



A RETROSPECTIVE STUDY OF PAEDIATRIC HISTOPATHOLOGICAL SPECIMENS AT RIMS, RANCHI

Dr. Dinesh Chandra Sawaiyan

Post-Graduate Student, Department of Pathology, RIMS, Ranchi

Dr. Rabindra Kumar Singh

Associate Professor, Department of Pathology, RIMS, Ranchi,

Dr. Suraj Sinha*

Post-Graduate Student, Department of Pathology, RIMS, Ranchi, *Corresponding Author

ABSTRACT

Background: Childhood morbidities differ significantly from those of adults. In this study performed in a tertiary care hospital, paediatric biopsy specimen were studied. Various benign and malignant tumors and congenital/developmental disorders were analyzed. **Material and Methods:** A retrospective study of 47 cases ranging from 1 month to 15 years was undertaken spanning a period of 12 months from July 2019 to June 2020 who has been operated for any disease and the excised/biopsy specimen were sent for Histopathological study in the department of pathology at RIMS, Ranchi. **Results:** Among all the cases, benign tumors were most common (62%), medulloblastoma was the most common malignant tumor and CNS was the most commonly involved organ system by tumors; fibroadenoma was the most common benign neoplasm of young adolescents female and congenital/developmental disorders were most commonly seen in less than 1 year of age.

KEYWORDS : Medulloblastoma, paediatric biopsy, fibroadenoma, congenital/ developmental disorder.

INTRODUCTION

Children are not merely little adults, and their diseases are not merely variants of adult diseases. Many childhood conditions are unique to, or at least take distinctive forms in, this stage of life.^[1]

Apart from trauma and infections a number of benign and malignant tumors as well as congenital and developmental disorders add to the mortality and morbidity of paediatric population.

Congenital anomalies are anatomic defects that are present at birth. They are the most common cause of mortality in the first year and contribute significantly to morbidity and mortality throughout the early years of life. The common known causes of congenital anomalies can be grouped into three major categories: genetic, environmental, and multifactorial.^[1]

Compared with cancers that occur in adults, childhood cancers are rare, comprising only 1.0% of all cancers in the United States.^[2] However, cancer is the number one cause of disease-related deaths in children.^[3,4]

Cancer in children differs from that in adults. In general, the principal groups of cancer in children are leukemias, lymphomas, and sarcomas.^[5]

Childhood cancers usually are classified by histologic type rather than anatomic site and there may be extensive variation in rates of specific childhood cancers across individual years of age.^[6]

The majority of neoplasms that occur during the first 2 years of life are embryonal, including neuroblastoma, Wilms' tumor, retinoblastoma, primitive neuroectodermal tumors, and rhabdomyosarcoma. As children age the incidence of reticuloendothelial tumors and astrocytomas and gliomas of the brain increase.^[2] Epithelial tumors, which are the predominant neoplasms of adulthood, are extremely uncommon in children.^[7]

For children, the International Classification of Childhood Cancer (ICCC) is used; it is based on the morphology of the

tumors and is composed of 12 main groups.^[8]

MATERIALS AND METHODS

It was a retrospective record based study, performed in the Department of Pathology, RIMS, Ranchi. Study Population included all cases of paediatric biopsy specimens sent for histopathological examination from July 2019 to June 2020 (1 year). Study Procedure involves case reports having patient age, sex, histopathological diagnosis, type of disease and type of organ involved. The epidemiological data of pediatric biopsy specimen and underlying disease were compared and analyzed.

RESULT AND DISCUSSION

Our present study of 47 non-haematological cases belonging to the age group 1 month to 15 years comprised of 19 males and 28 females.



The diagnosed cases can be conveniently classified as benign tumors, malignant tumors, congenital/developmental diseases and others. Out of which benign tumors was most common (62%) followed by malignant (19%) and congenital/developmental diseases (17%).

Table – 1 Classification Of Cases

Type	Cases
Benign	29
Malignant	9
Congenital/developmental	8
Others	1
Total	47

Mean and median age values for all cases were found to be 10 and 11 years respectively. 11-15 years was the most common age group in our study population.

Table – 2 Age-wise Distribution Of Cases

Age (years)	Cases		
	Male	Female	Total
Less than 1	2	2	4
1-5	2	3	5
6-10	7	7	14
11-15	8	16	24
Total	19	28	47

In our study benign breast disease i.e. fibroadenoma was the most common disease in young adolescent female population. Fibroadenoma makes up between one-third and one-half of biopsies for benign breast disease according to Dent DM et al.^[9]

Central nervous system was most common organ system involved in younger age group and morbidities included benign, malignant as well as congenital/developmental anomaly such as medulloblastoma, astrocytoma, craniopharyngoma and meningo-encephalocele. CNS included 7 cases out of 47. Vascular system comprised of 4 cases of hemangioma. Urinary system comprised of 1 case each of Wilm's tumor and urothelial carcinoma.

In our study it was observed that medulloblastoma was the most common malignant disease and low grade astrocytomas was the most common benign CNS neoplasm. Gurney et al. showed that primitive neuroectodermal tumors, primarily medulloblastoma and intracranial neuroblastoma, accounted for 23.9% of CNS tumors in children, also astrocytomas and gliomas accounted for 60.9% of CNS tumors and were second only to acute lymphoid leukemia.^[6]

We also observed that teratoma followed by hemangioma were the most common benign tumors, whereas fibroadenoma breast was the commonest benign disease of young adolescent females (age 13-15 years).

Table – 3 Distribution Of Cases

ORGAN SYSTEM	Cases			
	Benign	Malignant	Congenital/developmental disorder	Total
Breast	8	0	0	8
CNS	3	3	1	7
Gonads	3	2	0	5
GIT	1	0	4	5
Skin	2	2	0	4
Vascular system	4	0	0	4
Urinary system	0	2	0	2
Dental	1	1	1	3
Eye and periorbital area	2	0	0	2
Nose	2	0	0	2
Bone	1	1	0	2
Thyroid	0	0	2	2
Mediastinum	1	0	0	1
Total	28	11	8	47

Table – 4 Case-wise Prevalence

Disease	Cases
Fibrodenoma	7
Teratoma	5
Hemangioma	4
Medulloblastoma	3
Astrocytoma	2
Choledochal cyst	2
Angiofibroma	2
Urothelial carcinoma	2
Thyroglossal cyst	2
Giant cell tumor	1

Osteochondroma	1
Wilm's tumor	1
Phylloids tumor	1
Extrahepatic biliary atresia	1
Vitellointestinal duct	1
Desmoid tumor	1
Soft tissue sarcoma	1
Squamous cell carcinoma	1
Pilomatrixoma	1
Serous cystadenoma ovary	1
Odontogenic tumor	1
Meningoencephalocele	1
Ameloblastoma	1
Neurofibroma	1
Craniopharyngoma	1
Juvenile polyp	1

Teratoma followed by hemangioma were the most common benign tumors.

Most congenital/developmental disorders belonged to GIT and were found mostly in less than 1 year of age.

CONCLUSION:

11-15 years was the most common age group in our study population. Benign tumor was most common disease pathology (62%) followed by malignant (19%) and congenital/developmental diseases (17%).

In our study benign breast disease i.e. fibroadenoma was the most common disease in young adolescent female population.

Central nervous system was most common organ system involved in younger age group. Medulloblastoma was the most common malignant disease. Low grade astrocytomas were found to be most common benign CNS neoplasm.

Teratoma followed by hemangioma were the most common benign tumors.

Most congenital/developmental disorders belonged to GIT and were found mostly in less than 1 year of age.

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