



HISTOPATHOLOGICAL ANALYSIS OF DIFFERENT CENTRAL NERVOUS SYSTEM TUMOR – A CASE SERIES OF 102 PATIENTS AT TERTIARY CARE CENTRE IN JHARKHAND.

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ABSTRACT

Background: CNS tumors comprise 2% of all malignancies. CNS tumours encompass a broad spectrum with regards to age, location, histology and clinical outcomes. This article aims to study the incidence of CNS tumors in different age groups and also to study the major histologic subtypes of brain tumours

The overall incidence of CNS tumors including children and adults is 2%. In children, tumors of the nervous system are the second most common tumors next to leukemias and the most common solid tumors

Aim: To identify the age groups, gender distribution, and different histological types of brain tumours.

Materials and Methods: The cross-sectional descriptive study comprised of 102 specimens of central nervous system lesions which had been received in the Department of Pathology, Rajendra Institute of Medical Sciences, Ranchi, Jharkhand from July 2019 to June 2020.

Conclusion: The CNS specimen required careful examination since the tumors of the CNS often tends to show very diverse histological structure. This article will help to evaluate the burden of CNS tumours in different age groups in our region. It will also help to study major histological subtypes of CNS tumours.

KEYWORDS : Central nervous system tumours, Neoplasm, Pathology

INTRODUCTION

The central nervous system is made up of the brain and the spinal cord. The brain and spinal cord are complex & delicate organs that control the higher functions, the peripheral nervous system, and many of the voluntary and involuntary systems of the body. It has been found that about 1/3 of all cancers metastasize to the brain. The majority of patients die within first year of diagnosis of malignant lesion and less than 3% survive more than 3 years^[1]

In India, the incidence in adult males is 11.2/100000 and in adult females is 6.8/100000. The age adjusted mortality is 4.5/100000^[2].

The incidence of CNS tumours varies greatly with age and gender. Among adults, metastases, glioblastoma multiforme and meningioma are the most common CNS neoplasms. Among children pilocytic astrocytoma, medulloblastoma and ependymoma are far more common

MATERIALS AND METHODS:

The study was done in Rajendra Institute of Medical Sciences (RIMS), Ranchi, Jharkhand. Data were collected from July 2019 to June 2020 and included all patients with clinical and radiological suspicion of CNS tumours undergoing biopsy or resection as part of their diagnostic or therapeutic evaluation. The sections were stained by hematoxylin and eosin and immunohistochemistry was selectively used. All tumours covered by World Health Organization (WHO) 2016 classification were included

RESULTS

Table showing incidence of different CNS neoplasms

S. no	HPE Diagnosis	No of Cases	No of Cases%
1	Astrocytoma	39	38%
2	Meningioma	28	27%
3	Medulloblastoma	7	7%
4	Ependymoma	2	2%
5	Oligodendroglioma	2	2%
6	Craniopharyngioma	2	2%
7	Pituitary Adenoma	1	1%

8	Schwannoma	15	15%
9	Neurofibroma	1	1%
10	Central Neurocytoma	2	2%
11	Metastasis	3	3%
	Total	102	100%

Table showing age distribution of CNS tumours

S. NO	Age in years	CNS Tumours
1	0 – 10	5
2	11 – 20	12
3	21 – 30	22
4	31 – 40	18
5	41 – 50	28
6	51 – 60	10
7	61 – 70	5
8	71 – 80	2
	Total	102

Table showing sex distribution of CNS tumours

Sex	Total No of cases	% of cases
Male	46	45%
Female	56	55%
Total	102	100%

DISCUSSION

Among the 102 received cases which underwent for histopathological analysis, 50 cases were non-neuroepithelial tumours, 52 cases were reported as neuroepithelial tumours with a maximum incidence of astrocytomas (38%), followed by meningiomas (27%), schwannomas (15%), and medulloblastoma (7%), metastatic deposits (3%). Ependymomas constituted (2)%, oligodendroglioma (2)%, central neurocytoma (2)%, craniopharyngioma (2)%.

A study by Kailash Chand Jat et al on 59 cases showed that neuroepithelial tumours were most common (55.66%), followed by meningiomas (29%). And the most common CNS tumour was found to be astrocytoma (32%) as in concordance with the present study.^[3]

In the present study, the peak incidence of CNS tumours was

observed to be highest in the age group between 41 - 50years (27%), followed by 21- 30 years (22%), followed by 31-40 years (18%), 11-20years (11%), 51-60 years (10%), 0-10years (5%), 61-70years (5%) and 71-80years (2%).

Shika Ganghoria et al in his study on 65 cases of CNS tumours showed that majority of the CNS lesions were presenting in the median age group of 31- 50years of age, which is in correlation with the current study.^[4]

In the current study, the distribution of CNS tumours was found to be of relatively in a high frequency in the female population with 55% (n=56 cases) and 45% (n= 46 cases) in males with a male: female ratio of 1:1.2.

Studies by Shivraj Nagnath et al, Aryal G et al, Lee et al showed a higher preponderance in the female population like that of the present study.^[5,6,7]

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