radiological investigations, Computed Tomography Scan reveals generalized mild brain atrophy and there was well defined homogeneously solid lesion of approximate size 34x29 mm noted epicenter at the right CP angle cistern. This lesion was indenting the brainstem on the right side.

After reading the CT report patient was advised for MRI brain for evaluation of the right CP angle lesion. Following the MRI report it revealed a well-defined heterogeneous extra-axial mass lesion in the right CP angle extending into the right internal auditory canal causing its mild widening, she was later diagnosed with vestibular schwannoma.

Currently, she is operated on for open decompression craniotomy where excision of the tumor was done under general anesthesia after obtaining physical fitness for surgery. Post-surgery he was shifted to the neuro-intensive care unit, she has treated with an injection of ceftriaxone 1 gm twice a day, an injection of dexamethasone 8mg three times a day, an injection of paracetamol thrice a day, an injection of amikacin 750mg once a day, and an injection of mannitol twice a day. She had headaches postoperatively which were relieved with the medication administered in 5 days.

Post-Surgery CT has been done, and the report stated that the impression of a post-operative calvarial defect in occipital bone on the right side, mixed density collection with air foci in the right cerebellopontine angle, hypodensity in the right cerebellar peduncle, and pons effacing the fourth ventricle, mild prominence of the lateral and third ventricle and empty sella noted.

After 15 days of intensive care unit stay, the patient was shifted to the neuro ward for further management where he was managed with conservative treatment that include steroids, antibiotics, analgesics, antacid, antiepileptic, and other supportive measures. At the present patient is improved neurologically and hemodynamically and vitally stable and got discharged with follow-up after 15 days.

DISCUSSION

The internal auditory canal is typically erosive enlarged in acoustic schwannomas, which are noncalcifying solid tumors. (3-10) Despite being slow, acoustic tumor growth varies greatly. Tumor growth rates could be categorized into either discrete groups or a continuous range. (11-12)

Patients typically have sensorineural hearing loss that has developed gradually. Tinnitus, vertigo, a feeling of fullness in the ear, and other unusual presenting complaints or

concomitant symptoms are possible. The patient may have numbness, headaches, diplopia, lack of coordination, trouble swallowing, and facial numbness as the tumor grows. (13-28)

It is unclear how to handle patients with acoustic schwannomas. Options include radiation, stereotactic radiosurgery, microsurgery, and observation. Local control is the main indicator of therapeutic success for acoustic schwannomas. (6) Depending on the therapy employed, local control is defined. After microsurgery, local control denotes that the tumor has been entirely removed and that subsequent radiographic tests, such as magnetic resonance imaging, have not revealed any signs of a residual tumor (MRI). Hearing preservation and treatment-related morbidity, such as facial paralysis, are examples of secondary outcome indicators. (29-31)

Acoustic Schwannoma patients can currently be managed using 3 different methods including radiotherapy/radiosurgery, resection, and conservative treatment. If a patient has a small tumor, few or no symptoms, a poor general health state, or if they are elderly, many doctors will opt for a conservative approach, although this can still cause hearing loss over time. Patients with malignancies smaller than 2.5 cm or the elderly frequently choose radiosurgery. Additionally, radiosurgery is typically recommended for patients with remaining or recurrent cancers rather than a second procedure. (32-33)

The most frequent side effects of microsurgical therapy are meningitis, cerebellar and brain stem damage, facial paresis, headaches, and vascular problems. (8) Different surgical techniques have been observed to significantly alter the incidence of Post Operative headaches. (9) In the current presentation, the patient had a postoperative headache for 15 days which was relieved after taking analgesics. According to Feghali et al., the majority of individuals experience headaches that start soon after surgery and last for three months to a year. (34-35)

CONCLUSION

Schwann cells that surround the vestibular nerve, typically in the internal auditory canal, can give rise to benign tumors called acoustic schwannomas. Histologically, vestibular schwannomas almost always have vascular anomalies and microhemorrhages, which can cause cystic degeneration and hasty tumor growth. In patients with smaller tumors, the middle cranial fossa approach appears to be the safest for hearing preservation. Local control rates after radiosurgery and radiotherapy are comparable to those seen after full excision. Although the findings on CT and MRI were unusual for acoustic schwannomas, minor acoustic schwannomas might also be found and removed during surgery in addition to the huge cysts.

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