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MODE OF PRESENTATION AND SURGICAL OUTCOME OF RETROPERITONEAL TUMORS IN CHILDREN

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Abstract:
Objectives: *To collect data, mode of presentation and surgical outcomes of different types of retroperitoneal tumors in children.*
Design: *A prospective study.*
Place and Period: *In the Surgical Department of Bahawal Victoria Hospital (BVH), Bahawalpur for two year duration from April 2015 to April 2017.*
Materials and methods: *A total of 30 retroperitoneal tumor patients were taken for two years. Only five types of retroperitoneal tumors were included in this study (Wilms' tumors, neuroblastoma, non-Hodgkin's lymphoma, teratoma and rhabdomyosarcoma).*
Results: *The majority of patients with retroperitoneal tumors were less than 5 years of age, especially in the first year of life. Men were dominant. Loss of appetite, weight loss and Massive abdomen were the main modes of presentation. The most common tumor was a neuroblastoma. Emergency postoperative course was uneventful.*
Conclusion: *We found that retroperitoneal tumors usually occur in the first 5 years of age. Multimodal treatment and early diagnosis improves prognosis.*
Keywords: *Statistics, Prevalence, retroperitoneal tumors.*

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INTRODUCTION:

In the United States, childhood cancer is the major cause of mortality in children aged 1 to 16 years. In children the most of the cancers are malignant solid tumors and approximately 4000 new cases are detected every year. Retroperitoneal tumors are a common and major issue in children and infants. Although they are pathologically separated, their clinical signs and symptoms are so same that they can be examined as a one group. Teratoma of another origin and retroperitoneal neoplasms is statistically not very important and will be reported separately. All the issues discussed in this document have appeared in the retroperitoneal area extending from the twelfth rib and from the diaphragm to the edge of the pelvis. It does not include mesenteric, lymphatic, intestinal, ureteral tumors and pancreatic. From embryonic tissues, Childhood neoplasms arise but not from epithelial structures.

MATERIALS AND METHODS:

This prospective study was held in the Surgical Department of Bahawal Victoria Hospital, Bahawalpur for two year duration from April 2015 to April 2017. Only five types of retroperitoneal tumors (Wilms tumor, teratoma, neuroblastoma, non-Hodgkin's lymphoma and rhabdomyosarcoma) were selected for the study. Previous tests, physical examination, full abdominal ultrasound, I.V.U., alpha-fetoprotein and studies to determine diagnostic blood levels of different types of retroperitoneal tumors were performed on the basis of 24-hour urine VMA. Each patient was operated with retroperitoneal tumors; histopathology and staging of liver screening bone, bone marrow cytology, report screening, tissue diagnosis, chest radiographs were performed with the help of investigations as preoperative and histopathological findings. All patients were operated with the diagnosis of retroperitoneal tumors. The abdomen was explored with a transverse incision on one or the left extending to the right depending on the tumor width. In 27 cases, complete excision of the tumor was performed, but only biopsy was due to disrespect to large size and local infiltration.

RESULTS:

The majority of patients with retroperitoneal tumors were less than 5 years of age, especially in the first 12 months (Table I).

Table 1: Age distribution

Category	No. of Patients (%age)
<30 days	01(03.33%)
Upto 1 year	12(40.00%)
2-5 years	15(50.00%)
6-10 years	02(06.66%)
> 10 days	Nil

The gender frequency showed male dominance (table 2).

Table 2: Age/Sex Distribution according to types of tumours

Type of Tumour	Mean Age	M : F
Wilms' Tumour	3 Years	3:2
Neuroblastoma	3.5 Years	5:3
Retroperitoneal Teratoma	1 Year	3:2
Rhabdomyosarcoma	4 Months	0:1
Non Hodgkin's Lymphoma	5 Years	1: 0

Most of the patients had weight loss and abdominal mass (Table 3).

Table 3: Mode of presentation

Category	=n	%age
Mass Abdomen	25	83.33
Abdominal distension	20	66.66
Weight loss	20	66.66
Anorexia	15	50.00
Pain	7	23.33
Constipation	6	20.00
Vomiting	3	10.00
Frequency of urine	3	10.00
Retention of urine	2	6.66
Haematuria	2	6.66
Bleeding per rectum	2	6.66
Neurological deficit	1	3.33

In majority of cases, the size of the mass was above 10 cm. 15 cases had renal mass, 8 cases had adrenal, 5 cases had teratoma, 1 patient had lymphoid mass and Rhabdomyosarcoma (Table 4).

Table 4: Histopathology

Category	=n	%age
Wilms' Tumour	15	50.00
Neuroblastoma	8	26.67
Retroperitoneal teratoma	5	16.67
Rhabdomyosarcoma	1	3.33
Non Hodgkin's lymphoma	1	3.33

The most common tumor was Wilms, after that neuroblastoma (table 4). Emergency postoperative course was uneventful.

Table 5: Most common mode of presentation according to types of tumours

Type of tumour	Most common mode of presentation
Wilms' Tumour	Abdominal Mass
Neuroblastoma	Abdominal Mass
Retroperitoneal teratoma	Abdominal Mass
Rhabdomyosarcoma	Urinary retention & constipation
Non Hodgkin's lymphoma	Abdominal Mass

All patients with tumor were sent to pediatric oncology for further treatment and evaluation. Late postoperative complications in one case included obstruction due to adhesions, recurrence in two cases, and in one case pleural effusion occurs (Table 6).

Table 6: Complications

Category	=n	%age
Recurrence/Metastasis	2	6.67
Adhesion obstruction	1	3.33
Pleural effusion	1	3.33
Hemorrhage	0	0
Wound dehiscence	0	0
Burst abdomen	0	0

DISCUSSION:

In our studies, most of the retroperitoneal tumors (93.33%) occur in the first 5 years of life. According to one other study, most of the malignant abdominal tumors (60.3%) occur in 5 years of age. In our study, 5 types of retroperitoneal tumors were included only (Wilm's tumor, retroperitoneal teratoma, neuroblastoma, non-Hodgkin's lymphoma and

rhabdomyosarcoma). Therefore, only retroperitoneal tumors prevalence is described. In our study, the average age at the time of diagnosis of Wilm tumor was three years. In another study, the median age of the Wilms tumor was defined as 2.5 years. In another study, the average age (3.6 years) of the Wilm's tumor was reflected. The mean age of our neuroblastoma cases was 3.5 years. Neuroblastoma cases with median age 2 years after diagnosis were reported. In the first year of life the most common malignancy is Neuroblastoma. We obtained 5 cases of retroperitoneal teratoma with one year average age. Retroperitoneal teratoma of 16 patients between 2 days and 13 years has been described in the literature. A four-month-old girl presented retroperitoneal rhabdomyosarcoma. In our study, with non-Hodgkin's lymphoma a 5-year-old male patient was also reported. The average age of non-Hodgkin lymphoma was 8 and 9 years in 2 studies, respectively. 15 patients with Wilm,s tumor the ratio of men and women was 4: 3. In one study, the male-female relationship for Wilm's tumor was 7: 112. In another study, for Wilm's tumor, almost equal sex distribution has been described. In our study, the ratio of men and women to neuroblastoma was 4: 3. The ratio of 7/6 male to female for neuroblastoma is described in the literature. 5 patients with retroperitoneal teratoma were compared with 3: 2 men (Table 2). In one study, women identified 9 males: the majority of patients (84.10%), anorexia (50%) and weight loss (60%). In our extensive presentation series, the mass was intact. It has been reported that Wilm's tumor is usually seen as an asymptomatic abdominal mass. Neuroblastoma usually occurs mass in abdomen in young children. Retroperitoneal teratomas with abdominal distention and palpable abdominal mass have been reported. Retroperitoneal teratoma may rarely occur with hypertension. In one study, the abdomen was defined as the most common site of non-Hodgkin lymphoma. In our study, one case of rhabdomyosarcoma was presented with constipation and urinary retention. The signs and symptoms of rhabdomyosarcoma differ according to the clinical stage and primary site. In our study, the most common tumor was Wilm's tumor (51%), than neuroblastoma (27.07%). This series was also observed in other studies. In this study an important observation was the early presentation. In another study, Wilm's tumor is the most common malignancy in the genitourinary system. In this series, excision (90%) and then combination therapy (80%) are the preferred methods for the treatment of retroperitoneal tumors comparable to other studies. Different types of treatment are recommended according to the type and stage of retroperitoneal tumors. Chemotherapy/radiotherapy with appropriate surgical models for primary nephrectomy followed by Wilm's tumor. The current recommendation for the treatment of neuroblastoma involves complete resection of the tumor at the time of diagnosis or after induction of chemotherapy. For most retroperitoneal teratomas curative treatment is surgical intervention. Rhabdomyosarcoma effective treatment requires a combination of chemotherapy, irradiation and surgery. In our study, a single case of non-Hodgkin lymphoma was detected by biopsy and laparotomy. The mainstay of non-Hodgkin lymphoma treatment is chemotherapy. Approximately 70% of patients are treated with an effective combination of chemotherapy and supportive care.

CONCLUSION:

Retroperitoneal tumors are common in the first five years of life, especially in the first year of life, with an almost equal distribution by sex. Major complaints about weight loss of large abdomen, anorexia and retroperitoneal tumors. The masses of the left sides are more common. A great help for tumor markers in the diagnosis of retroperitoneal tumors (40%). Ultrasound and intravenous urography (80%) are useful in the diagnosis of retroperitoneal tumors. Wilm's tumor is the most common retroperitoneal tumor (50%) followed by a neuroblastoma. Chemotherapy and radiotherapy and surgical treatment (90%) are the preferred methods for most of the retroperitoneal tumors. Early diagnosis and multimodal treatment improves prognosis. The overall morbidity after surgical treatment of retroperitoneal tumors was 13%.

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