



HISTOPATHOLOGICAL SPECTRUM OF INTRACRANIAL LESIONS AND CORRELATION WITH PRE OPERATIVE RADIOLOGICAL FINDINGS IN RURAL HARYANA

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ABSTRACT This study was conducted to formulate location-wise radiologic diagnostic algorithms and assess their concordance with the final histopathological diagnosis of intracranial mass lesions to evaluate their utility in a rural setting where only basic facilities are available. Material and Method: In present study 144 cases were analyzed. Radiological findings were correlated with histopathological diagnosis. Result: The study of 144 patients with age ranging from 9 months to 65 years, in these entire cases male patient were 58%, female patients were 42%. M; F were 1.38:1. In all these lesions 88.8% cases were neoplastic lesions, in all neoplastic lesions 52.7% were malignant tumors and 34.7% were benign tumors, in all malignant tumors Astrocytoma was the most common malignant tumor followed by meningioma. In present study radiological and histopathological correlation was present in 84.7% of cases. Conclusion: Radiological investigations are reliable diagnostic tools for space occupying central nervous system lesions but histopathology is gold standard. So, multidisciplinary approach is advocated to settle diagnostic dilemmas.

KEYWORDS : ICSOL, radiology, astrocytoma, meningioma

INTRODUCTION:

Central nervous system neoplasms represent a unique heterogenous population of neoplasms. Annual incidence of intracranial tumors is 10 to 17/100000 person. (1) Space occupying lesions of brain (ICSOL) is one of the important causes of neurological morbidity and mortality. (2) These lesions may follow serious clinical course even or when they are inflammatory lesions or benign neoplasm. Early diagnosis is necessary to plan appropriate management. (3) Radiological imaging is an important component of diagnosis and planning treatment, but histopathology is considered as gold standard for diagnosis of ICSOLs although, immunohistochemistry has to be resorted in odd cases for grading and differentiating the tumor entities. The aim of this study to correlate radiological and histopathological findings of ICSOLs in a tertiary care center in rural Haryana.

MATERIALS AND METHODS

The present study was conducted in the department of pathology, in a tertiary institute in rural Haryana over a period of 5 years. After obtaining proper ethical clearance, tissue samples received in 10% formalin were allowed to fix for 24 hours. Gross examination was done and sections microtomed were routinely stained by H&E as per proper protocol. Radiological diagnoses were compared with that of histopathology. IHC was performed to differentiate cases posing diagnostic dilemmas.

RESULT:-

In our study total 144 cases were studied. In present study we observed that maximum number of cases belonged to age group of 36-45 years (26.4%). Male to female ratio (M: F) was 1.38:1. Frontal lobe was the most common site for lesions. Among all lesions neoplastic lesions were most common. Among all neoplastic lesions Astrocytomas were the most common lesions contributing 30.6% of all lesions, followed by meningioma (22.2%) along with its subtypes. Non-neoplastic lesions were 11.1%, which include neurocysticercosis, hydatid cyst, tuberculoma, epidermoid cyst and brain abscess. (TABLE 1), (TABLE 2) In present study the correlation of radiological and histopathological diagnosis came out as 84.7%. (TABLE 3) As evident, histopathological diagnosis remains gold standard and superior to radiological diagnosis in the context of diagnostic spectrum of ICSOLs.

Table No. - 1 Radiological Diagnosis

Radiological Diagnosis	Percentage
Astrocytoma	33.3
Meningioma	20.8
Pituitary Adenoma	12.5
Glioblastoma multiforme	6.9
Oligodendroglioma	1.4
Ependymoma	1.4

Medulloblastoma	1.4
Astrocytoma Pilocytic	1.4
Schwannoma	2.8
Hydatid cyst	1.4
Neurocysticercosis	1.4
Epidermoid cyst	2.8
Brain abscess	2.8
Pleomorphic xanthoastrocytoma	1.4
Hemangioblastoma	1.4
Rathkes cyst	1.4
Subependymoma	1.4
Frontal Cavernoma	1.4
Choroid plexus papilloma	1.4
Tuberculoma	1.4
Total	100.0

Table No. - 2 Histopathological Diagnosis

Diagnosis	Percent
Astrocytoma	30.6
Astrocytoma Gemistocytic	1.4
Glioblastoma multiforme	4.2
Meningioma	22.2
Pituitary Adenoma	12.5
Schwannoma	2.8
Oligodendroglioma	2.8
Acute suppurative encephalitis	2.8
Pilocytic astrocytoma	1.4
Medulloblastoma	1.4
Craniopharyngioma	1.4
Subependymoma	1.4
Neurocysticercosis	1.4
Hydatid cyst	1.4
Adenocarcinoma thyroid	1.4
Ganglioglioma	1.4
Cavernoma	1.4
Ependymoma	1.4
Epidermoid cyst	2.8
Hemangioblastoma	1.4
Choroidplexus papilloma	1.4
Tuberculoma	1.4
Total	100.0

Table No. - 3 Correlation Between Radiological And Histological Diagnosis

	Number of cases	Percent
Correlation Present	122	84.7
Correlation Absent	22	15.3

Total	144	100.0
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DISCUSSION:

Present study comprised 144 cases of radiologically diagnosed ICSOL and their correlation with histopathological diagnosis. The present study emphasizes the significance of correlation between pre-operative radiological diagnosis and histopathological diagnosis as the former requires confirmation.

In present study the classification proposed by W.H.O. has been followed. In our study we observed that maximum numbers of cases belong to age group 36-45 years (26.4% cases). Male patients were 58% and females were 42%. Kaki RR et al (4) and Sunila et al (5) observed that most of the cases were seen in 6th -7th decade in their study. According to Dogar et al(6) and Rathod et al(7) most of cases in 2nd-5th decade, comparable to our findings. Sajjad et al(8) and Chishty et al (9) observed male predominance in sync with our findings. The distribution pattern of various CNS lesions in the present study was compared with studies done by Rathod et al(7) (61.5%). Anadure et al(10) (80.6%), Irfan et al(11) (77.2%); all showed neoplastic predominance in accordance to our findings (88.8%). In our study radiological findings correlated with histopathological findings in 84.7% of cases (complete correlation). However two studies, Rathod et al(7) and Dogar et al(6) have shown partial correlation between radiological and histopathological diagnosis. In present study, out of 72 cases, 11 cases (15.7%) were misdiagnosed on radiology. Misdiagnosis of cases is probably due to radiological similarity of the lesion. Tumour presenting as ill-defined nodular lesion was misdiagnosed as medulloblastoma, which upon biopsy came out as anaplastic glioma, craniopharyngioma was misdiagnosed as Rathke's cyst due to cystic nature and similar location. Anaplastic glioma was misdiagnosed as medulloblastoma. In present study various limiting factors were haemorrhage, necrosis and edema. Sunila et al(5) and Pant et al(12) had also analysed misdiagnosed cases on radiological examination in their study. Several studies opined and concluded in their study that varying degree of perilesional edema seen in meningioma is also a feature of gliomas, metastasis and infection.(13)

CONCLUSION:

Radiological investigation is a reliable diagnostic tool for ICSOLs.(14) It may be considered as an important supportive and complimentary tool to histopathological diagnosis. Radiological similarity of the lesions and presence of interfering factors are important contributory factors for diagnostic pitfalls. Radiological investigation has high sensitivity and is highly efficacious for the diagnosis of neoplastic CNS lesions. (15) So, in order to arrive at final diagnosis and to mitigate diagnostic dilemmas, its supplementation with biopsy examination should be a proper protocol.

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