




IJCRR
Section: Healthcare
Sci. Journal Impact
Factor: 6.1 (2018)
ICV: 90.90 (2018)

Copyright@IJCRR

Nursing Care of Left Frontotemporal Meningioma in the Cerebellopontine Angle

Shakib H. Sheikh¹, Vaishali Tembhare², Ruchira Ankar³, Ranjana Sharma⁴

¹M.Sc.(Nsg) Final year, Medical-Surgical Nursing, Smt. Radhikabai Meghe Memorial College of Nursing, Datta Meghe Institute of Medical Sciences, Sawangi (M), Wardha, India; ²M.Sc(Nsg), Medical-Surgical Nursing, Clinical Instructor, Smt. Radhikabai Meghe Memorial College of Nursing, Datta Meghe Institute of Medical Sciences, Sawangi (M), Wardha, India; ³M.Sc(Nsg), Medical-Surgical Nursing, Associate Professor, Smt. Radhikabai Meghe Memorial College of Nursing, Datta Meghe Institute of Medical Sciences, Sawangi (M), Wardha, India; ⁴M.Sc(Nsg), Medical-Surgical Nursing, Associate professor, Smt. Radhikabai Meghe Memorial College of Nursing, Datta Meghe Institute of Medical Sciences, Sawangi (M), Wardha, India.

ABSTRACT

Background: The angle of cerebellopontine seems to be the most common site of tumors posterior to fossa. Common pathologic entities in the cerebellopontine angle include vestibular schwannomas, which account for 10% of all primary brain neoplasms, meningiomas, and arachnoid cysts. as author posted in a postoperative neurological unit to provide nursing care for a patient so I select this cerebellopontine angle tumor patient for the case report.

Case Presentation: A 35-years-old man had recurrent left fronto temporal meningioma, multi compartmental meningioma and left eye protrusion, corneal opacity and difficulty to vision, last 15 days. Computed tomography scanning and IV vessel angiography revealed there is e/o-defined vividly enhancing multi-lobulated extra-axial mass lesion noted with in left parieto-temporal region of approx size 7.9 x 6.9 x 6.3 cm. The lesion is causing extensive bony erosion and destruction of skull base. IV vessel angiography revealed there are high vascular tumors in middle cranial fossa supplied by left peripheral carotid artery branches, predominantly by internal maxillary artery there is prominent arterial supply by ophthalmic artery branches of left inside carotid artery Using a suboccipital retromastoid approach to craniotomy, the tumor was surgically removed. It was perceived as arising from the subarachnoid vacuum of the cerebellopontine angle cistern. They performed radiation therapy. A persistent tumor has not been found on Magnetic resonance imaging after several days of surgery.

Conclusions: Patients and families undergoing diagnostic process and cerebellopontine angle tumor care have several requirements that may be necessary only the interdisciplinary collaborative team of healthcare professionals who are knowledgeable in the disease.

Key Words: Cerebellopontine angle tumour, Meningiomas, Neoplasms.

INTRODUCTION

The cerebellopontine angle is a triangular space located behind the pyramid, just below the tentorium, anterior to the pons, and ventral to the cerebellum. It is formed by the top and bottom extremities of the cerebellopontine rupture. The cerebellopontine angle consists of the cerebellopontine angle cistern and contains the trigeminal, abductive, facial, and vestibulocochlear nerves, the cerebellar above, and anterior cerebellar arteries below the cerebellum flocculus, and the choroidal plexus that sticks out from the Luschka foramen.¹ cerebellopontine angle tumours make up 5–10 % of all intracranial neoplasms.^{2,3} A most common vestibular

schwannomas accompanied by meningiomas and tumours of the epidermoids. Certain cranial nerves, glomus jugulare tumours, cavernomas, congenital, renal, and metastatic lesions are more rare primary cerebellopontine angle lesions. Tumours from adjacent structures-gliomas, ependymomas, choroid plexus papillomas, and vascular malformations-may involve the cerebellopontine angle secondarily.⁴ cerebellopontine angle is a region between the pons and cerebellum and the lateral portion of the temporal petrous bone, cranial nerves & anterior inferior cerebellar artery Important structure of the cerebellopontine angle include most cerebellopontine angle lesions.⁵

Corresponding Author:

Shakib H. Sheikh, M.Sc.(Nsg) Final year, Medical-Surgical Nursing, Smt. Radhikabai Meghe Memorial College of Nursing, Datta Meghe Institute of Medical Sciences, Sawangi (M), Wardha; India; Email: shakibsheikh122@gmail.com

ISSN: 2231-2196 (Print)

ISSN: 0975-5241 (Online)

Received: 15.06.2020

Revised: 29.08.2020

Accepted: 21.10.2020

Published: 24.11.2020

CASE PRESENTATION

A 35-years-old man had a recurrent left frontotemporal meningioma, multi-compartmental meningioma, and left eye protrusion, corneal opacity, and difficulty to vision, last 15 days. The patient does not have any past medical history about communicable diseases and non-communicable diseases like hypertension, diabetes mellitus, tuberculosis, hepatitis, acquired immunodeficiency syndrome. The patient does not have any significant surgical history in the past; presently the patient did the retromastoid suboccipital craniotomy. The patient belongs to a nuclear family only four family members in the family no one having any communicable or non-communicable diseases except the patient. The patient and her family member do not have any abnormal genetic disorder or not genetic predisposing genetic history. The patient occupation is agriculture, and he is living in a rural area of the Wardha district.

Clinical finding

Patient all routine investigations is normal except few like Hematocrit is Decreased that is 4.92 m/cumm, WBC is increased due to meningioma its leads to infection and increased the White blood cell level 13,000 cumm, Red cell distribution width (RDW) is slightly decreased that is 11.5%, Potassium level slightly increased that is 5.2 mEq/L.

Physical examination was done before surgery

The glass coma scale score is 15 that is normal and the patient fully conscious. The Patient general appearance is not good, he was undernourished, The patient not active very dull nature, and not mentioned hygiene and personal grooming patient mental status is normal they oriented to time, place, person, and attainable, but slight behaviour changes occur due to the hospitalization and diagnostic procedure. Patient height is 145 cm, weight 40 kg, Body mass index 19, a patient vital sign is normal. That is temperature 98.6 °F, pulse: 82 beats/minute, respiration: 22 breath/minute, blood pressure 122/84 mmHg. In the eye examination, the right eyebrows normal but the left is asymmetrical due to protrusion, eyelashes left side eyelashes is asymmetrical due to protrusion, pupil right reacting to light but left sluggish reacting to light, visual acuity is decreased due to protrusion of left eye and corneal opacity is present. In the chest, symmetrical no any lesion is present, no axillary lymph node enlargement, S1, and S2 sound are heard pleural effusion absent, In the abdomen, no scarring present on abdomen, spleen or liver, not enlargement, bowel sound present, no fluid collection present, Extremities upper and lower extremities are properly moving.

DIAGNOSTIC ASSESSMENT

Computed tomography scanning

This revealed there is e/o-defined vividly enhancing multi-lobulated extra-axial mass lesion noted within the left parietal-temporal region of approx size 7.9 x 6.9 x 6.3 cm. The lesion is causing extensive bony erosion and destruction of the skull base.

Angiography

IV vessel angiography revealed there are highly vascular tumours in the middle cranial fossa supplied by left external carotid artery branches, predominantly by the internal maxillary artery there is prominent arterial supply by ophthalmic artery branches of the left internal carotid artery.

SURGICAL MANAGEMENT

Retromastoid suboccipital craniotomy

The patient was prepared for left-sided retromastoid suboccipital craniotomy and tumour excision and obtained written consent for surgical intervention.

Radiotherapy

The incubated patient was shifted to the radiology intervention room, and the tumour feeders were embolized.

Pre-operative Nursing Management

Nursing assessment

- We establish intra-operative and post-operative baseline data for comparison.
- Assess the psychological state and provide emotional support to the patient.
- Participate in identifying and documenting the surgical site following the protocol of the agency.
- Review the outcomes of all patient pre-operative diagnostic studies and share this knowledge with the correct Healthcare Standard Procedural Coding System.
- Informed to the patient about her surgery and provide information to the patient.
- Before the operation, we take the risk consent
- Explain everything about surgery for gaining cooperation and reducing anxiety
- We try to reduce patient anxiety before surgery through music therapy.
- Pre anaesthesia checks up are done.
- Before surgery ask about kind of allergy about latex products.

Day of surgery preparation

- The role of nursing. Preparation for day-of-surgery varies widely, depending on whether the patient is an inpatient or an outpatient surgeon.

- As a nurse, our pre-operative duties include final pre-operative training, assessment, and recording of appropriate findings.
- In particular, the outcomes of laboratory and medical tests, heart rate & Pulse rate, reports of all appointments, essential vital signs, preparation of the skin.
- Provide to the patient wear a hospital gown with no underclothes.
- We instruct the patient should remove all cosmetics since the observation of skin colour is important.
- Place an identification band on the patient
- All prostheses must be removing it.
- Encourage the patient to vacuum before administering preoperative drugs and before switching.

Preoperative Medications

- We give the injection cefazolin for preventing postoperative infection
- Anticholinergics Injection atropine glycopyrrolate scopolamine, for reducing oral respiratory secretion during surgery
- Anti-emetics Inj. Ondansetron for preventing nausea and vomiting during surgery

Intra-operative care

Operating -room preparation

- Before shifting a patient into the operating room, prepare the operating room to ensure privacy and safety
- Before operation check all instrument like electrical instrument, mechanical instrument work or not work properly
- Surgical site preparation of the patient
- All necessary instrument necessary for operation arranged and all instrument must be sterile
- Scrubbing, gowning, and gloving is done
- Maintained basic aseptic technique
- Maintained the patient safety
- Maintained patient positioning.

Post-operative Nursing Management

1) Maintained the intracranial pressure need to decreasing pressure

- Continually assess the patient's neurologic status.
- Monitor & record hourly vital sign
- Monitor the intracranial pressure & cerebral perfusion pressure
- Ensure proper positioning of the head. Elevate the head; provide the position of the flowers with support of pillow to head.
- Provide a water mattress

2) Maintaining a normal respiratory pattern -

- Monitor arterial blood gases.
- Preventing injury- initiate seizure precaution provides the side rails bed
- Maintain accurate intake & output records.

- Improving nutrition-
- Additionally, we provide the patient to take high protein to reach food like, soya powder through the nasogastric tube
- After surgery every hourly orally and tracheotomy suctioning done.
- Maintained normal oxygen saturation level
- Compensating for self-care –exercise for all joint
- We encouraged the patient for passive exercise (seventh day of surgery)

Basic Nursing Management after retromastoid suboccipital craniotomy

- Before the patient can take part in self-care (e.g., wash, oral hygiene, hair combing, nail cutting) we provide basic hygienic care.
- We add regular thigh-high elastic stockings and sequential air compression boots and examine legs. Note any symptoms of phlebitis thrombus (redness, tenderness, fire, swelling).
- Provide four hours of skincare.
- Turn the patient every two hours, taking care to ensure alignment with the patient's body. (Pillows and other similar tools can need to be used to keep proper body alignment.)
- We instruct the patient carry out range-of-motion exercises four times daily.
- We use soap and water to provide routine urinary catheter treatment. Pin the catheter to keep the meatus from having excessive traction.
- We apply warm or cold moist compresses to the area around the left eye.
- Inspect the eyes for signs of discomfort or dryness every 4 hours; Using regular saline to lubricate the skin; commercially formulated skin lubricant, or ointment, as recommended by the doctor; Protecting the eye from damage (corneal ulcerations or abrasions)
- Pull up the bedside rails, and add restraints as appropriate.
- We assess periods of restlessness for an underlying cause (checking for airway patency, signs of discomfort, or bladder distention).^{6,7,8}

Dietary management

In health and disease, the basic nutrient needs of adults differ. These requirements will be discussed briefly from the carbon, carbohydrate, fat, protein, fluid, electrolyte, vitamin, and trace elements viewpoint, based on the American Society for Parenteral and Enteral Nutrition guidelines Board of Directors and the Clinical Guidelines Taskforce. The requirements for nutrients are macronutrients (energy, protein, lipids) and micronutrients (vitamins, minerals). It is important to note that the nutritional need in patients who are ill will differ greatly, particularly if there is a malabsorption

syndrome. The foregoing Suggested Daily Allowances refer only to oral intake unless otherwise noted; there are some differences for parenteral paths.⁹

Importance of exercise after retromastoid suboccipital craniotomy

Exercise can enhance strength, fitness, mood, and health. But exercise isn't always easy when someone has a tumor at the angle of the cerebellopontine. The brain regulates voluntary movement, balance, and gait, all necessary elements of physical activity. If the occipital lobe of the brain is impaired, a certain vision can also be lost, making movement more difficult. Additionally, treatments can lead to tiredness, dizziness, fatigue, and loss of coordination, making the condition worse. And long-term use of steroids, which may be used to combat the side effects of chemotherapy, also induces muscle wastage. For certain people living with a cerebellopontine angle tumor, therefore, exercise may be especially difficult. But exercise can also offer the greatest benefit.¹⁰

- What matters most is doing what works for you. Running is a simple part of everyday life. Others choose yoga, cycling, and swimming
- Movement is more powerful than standing still. It's usually easier, for example, to consistently lift yourself and down on your feet, rather than try standing on one hip.
- In short, sessions, exercise a few times a day for three to five minutes, rather than longer single sessions.
- Add gentle stretching exercises to your regimen. Yoga is perfect for strength building, and relaxation.

At her follow-up visit, the patient had been approved for residual tumour radiotherapy. A final MRI performed 3 months postoperatively revealed a marked reduction in tumour mass with a normal left parietal-temporal region and no compression within the petrous bone persisted on the 4th ventricle, yet residual.

CONCLUSION

The cerebellopontine angle is the most common location of posterior fossa tumours. Common pathologic entities in a cerebellopontine angle include vestibular schwannomas, which account for 10% of all primary brain neoplasms, meningiomas, and arachnoid cysts. Surgical approaches to a cerebellopontine angle vary depending on the tumour size, location, and preoperative neurologic function of the patient.¹¹ nursing management is very important in preoperatively and postoperatively. Effective nursing care minimizes the risk of being sick. And save a life with patience. A 35-years-old male patient admitted in the hospital with the chief complaint of recurrent left frontotemporal meningioma, multi-compartmental meningioma, and left eye protrusion, corneal opacity,

and difficulty to vision. After all investigation patient diagnosed as a case cerebellopontine angle tumour, now he is going under the surgery suboccipital retromastoid approach to craniotomy, the tumour was surgically removed. A persistent tumour has not been found on Magnetic resonance imaging after several days of surgery. Now the patient is stable and takes post-operative care. Patient condition explained to himself and his parents by doctors. Patients and families undergoing diagnostic process and cerebellopontine angle tumour care have several requirements that may be necessary only the interdisciplinary collaborative team of healthcare professionals who are knowledgeable in the disease. There needs to be a relationship between the Patient, Family, and team to work together to develop the best strategy the patient is human.

Informed Consent: Patient informed consent was taken and signed by the Patient before writing a case report.

Ethical approval: None.

Conflict of Interest: Nil.

ACKNOWLEDGEMENT

I extend our heartfelt thanks to our respected teacher of the Medical-surgical nursing department Smt. Radhikabai Meghe Memorial College of Nursing Sawangi Meghe Wardha, their encouragement, their timely guidance; constant support, valuable suggestions, and co-operation have continually motivated us for the successful completion of this case report.

REFERENCES

1. Rhoton AL. The Cerebellopontine Angle and Posterior Fossa Cranial Nerves by the retrosigmoid approach. *Neurosurgery* 2000; 47(3): S93–129.
2. Mallucci CL, Ward V, Carney AS, O'Donoghue GM, Robertson I. Clinical features and outcomes in patients with non-acoustic cerebellopontine angle tumours. *JNNP* 1999; 66(6):768–71.
3. Bendszus M, Warmuth-Metz M, Klein R, Burger R, Schichor C, Tonn JC, et al. MR Spectroscopy in Gliomatosis Cerebri. *Am J Neuroradiol* 2000; 21(2):375–80.
4. Samii M, Gerganov VM. Chapter 41 - Tumors of the cerebellopontine angle. In: Grisold W, Soffietti R, editors. *Handbook of Clinical Neurology* [Internet]. Elsevier; 2012 [cited 2020 May 27]105: 633–9. (Neuro-Oncology Part II; vol. 105).
5. Mohamed M.A. Zaitoun. Diagnostic Imaging of Cerebellopontine Angle Masses [Internet]. *Health & Medicine* presented at; 19:40:39 UTC [cited 2020 May 28]. Available from: www.slide-share.net
6. Hurd WW, Beninati W. *Aeromedical Evacuation: Management of Acute and Stabilized Patients*. Springer; 2019;425.
7. Hickey JV, Ovid Technologies I. *The clinical practice of neurological and neurosurgical nursing* [Internet]. Philadelphia: Wolters Kluwer Health/Lippincott Williams & Wilkins; 2009 [cited 2020 Aug 28]. Available from: ovidsp.ovid.com

8. Hickey JV. The Clinical Practice of Neurological and Neurosurgical Nursing. Wolters Kluwer Health/Lippincott Williams & Wilkins; 2009; 802.
9. Mueller C, Compher C, Ellen DM, the American Society for Parenteral and Enteral Nutrition (A.S.P.E.N.) Board of Directors. A.S.P.E.N. Clinical Guidelines: Nutrition Screening, Assessment, and Intervention in Adults. JPEN J Parenter Enteral Nutr 2011; 35(1):16–24.
10. Exercise & Rest [Internet]. Braintrust, brain tumour charity. [Cited 2020 Aug 28]. Available from: www.braintrust.org.uk
11. Heller RS, Silveira L, Heilman CB. 43-Cerebellopontine Angle Tumors. In: Ellenbogen RG, Sekhar LN, Kitchen ND, da Silva HB, editors. Principles of Neurological Surgery (Fourth Edition). Philadelphia: Content Repository Only!; 2018 [cited 2020 May 27]; 622-631.e2.