



A Study of Intracranial Space Occupying Lesions in Children

Dr. Rashmi Thanvi Associate professor of pediatrics, GMERS Medical College Sola

Dr. Bhanu R. Desai Assistant professor of pediatrics, GMERS Medical College Sola

Dr. Krina D. Patel Junior Resident of pediatrics, GMERS Medical College Sola

ABSTRACT

Objective: To study incidence, etiology, clinical presentation, effect of intervention in disease outcome of Intracranial Space Occupying Lesions in children.

Method: This prospective observational study was conducted in GMERS Medical College, Sola during the period January 2011 to January 2016 in the department of paediatrics, of age group 0-12 years, clinically suspected to have ICSOL (intracranial space occupying lesion) and confirmed by radiology.

Results: The present study shows that the incidence of intracranial space occupying lesion in children is 0.57%. Out of 72 patients 58.33% were males and 41.66% were females. The highest incidence of intracranial space occupying lesion was in the age group 5-12 years (62.5%). Of all the SOL 69.4% patients had supratentorial lesions while 18% had infratentorial lesions and 12.5% had multiple lesions involving both the regions. Seizures (77.77%), fever (44.44%) and vomiting (38.88%) were the most common clinical presentation. Tuberculoma (31.94%) was the most common ICSOL. Tumor was in only 25% of cases with Glioma (12.5%) being the most common tumor.

Conclusion: With recent advances in neuroimaging techniques, diagnosis of ICSOL has become easier. This gives hope of easy and accurate diagnosis to initiate prompt management.

KEYWORDS : Space occupying lesion

INTRODUCTION:

"Intracranial space occupying lesion" is defined as any neoplasm benign or malignant, primary or secondary, as well as any inflammatory or parasitic mass lying within the cranial cavity. With the advent of neuroimaging modalities for accurate diagnosis, appropriate therapeutic options can be offered to our patients.

In the present study, the clinical profile of intracranial space occupying lesion in the children with their clinic-radiological correlation was studied. The outcome of various therapeutic was also being studied.

MATERIAL AND METHODS:

This prospective observational study was conducted in GMERS Medical College, Sola during the period January 2011 to January 2016 in the department of paediatrics, of age group 0-12 years, clinically suspected to have ICSOL (intracranial space occupying lesion) and confirmed by radiology.

Inclusion criteria

- Age of patient from 0 to 12 years
- Intracranial space occupying lesion proven by imaging studies

Exclusion criteria

- Patient more than 12 year of age
- Hemorrhage, infarct and calcification
- Lesion not characterized on imaging studies
- Congenital cystic lesion

Selection of patients

- A total of 72 patients diagnosed as having space occupying lesion of brain were included.
- The biochemical and hematological investigations performed include CBC, ESR, RFT, serous fluid cytology with biochemical studies wherever applicable.
- Tuberculin test with 2 TU PPD was done.
- Sputum/gastric fluid AFB wherever applicable.

RESULT:

72 Patients had imaging proven intracranial space occupying lesions. Thus the incidence of SOLs in hospitalized patients was 0.57%.

Age distribution: The maximum number of patients, 45 (62.5%) were in the age group 5-12 year. 21 patients were in 1-5 years age group and 6 patients were in <1 year age group.

In the age group 1-10 year, 36 (67.92%) patients had supratentorial SOL, 10 (18.87%) had infratentorial SOL while 7 (15.09%) had either multiple lesions or lesions involving both the regions (Table 1).

Table 1: Age distribution according to location of (SOL)

AGE	SUPRATENTORIAL	INFRATENTORIAL	MULTIPLE/BOTH SUPRA AND INFRATENTORIAL LEISONS
<1 YEAR	6	-	-
1-10 YEARS	36	10	7
>10 YEARS	8	3	2
TOTAL	50	13	9

The primary location of brain tumor was supratentorial in infants, while in age group 1-10 year, 45% were supratentorial (Table 2)

Table 2: Age distribution according to location of brain tumors

AGE	SUPRATENTORIAL	INFRATENTORIAL	MULTIPLE/BOTH SUPRA AND INFRATENTORIAL LEISONS	TOTAL
<1 YEAR	3	0	0	3
1-10 YEARS	9	8	2	19
>10 YEARS	2	1	0	3
TOTAL	12	9	3	25

Table 3: Clinical spectrum

SYMPTOMS		NO. OF PATIENTS		PERCENTAGE	
SEIZURES	GENERALIZED	56	42	77.77%	58.33%
	FOCAL		14		19.44%
FEVER		32		44.44%	
VOMITING		28		38.88%	
ALTERED SENSORIUM		22		30.55%	

HEADACHE	19	26.38%
VISUAL DISTURBANCES	18	25.36%
PAREISIS(HEMI/PARAPAREISIS)	13	18.05%
CRANIAL NERVES	13	18.05%
DECEREBRATE POSTURING	8	11.11%
CEREBELLAR SIGNS	6	8.33%
INVOLUNTARY MOVEMENTS	5	6.94%
ABNORMAL BEHAVIOUR	2	2.44%

Most common presentation of ICSOLs was in the form of seizures, 56(77.77%) out of 72 patients had seizures. Out of these 42(58.33%) patients presented with generalized seizures while 14(19.44%) had focal seizures. Fever was the second most common symptom present in 32 patients. Vomiting was present in 28 patients.(Table 3)

Table 4: Distribution According to Etiology

Imaging diagnosis	Total	Percentage
Tuberculoma	23	31.94%
Neurocysticercosis	11	15.27%
Brain abscess	11	15.27%
Glioma	9	12.5%
Medulloblastoma	5	6.94%
Craniopharyngioma	3	4.16%
Tubercular abscess	2	2.77%
Subependymal nodules	2	2.77%
Ependymoma	2	2.77%
Pilocytic astrocytoma	1	1.38%
Cystic astrocytoma	1	1.38%
Primitive neuroectodermal tumor	1	1.38%
Glioblastoma multiforme	1	1.38%

Out of 72 patients, 23(31.94%) patients had tuberculoma, the most common ICSOL found in the study. The next in frequency were neurocysticercosis and brain abscess having equal number of cases, 11(15.27%) patients in each category. Out of 72 patients, 25(34.72%) patients had brain tumor, out of which most common is glioma found in 9(12.5%) patients followed by medulloblastoma in 5(6.94%) patients.(Table 4)

DISCUSSION:

Distribution in the group of 10 to 12 years in the study by Malik et al¹ was 22.5%, which is comparable to the present study(22.7%).

48% of brain tumors were supratentorial and 36% infratentorial and 12% were multiple lesions. The study of Mohanta et al² reported 44.3% supratentorial lesions and 55.7% infratentorial lesions.

The incidence of brain abscess in the present study, 15.27% is comparable to study by Mohanta et al² showing 17.6% incidence.

CONCLUSION

1. The present study shows that the incidence of intracranial space occupying lesion in children is 0.57%
2. 8.33% patients belonged to age group 0-1 year, 29.16% in the age group 1-5 year and 62.5% in the age group 5-12 year.
3. Out of 72 patients 58.33% were males and 41.66% were females. Male to female ratio was 1.4:1.
4. Of all the SOL 69.4% patients had supratentorial lesions while 18% had infratentorial lesions and 12.5% had multiple lesions involving both the regions.
5. All the lesion(100%) were supratentorial in infancy, while in the age group 1-10 year < 63.26% patient had supratentorial, 20.4% had infratentorial and 16.32% had multiple lesion. Among those more than 10 years 58.33% had supratentorial, 25% infratentorial and 16.669% had multiple lesions.
6. Seizures(77.77%), fever(44.44%) and vomiting(38.88%) were the most common clinical presentation.

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