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Left Frontal lobe glioma grade 2 : A Case Report

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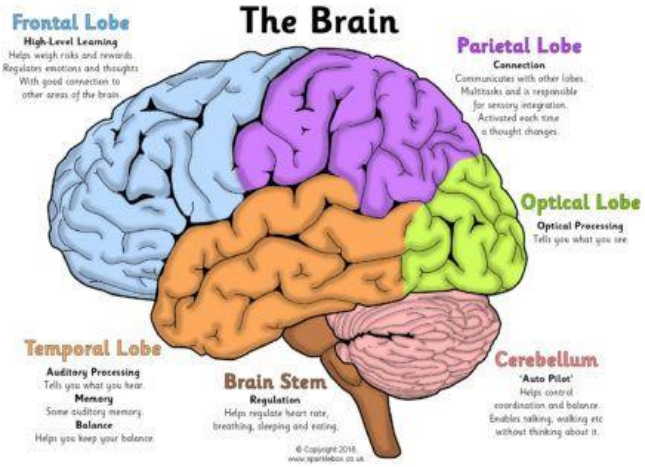
ABSTRACT

Non-neuronal cells in the brain and nervous system called glial cells, or "glia," support and shield neurons, also known as nerve cells. In the brain, neurons are in charge of sending electrical signals, but glial cells are also essential for preserving the nervous system's general health and functionality. The term "left frontal lobe glioma" refers to this tumour's development in the left frontal lobe Mr Om Prakash 40year old male patient was brought in Govt. hospital on 5th February 2025 with the chief complaints of unconscious (unable to response) since previous night i.e. 04/02/2025.

Keywords: Left frontal lobe glioma, non neuronal cell, glial cell .

1. INTRODUCTION

A left frontal lobe glioma is a tumour that develops in the left frontal lobe of the brain. Cognitive abilities like speech, reasoning, problem-solving, personality, and motor control are all controlled by the frontal lobe. Most right-handed people and some left-handed people rely heavily on the left side of the frontal lobe for language and speech. Their effects differ according to the tumour's size, growth rate, and frontal lobe location. To increase survival and preserve quality of life, early detection and treatment are essential.



Etiology & Risk Factors

- **Genetic Mutations** – DNA changes cause uncontrolled glial cell growth.
- **Radiation Exposure** – High-dose ionizing radiation increases risk.
- **Family History** – Inherited gene mutations elevate susceptibility.
- **Toxins & Carcinogens** – Chemicals may trigger cellular mutations.
- **Immune Dysfunction** – Weak immunity fails to prevent tumor growth.
- **Age Factor** – Risk increases with aging brain cells.
- **Gender Influence** – Some gliomas are more common in men.

- **Inflammation** – Chronic brain inflammation promotes tumorigenesis.
- **Viral Infections** – Some viruses (e.g., CMV) may alter cell function.
- **Oxidative Stress** – Free radicals damage DNA, causing mutations

CASE PRESENTATION :

Mr Om Prakash 40year old male patient was brought in govt.hospital on 5th February 2025 with the chief complaint of unconscious (unable to response) since previous night i.e. 04/02/2025, and where emergent surgery of craniotomy with gross total resection done on 06-02- 2025.

Present Medical History:

The patient complaint of headache, pain in suturing area, Cuffed Tracheostomy tube is present with 08 no and oxygen flow is 2l/ min. 16 gauze urinary catheter were present . Rt sided CVP line were present. 16 gauze Nasogastric tube is present. And patient's GCS scoring is $E_4 V_T M_6$.

Present Surgical History:

Patient underwent the Craniotomy with Gross total resection on 06/02/2025.
Now he is admitted in ICU for further treatment and observation.

PAST HEALTH HISTORY:

Past Medical History: The patient has a past medical history of seizure since past 5 years and had on medicines on tab. Levetiracetam 500mg bd and tab. Neurobion forte OD.

- **Childhood illness:** There no significance of any childhood illness.
- **Other illness:** There is no history of any communicable or hereditary illness in the family.

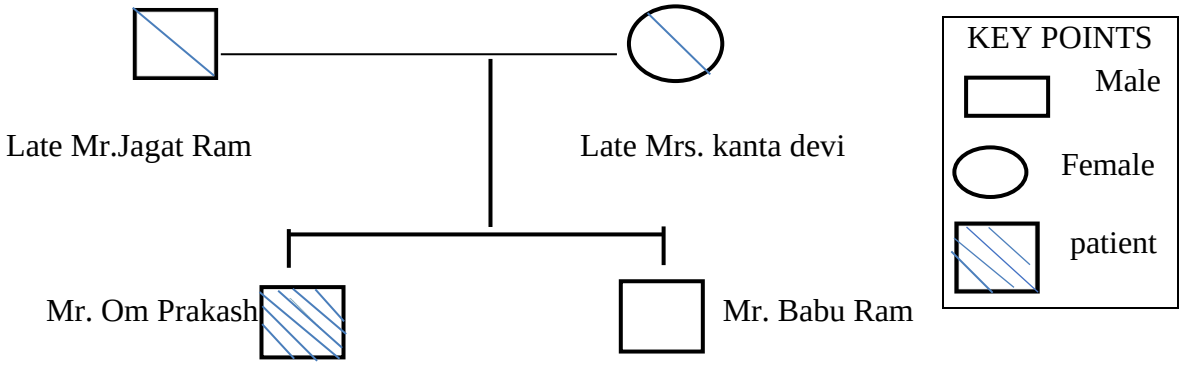
PAST SURGICAL HISTORY:

Patient had no history of any kind of surgery in past.

FAMILY HEALTH HISOTRY:

- Type of family: Joint family
- No. of family members: 6 members including patient
- Any Illness: Absent

FAMILY TREE:



PERSONAL HISOTRY

Personal information data:

- Oral Hygiene: Maintained
- Bath: Regular sponge bath
- Diet: Vegetarian
- Sleep & Rest: Increased
- Bowel: Normal
- Urine frequency: Normal
- Exercise / Activity: Decreased due to pain, Tracheostomy tube and surgery
- Substance use: No

Sexual & Marital History: Patient had divorced 15 years ago.

PHYSICAL EXAMINATION

GENERAL EXAMINATION

- Weight 65kg
- Height 170 cm
- Foul Body Odour Absent
- Foul Breath Absent
- Sensorium Normal
- Orientation Oriented to time place and person
- Nourishment Well nourished
- Body built Mesomorph
- Activity Decreased
- Hygiene Maintained
- Speech Normal

VITAL SIGNS

S.NO	VITAL SIGN	NORMAL VALUE	PATIENT VALUE
1	Temperature	97.8º – 99.1ºF	98.2ºF
2	Pulse	60-100 bpm	**114bpm**
3	Respiratory rate	16-20 bpm	18bpm.
4	Blood pressure	120/80 mmHg	104/80 mm Hg
5	SpO_2	95-100%	99% through via tracheostomy tube

NECK

- Range of Motion: Painful due to the presence of central line
- Lymph Nodes: Not enlarged
- Trachea: Midline
- Thyroid Gland: Not enlarged
- Jugular Veins: Not distended
- Subjective Symptoms: No complaints

CARDIO & RESPIRATORY SYSTEM

Thorax: Symmetrical

Thorax Expansion: Normal& equal

Heart sounds: S1, S2

Breath Sounds: Normal

Apical pulse: 114 beats/ min

Cough: Absent

CHEST & AXILLA

Symmetry: Symmetrical

Areola & nipple colour: Retracted

Discharge: Absent

Axillary Lymph Nodes: Not enlarged

Lesions/Masses: Absent

ABDOMEN

Umbilicus: Clean

On Percussion: Normal

Bowel sounds : Present

Inguinal Lymph Nodes: Not enlarged

Appetite: Decreased

GENITO URINARY SYSTEM

Lesions/scar: Absent
Discharge/infection: Absent
Voiding: Catheterized
Subjective Symptoms: No complaints

RECTUM & ANUS

Perianal Skin Integrity: Intact
Bowel Elimination pattern: Normal
Subjective Symptoms: No complaint

INVESTIGATION:

S.no	Lab Tests	Patient's Value	Normal Value
1.	CBC		
	i. Haemoglobin	6.9 gm/dL	**11-16.5gm/dL**
	ii. Total leucocytes count	7600/cumm	3500-10,000/cumm
	iii. Lymphocytes	03%	**17-48%**
	iv. Monocytes	01%	2-8%
	v. Eosinophils	00%	2-6%
	vi. Basophils	00%	0-1%
	vii. Platellet	1,45,000/cumm	1,50,000-3,90,000/ cumm
	viii. Red blood cell	3.96m/cumm	3.80-5.80/ cumm
	ix. Haematocrit	21.0%	**35-50%**
	x. Mean corpuscular volume	80.8 fL	80-97 fL
	xi. MCH	27.3 pg	26.5-33.5 pg
	xii. MCHC	33.8 gm/dL	31-35 gm/dL
	xiii. RDW	14.3%	10-15%
	xiv. MPV	13.4 fL	6.5-11 fL
	xv. PDW	20.6%	10-18 %
	xvi. PCT	0.19%	0.100-0.500%
2.	Blood Sugar (Random)	110mg/dL	70-140 mg/dL
3.	Serum Electrolytes		
	i. Sodium	146 mmol/L	135-150 mmol/L
	ii. Potassium	4.7 mmol/L	3.5-5.5 mmol/L
	iii. Calcium	8.8 mg/dL	8.5-11 mg/dL
	iv. Magnesium	1.9 mg/dL	1.7-2.2 mg/dL
	v. Phosphorus	3.1 mg/dL	2.5-4.5 mg/dL
4.	Renal Function Tests		
	i. Serum Creatinine	1.0gm/dL	0.6-1.2 mg/dL
	ii. Blood Urea Nitrogen (BUN)	60 mg/dL	10-45 mg/dL

5.	Arterial Blood Gas (ABG) Analysis		
	i. pH	7.49	**7.35 - 7.45**
	ii. pO_2	242 mmHg	**75 - 100 mmHg**
	iii. pCO_2	32.2mmHg	**38 - 42 mmHg**
	iv. Na	133mmol/L	135-150 mmol/L
	v. K	3.9 mmol/L	3.5-5.0 mmol/L
	vi. Ca	0.80 mmol/L	**2.2 to 2.7 mmol/L**
	vii. Hct	28%	35-50%
6.	Coagulation therapy		
	i. PT	11.8 sec	11-16Sec
	ii. INR	2.48	2.0 – 3.0

RADIOLOGICAL INVESTIGATION

X – Rays	Shows normal
NCCT HEAD	There is present of small intra – axial Iso- hydroxix lesion massively 3*4.1cm seen in the left frontal lobe with surrounding lubricant oedema in which mass of frontal lobe mass in form of effacement of gyri an sulci with involvement of frontal lobe left lateral ventricle .No calcification were seen with lesion .
MRI – Brain	F/U/C of left frontal lobe glioma present scan shows . Alter signal intensity lesion in the left frontal lobe showing subtle contrast enhancement – s/o intermediate Grade Glioma . **For interval change-** comparison with previous imaging studies mild increased in size of lesion with more extend towards the superior aspect

TREATMENT:

S.no	Drug Name & Salt Name	Dose	Route	Frequency
1.	Inj. Milcef (Cefuroxime S.B.)	2.25 gm	IV	BD
2.	Inj. (Pantop) Pantoprazole	40mg	IV	OD
3.	Inj. Mannitol	100ml	IV	BD
4.	Inj. Levepsy (levecetrium)	500mg	IV	BD
5.	Inj. Dexamethasone	4mg	IV	TDS
6.	Inj. Amikacin	750mg	IV	OD
7.	Inj. Emeset (Ondansetron)	4mg	IV	BD
8.	Inj. Morphine	40mg	IV	BD
9.	Inj. Medaz (Medazolam)	2mg	IV	BD
10.	Inj. Diazepam	10mg	IV	TDS
11.	Nebulization with Duolin(Ipratropium Bromide)	500mcg	Inhalation	QUID

DISCUSSION :

Glial cells play a vital role in supporting neurons and maintaining the overall health of the nervous system. A left frontal lobe glioma, a tumour that develops in this critical brain region, can significantly impact cognitive functions, particularly language and speech. Early detection and intervention are crucial for improving survival rates and preserving quality of life. The tumour's effects depend on its size, growth rate, and location, making timely treatment essential for better outcomes.

Pathophysiology & Causes

The pathophysiology of a Grade 2 left frontal lobe glioma consists of low-grade, slowly growing tumours of glial cells that invade the surrounding cortex. These tumours frequently show unchecked cell growth, causing tissue damage without appreciable necrosis. Although Grade 2 gliomas are not as aggressive as higher-grade gliomas, they can nevertheless affect brain function, especially in regions linked to language, motor control, and cognition, depending on where they are located**.**

Symptoms & Clinical Presentation

- Sudden unconsciousness

- Headache
- Seizures

Diagnosis

X-Ray Studies :- Shows normal .
NCCT HEAD :- There is present of small intra – axial Iso- hydroxix lesion massively 3*4.1cm seen in the left frontal lobe with surrounding lubricant oedema in which mass of frontal lobe mass in form of effacement of gyri an sulci with involvement of frontal lobe left lateral ventricle. No calcification were seen with lesion**.**
MRI – Brain on 01.02 . 2025 :-F/U/C of left frontal lobe glioma present scan shows .Alter signal intensity lesion in the left frontal lobe showing subtle contrast enhancement – s/o intermediate Grade Glioma .

Treatment Approaches

Antibiotics ,Osmotic diuretics , anticonvulsant, Craniotomy

CONCLUSION :

Mr. Om Prakash 40 years old male patient admitted to the intensive care unit of Indira Gandhi medical College and Hospital , Shimla On dated 05.02.2025 with the chief complaints of sudden consciousness during sleep on previous night. After that patient were diagnosed with frontal lobe glioma with intracranial space occupying lesion then in emergency urgent surgery i.e. craniotomy with gross total resection was performed on dated 06.02.2025

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