



## RETROSPECTIVE STUDY OF LESIONS OF CENTRAL NERVOUS SYSTEM IN A TERTIARY CARE HOSPITAL

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**ABSTRACT** The aim of our study was to establish the relative frequency of biopsy proven tumors of central nervous system (CNS). One hundred and twenty (120) CNS Biopsy specimens were studied in a two year period. Out of 120 CNS tumors, 103 were primary, 17 were metastatic. Among 17 metastatic tumors, the most common histological type is adenocarcinoma. The most frequent type of CNS tumour was astrocytoma followed by meningioma.

**KEYWORDS :** astrocytoma, oligodendroglioma, ependymoma, medulloblastoma, meningioma, schwannoma

### INTRODUCTION:

Primary Central nervous system (CNS) tumours are rare in incidence, but they are the second most common tumours in childhood after the most common malignancy leukemia 1. They are considered to be the most notorious of all cancers, as they represents with characteristic of unique, heterogeneous population of neoplasm having both benign and malignant tumors and reported to be less than 2% of all malignant neoplasms 2. They are also different in adults and children in respect to their frequency, location and type. 3,4 CNS lesions involve supratentorium in adults while infratentorium is the commonest location in children.3,5

### MATERIALS AND METHODS:

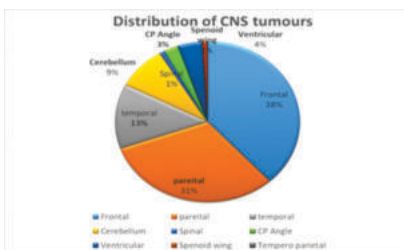
The present study was a retrospective study conducted at the Department of pathology, Kurnool Medical College, Kurnool from the year 2018-2020. A total of 120 cases were studied during that period. The diagnosis was made by HPE of routinely processed tissue. The H&E stained sections in all cases were reviewed and diagnosis was confirmed applying the revised WHO classification.

### RESULTS:

**Table 1: CNS specimens out of total histopathology specimens**

Year	Total No. of biopsies	CNS biopsies	%
2018-2020	7634	120	15.3%

Neurosurgical specimens constitute 15.3% of the total number of surgical specimens received.



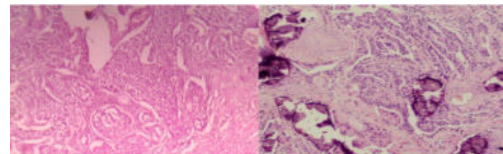
In the study, most of the CNS tumors were distributed in the frontal region, about 44 cases(38%) followed by parietal (36 cases), temporal (15 cases) and cerebellum (10 cases) . Then ventricular and temporoparietal regions with equal predominance about 5 cases followed by CP angle and least predominance in spinal and sphenoid wing with only 1 case.

**Table 3: Incidence of Major CNS neoplasms**

Sl. No	Type of lesion	No. of cases	%
1	Astrocytoma	54	45
2	Meningiomas	26	21.6
3	Metastasis	17	14
4	Medulloblastoma	6	5

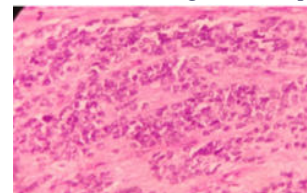
5	Ependymoma	4	3.3
6	Hemangioblastoma	3	2.5
7	Oligodendroglioma	3	2.5
8	Schwannoma	3	2.5
9	Neurocytoma	21	1.6
10	Pituitary adenoma	1	0.8
11	Choroid plexus papilloma	1	0.8
Total		120	100

Astrocytoma constitutes the most common neoplasm (54 cases,45%), followed by Meningiomas(26 cases ,21.6%),Metastasis(17 cases,14%) ,Medulloblastoma(6 cases ,5%) Ependymoma (4 cases ,3.3%),Hemangioblastoma(3 cases,2.5%) Oligodendroglioma (3cases,2.5%), Schwannoma(3cases,2.5%), Neurocytoma(2 cases,1.6%) followed by pituitary adenoma(1 case ,0.8%) Choroid plexus papilloma(1 case,0.8%).



**Fig:1 Metastasis**

**Fig:2 Choroid plexus papilloma**



**Fig:3 Neurocytoma**

### DISCUSSION:

**General Incidence:** Among 7634 biopsies , number of CNS biopsies were 120 constituting 15.3%.

**Age and Sex Incidence:** The study comprised 120 cases of Central Nervous System Lesions. Most common age group was between 31-40 years with a male to female ratio of 1.14:1 . Frontal region was the most common site encountered for the lesions in the study which was consistent with T Masoodi et al 6 study.

### Specific Incidence:

**Astrocytomas:** Astrocytoma was the commonest tumor with a total number of 54 cases (45 %) encountered in this study which was in contrast to SN Kanthikar et al 7 study where 13 (34% ) were seen. Grade IV astrocytoma was the commonest in the study. Anaplastic astrocytomas constitute about 14 cases (34.1%).

**Meningiomas:** Meningiomas were the second largest group of neoplasms in this study, with 26 cases constituting 21.6% of all CNS neoplasm which was in contrast to SN Kanthikar et al 7 study where it was 15 cases (40%). Meningiomas were common in middle aged and elderly patients with a peak occurrence during sixth and seventh decades of life although these tumors can occur in children and in very old. 8 In our study the incidence was highest in 4th and 5th decades.

#### **Metastasis:**

Metastatic tumors comprised the next major group of neoplasms in our study. There were 17 cases in our study, which gives an incidence of 14% of all intracranial neoplasms which was in contrast to Naik S et al study 9 where 3 (1.62%) cases were seen.

#### **Medulloblastoma:**

In this study, Medulloblastoma was the commonest malignant tumor found in the pediatric age group. This study was consistent with Naik S et al study 9 where 5 (2.70%) cases were seen.

#### **Ependymoma:**

There were 4 cases (3.3%) of Ependymoma encountered in this study. This falls in the range of study by Duncan et al 10

#### **Hemangioblastoma:**

There were 3 cases (2.5%) of Hemangioblastoma in this study, where as in Naik S et al 9 study it was 1 case with 0.5%.

#### **Oligodendroglioma:**

In our study there were 3 cases (2.5%) of Oligodendroglioma which was consistent with Naik S et al 9 study which also shows 3 (1.62%) cases.

#### **Schwannoma:**

In our study there were 3 cases (2.5%) of Schwannoma seen, which is in contrast to Naik S et al study 9 where 23 (12.4%) cases were seen.

#### **Neurocytoma:**

Central neurocytomas are rare intraventricular neoplasms of the central nervous system, comprising 0.25–0.5% of brain tumors. In this study, 2 (1.6%) cases of Neurocytoma were seen.

#### **Pituitary Adenoma:**

In the present study 1 (0.8%) of Pituitary adenoma was seen which was in contrast to Naik S et al study 9 where 11 (5.94%) cases were seen.

#### **Choroid Plexus Papilloma:**

In the present study 1 (0.8%) of Choroid plexus papilloma was seen which was consistent with Naik S et al 9 study where 2 (1.08%) cases were seen.

#### **CONCLUSION:**

In our study, glial tumors were the most frequent neoplasm encountered of which Astrocytoma is the most common tumor reported followed by Meningiomas. Overall male preponderance was documented. Some interesting and rare cases like Choroid plexus papilloma and Neurocytoma were seen in our study.

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