ORIGINAL ARTICLE

Retroperitoneal Tumours in Children - Experience at Mayo Hospital, Lahore

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ABSTRACT

Aims: To collect the data, mode of presentation and surgical outcome of various types of Retroperitoneal Tumours in Children.
Design: Prospective study.
Period: Two years (July, 1996 to Jul, 1998).
Setting: Paediatric Surgery Department, Mayo Hospital Lahore.
Materials and methods: During two years period total 30 patients of retroperitoneal tumours were admitted. Only five types of retroperitoneal tumours (wilm's tumours, neuroblastoma, teratoma, rhabdomyosarcoma and non-hodgkin lymphoma) were included in this study.
Results: Most of patients with retroperitoneal tumours presented under five years of age, particularly within first year of life. Males were predominant. Mass abdomen, anorexia and weight loss were the major mode of presentation. Most common tumour was wilms followed by neurobliastoma. Immediate post operative course was uneventful.
Conclusion: We conclude that Retroperitoneal Tumours present commonly first five years of life. Early diagnosis and multimodality treatment improves prognosis.
Key words: Retroperitoneal tumours, prevalence, statistics

INTRODUCTION

Childhood cancer in the United States is the leading cause of death in children of 1 to 15 year's age1. Majority of cancers in children are malignant solid tumours and about 4000 new cases are diagnosed each year[2]. We are presenting prospective study of retroperitoneal tumours (five tumours included in study) carried out during two years at Department of Paed. Surgery, Mayo Hospital, Lahore.

MATERIAL & METHODS

During July, 1996 to Jul, 1998 in Paediatric Surgery Department, Mayo Hospital Lahore, total 30 patients of retroperitoneal tumours were admitted. Only five types of retroperitoneal tumours (Wilm's tumours, neuroblastoma, teratoma, rhabdomyosarcoma and non-hodgkin lymphoma) were included in this study.

Diagnosis of various types of retroperitoneal tumours was made on the basis of history, thorough physical examination and investigations like ultrasound abdomen, I.V.U., 24 hours urine for VMA and alpha-fetoproteins levels in blood. Every patient was operated and tissue diagnosis was made by histopathology and staging of retroperitoneal tumours was done with the help of investigations like radiograph chest PA view, liver scan, bone scan, bone marrow cytology, pre-operative findings and histopathology reports.

After the diagnosis of retroperitoneal tumours, all patients were operated. Abdomen was explored through supra umbilical transverse incision, extending towards right or left depending upon the extent of tumour. In 27 cases, completion excision of tumour was done, while in three cases only biopsy was taken because of irrespectability due to huge size and local infiltration.

RESULTS

Most of patients with retroperitoneal tumours presented under five years of age, particularly within first year of life (Table I). Sex incidence revealed male predominance (Table 2). Majority of patients presented with mass abdomen anorexia and weight loss (Table 3). In most cases size of mass was more than 10cm.

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

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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

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

Renal mass was present in 15 cases, adrenal in 8 cases, teratoma in 5 cases while lymphoid and sarcomatous mass in one case each (Table 4). Most common tumour was Wilms followed by Neuroblastoma (Table 4). Immediate post-operative course was uneventful. All patients were referred to paediatric oncology for further management. Late post-operative complications included adhesion obstruction in one case, recurrences in two cases and pleural effusion in one case (Table 6).

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

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

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 series majority (93.33%) of retroperitoneal tumours occurred in first five years of life (Table 1)[1]. According to another study majority (60.3%) of malignant abdominal tumours occur under five years of life[3]. Our study includes only five types of retroperitoneal tumours (Wilm's tumour, Neuroblastoma, Retroperitoneal teratoma, Rhabdomyosarcoma and Non Hodgkin's lymphoma). Therefore, prevalence of only these retroperitoneal tumours is described.

In our study, mean age of Wilm's tumour at diagnosis was 3 years (Table 2). In another study median age of Wilms' tumour had been described 2.5 years[4]. Another study reflects mean age (3.5 years) for Wilm's tumour[7]. Mean age for our cases of neuroblastoma was 3.5 years (Table 2). Cases of neuroblastoma had been reported with median age at diagnosis 2 years[5]. Neuroblastoma had also been described as most common malignancy in first year of life[6]. We received 5 cases of retroperitoneal teratoma with mean age of one year (Table 2). A series of 15 cases of retroperitoneal teratoma had been described in literature with age ranging from 2 days to 13 years[7].

A girl of 4 months age presented with retroperitoneal rhabdomyosarcoma. A boy of 5 years age with Non Hodgkin's lymphoma also reflected in the present study (Table 2). Mean age of Non Hodgkin's' lymphoma has been described 9 years and 8 years respectively in two different studies[8].

Out of 15 patients, male to female ratio for Wilm's tumour was 3:2 (Table 2). In one study male to female ratio for Wilm's tumour is reported 8:104. In another study almost equal sex distribution had been described for Wilm's tumour[9]. In our study male to female ratio for neuroblastoma was 5:3 (Table 2). Male to female ratio of 6:5 for neuroblastoma has been described in literature[10]. We received five cases of retroperitoneal teratomas with male to female ratio 3:2 (Table 2). In one study, male to female ratio of 9:8 has been described[7].

Majority of our patients presented with mass abdomen (83.33%), with weight loss (60%) and anorexia (50%) (Table 3). Most common mode of presentation in Wilms' tumour (Neuroblastoma, Teratoma and Non Hodgkin's lymphoma) was mass abdomen in our series (Table 4). It had been reported that Wilm's tumour generally presents as asymptomatic abdominal mass[11]. Neuroblastoma typically appears as abdominal mass in young children[5]. Retroperitoneal teratomas are reported with chief complaints as palpable abdominal mass and abdominal distension[7]. Rarely retroperitoneal teratoma may present with hypertension[12]. Abdomen as the more common site of Non Hodgkin's lymphoma had been described in one study[8]. In our series the only single case of rhabdomyosarcoma presented with urinary retention and constipation (Table 6). Symptoms and signs of rhabdomyosarcoma vary according to primary site and the clinical stage[13].

The most common tumour in our study was Wilm's tumour (50%) followed by neuroblastoma (26.67%) (Table 4). This order is also seen in other studies[14]. An important observation made in this study was early presentation. In another study, Wilm's tumour is the most common malignancy of genitourinary tract[15].

In the present series, complete excision (90%) followed by combined method of therapy (80%), are methods of choice in treatment of retroperitoneal tumours, which is comparable with another study[16]. Different types of treatments are recommended according to type and stage of retroperitoneal tumours. For Wilm's tumour, primary nephrectomy with appropriate operative guidelines and followed by chemotherapy/radiotherapy[17]. Current recommendation for treatment of neuroblastoma includes complete tumour resection either at the time of diagnosis or after induction of chemotherapy[18]. Surgical treatment is curative for majority of cases of retroperitoneal teratoma[19]. Effective treatment of rhabdomyosarcoma requires a combination of surgery, chemotherapy and irradiation[2]. In our study, the only one case of Non Hodgkin's lymphoma was diagnosed on laparotomy and biopsy. Main stay of treatment of Non Hodgkin's lymphoma is chemotherapy. With effective combination chemotherapy and supportive care approximately 70% of patients are now cured.

In literature, role for complete operative excision of localized lymphomas especially when accomplished with bowel resection has been supported[19]. Aggressive attempts at debulking extensive retroperitoneal Non Hodgkin's lymphoma are contra indicated[19].

In our series immediate post operative course was uneventful. While late complications noted were adhesion obstruction (3.33%), pleural effusion (3.33%) and recurrence/ metastasis (6.67%) (Table 6). This indicates that morbidity is not high after surgical treatment.

CONCLUSION

Retroperitoneal tumours present commonly in first five years of life, particularly within first year of life, with almost equal sex distribution. Mass abdomen, anorexia and weight losses are chief complaints of retroperitoneal tumours. Left sides masses are more common. Tumour markers are of significant (40%) help in the diagnosis of retroperitoneal tumours. Ultrasonography and intravenous urography (80%) are useful investigations to diagnose retroperitoneal tumours. Wilm's tumour is commonest (50%) retroperitoneal tumour followed by neuroblastoma. Surgical treatment (90%) followed by chemotherapy and radiotherapy are the methods of choice for treatment in most of the retroperitoneal tumours. Early diagnosis and multimodality treatment improves prognosis. The overall morbidity was (13%) after surgical treatment of retroperitoneal tumours.

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