

**Original Article**

## A Study of Intra Abdominal Masses in Pediatric Age Group (Hepatosplenomegaly Secondary to Portal Hypertension Excluded)

Authors

**Dr Virendra S. Athavale<sup>1</sup>, Dr Trupti Tonape<sup>2</sup>, Dr Prachi Bhide Athavale<sup>3</sup>, Dr Gaurav Batra<sup>4</sup>, Dr. Ishant Rege<sup>5</sup>, Dr Pooja Batra<sup>6</sup>**

<sup>1</sup>Professor, Department of General Surgery, Dr. D. Y. Patil Medical College, Hospital and Research Centre, Pimpri, Pune 411018

<sup>2</sup>Professor, Department of General Surgery, Dr. D. Y. Patil Medical College, Hospital and Research Centre, Pimpri, Pune 411018

Email: [truptitonape@gmail.com](mailto:truptitonape@gmail.com), Mobile no. – 9822533630

<sup>3</sup>Resident, Department of Microbiology, Dr. D. Y. Patil Medical College, Hospital and Research Centre, Pimpri, Pune 411018

Email: [pvathavale@gmail.com](mailto:pvathavale@gmail.com), Mobile no. - 9921210681

<sup>4</sup>Chief Resident, Department of General Surgery, Dr. D. Y. Patil Medical College, Hospital and Research Centre, Pimpri, Pune 411018

Email: [dr.gauravbatra@gmail.com](mailto:dr.gauravbatra@gmail.com), Mobile no.- 9960999360

<sup>5</sup>Chief Resident, Department of General Surgery, Dr. D. Y. Patil Medical College, Hospital and Research Centre, Pimpri, Pune 411018

Email: [micks.ishant@gmail.com](mailto:micks.ishant@gmail.com), Mobile no.- 09881130004

<sup>6</sup>Intern, Department of General Surgery, Dr. D. Y. Patil Medical College, Hospital and Research Centre, Pimpri, Pune 411018

Email: [poojabatra1992@gmail.com](mailto:poojabatra1992@gmail.com), Mobile no.- 9503659363

Corresponding Author

**Virendra S. Athavale**

Professor, Department of General Surgery, Dr. D. Y. Patil Medical College, Hospital and Research Centre, Pimpri, Pune 411018

Email: [vsathavale@gmail.com](mailto:vsathavale@gmail.com), mobile no.- 9975425931, 9370261265

**ABSTRACT**

**Aims and Objectives:** *To study incidence of various intra abdominal masses in pediatric age group, their age and gender incidence, clinical presentation, incidence and types of intraperitoneal and retroperitoneal abdominal masses, incidence of malignancy, urological and non-urological masses, anatomical origin and management in pediatric age group.*

**Methods:** *A prospective observational study was conducted on 30 patients of 0-12 years age groups who presented with intra abdominal mass at Dr.D.Y. Patil Medical College, Hospital and Research Centre, Pune over a period of 2 years. Cases of hepatosplenomegaly, including those caused by portal hypertension, were excluded from the study.*

**Results and Conclusion:** *In our study of Intra abdominal masses, excluding hepatosplenomegaly, in*

*pediatric age group maximum age incidence was between 1 month to 1 year, equal gender distribution, majority being benign and non-urological origin. Intussusception was the commonest intra abdominal mass. Wilms tumor and Hydronephrosis were the commonest masses found of urological origin. Operative intervention was the best mode of management in majority of abdominal masses.*

**Keywords:** *intra abdominal masses, pediatric age group.*

## INTRODUCTION

The abdomen is rightly known as "Pandora's Box" and as long as its lid remains unopened, nobody knows what lies inside it. The discovery of an abdominal mass in a child usually presents as a challenging problem in diagnosis and management both to the pediatrician and surgeon. Knowledge of differential diagnosis of intra abdominal masses is very essential for accurate diagnosis, evaluation and treatment.

## AIMS AND OBJECTIVES

1. To study incidence of various types of intra abdominal masses in pediatric age group
2. To assess age and gender incidence and clinical presentation of various intra abdominal masses in pediatric age group
3. To assess incidence and types of intraperitoneal and retroperitoneal abdominal mass in pediatric age group
4. To assess incidence of benign and malignant intra abdominal masses in pediatric age group
5. To assess incidence of Urological and Non-Urological intra abdominal masses in pediatric age group
6. To assess anatomical origin of various intra abdominal masses in pediatric age group
7. To assess various therapeutic measures in management of intra abdominal masses in pediatric age group

## MATERIALS AND METHODS

A prospective observational study was conducted on 30 patients of 0-12 years age groups who presented with intra abdominal mass over a period of 2 years. Cases of hepatosplenomegaly,

including those caused by portal hypertension, were excluded from the study.

## DISCUSSION

The differential diagnosis of pediatric intra-abdominal masses is broad and is based on age, location, and structure of the lesion.

### 1] Incidence of Various Types of Intra Abdominal Masses In Pediatric Age Group

In our study, majority of the cases of intra abdominal mass were due to intussusception (26.6%) followed by Wilm's tumour and Hydronephrosis. (Table no. 1)

Similar findings were observed by Mandeville K et al in the study "Intussusception clinical characteristics and imaging characteristics" in 2012 in which intussusception was one of the major causes of intra abdominal masses in children. <sup>(1)</sup>

### 2] Age and Gender Incidence and Clinical Presentation of Various Intra Abdominal Masses in Pediatric Age Group

In our study, majority of the cases were in the age group 1 month to 1 year, followed by 3 years to 7 years with male to female ratio of 1:1 (Table no 2) Similar findings were observed by Hanif G et al in the study "Intra abdominal tumors in children" in 2004 in which majority of the cases were in the age group below 5 years with male to female ratio of 1.1 : 0.9. <sup>(2)</sup>

In our study, majority of the cases presented as pain in abdomen followed by lump in abdomen. (Table no. 2)

Similar findings were observed by Cuschieri A et al in the study "Disorders of abdominal wall and peritoneal cavity" in 2002 in which majority of the cases presented with pain and lump in abdomen.

### 3] Incidence and Types of Intraperitoneal and Retroperitoneal Abdominal Mass in Pediatric Age Group

In our study, ratio of intraperitoneal and retroperitoneal abdominal mass in pediatric age group was 1:1. Majority of the intra peritoneal mass were due to intussusception. Majority of the retro peritoneal mass were due to Wilm's tumor. (Table no. 3)

Similar findings were observed in the study " Acute intussusception in infants and children. Incidence, clinical presentation and management: a global perspective" in which intussusception was the major cause of intra peritoneal abdominal mass. <sup>(4)</sup>

Similar findings were observed by Ritchey ML et al in the study "Neonatal Wilm's tumor" in which Wilm's tumor was the major cause of retro peritoneal abdominal mass. <sup>(5)</sup>

### 4] Incidence of Benign and Malignant Intra Abdominal Masses in Pediatric Age Group

In our study, majority (66.6%) of intra abdominal mass cases were benign and the remaining (33.3%) were malignant. (Table no. 4)

Similar findings were observed in the study " Malignant abdominal masses in children: quick guide to evaluation and diagnosis" by Golden CB et al in 2002 in which majority (72%) of the intra abdominal masses were benign. <sup>(6)</sup>

5] Incidence of Urological and Non Urological Intra Abdominal Masses in Pediatric Age Group  
In our study, majority (66.6%) of intra abdominal mass were due to non-urological causes. (Table no. 5)

Similar findings were observed in the study " Investigation of abdominal masses" by AC Mbamali et al in 2002 in which majority (74%) of intra abdominal mass were due to non-urological causes. <sup>(7)</sup>

### 6] Anatomical Origin of Various Intra Abdominal Masses In Pediatric Age Group

In our study, majority (36.6%) of the intra abdominal masses were arising from gastrointestinal system, followed by genitourinary system. (Table no. 6)

Similar findings were observed by Armand E. Brodeur et al in the study "Abdominal masses in Children: Neuroblastoma, Wilms tumor and other considerations" in which majority of intra abdominal masses were arising from gastrointestinal system.

### 7] Therapeutic Measures in Management of Intra Abdominal Masses In Pediatric Age Group

In our study, majority (73.6%) of the cases were managed by surgery alone, followed by surgery and chemotherapy combined, chemotherapy alone and hydrotherapy. (Table no. 7)

**TABLE 1:** Incidence of Various Types of Intra Abdominal Masses in Pediatric Age Group

Sr.No.	Type Of Lesion	No. of Cases	Percentage (%)
01	Wilm's Tumour	4	13.33 %
02	Hydronephrosis	4	13.33%
03	Retroperitoneal Teratomas	2	6.66%
04	Mesenteric Cysts	3	10%
05	Infantile Pyloric Stenosis	2	6.66%
06	Intussusception	8	26.66%
07	Neuroblastoma	2	6.66%
08	Retroperitoneal Lymphangioma	1	3.33%
09	Tb Abdomen	1	3.33%
10	Lymphoma	1	3.33%
11	Pyonephrosis	2	6.66%
	Total	30	100%

**TABLE 2:** Age and Gender Incidence and Clinical Presentation of Various Intra Abdominal Masses in Pediatric Age Group

Sr. No.	Age	No. of Cases	Percentage (%)
01	0 - 1 Month	03	10%
02	1 Month - 1 Year	10	33.33%
03	1 Year - 3 Year	04	13.33%
04	3 Year - 7 Year	08	26.66%
05	7 Year - 12 Year	05	16.66%
	Total	30	100%

Sr. No.	Gender	No. Of Cases	Percentage (%)
01	Male	15	50%
02	Female	15	50%
	Total	30	100%

Sr. No.	Clinical Presentation	No. Of Cases	Percentage (%)
01	Abdominal Distention	15	50%
02	Lump In Abdomen	19	63.33%
03	Pain In Abdomen	21	70%
04	Vomiting	12	40%
05	Fever	13	43.33%
06	Constipation	05	16.66%

**TABLE 3:** Incidence and Types of Intraperitoneal and Retroperitoneal Abdominal Mass in Pediatric Age Group

Sr. No.	Type Of Lesions	No. Of Cases	Percentage (%)
01	Intraperitoneal	15	50 %
02	Retroperitoneal	15	50 %
	Total	30	100 %

Sr. No.	Types Of Intraperitoneal Masses	No. Of Cases	Percentage
01	Intussusception	08	26.66 %
02	Mesenteric Cysts	03	10.00 %
03	Lymphoma	01	3.33 %
04	Tb Abdomen	01	3.33 %
05	Infantile Hypertrophic Pyloric Stenosis (Ihps)	02	6.66 %
	Total	15	50 %

Sr. No.	Types Of Retroperitoneal Masses	No. Of Cases	Percentage
01	Wilm's Tumour	04	13.33 %
02	Hydronephrosis	04	13.33 %
03	Neuroblastoma	02	6.66 %
04	Teratoma	02	6.66 %
05	Pyonephrosis	02	6.66 %
06	Lymphangioma	01	3.33 %
	Total	15	50 %

**TABLE 4:** Incidence of Benign and Malignant Intra Abdominal Masses in Pediatric Age Group

Sr. No.	Type Of Lesion	No. Of Cases	Percentage
01	Benign	20	66.66 %
02	Malignant	10	33.33 %
	Total	30	100 %

**TABLE 5:** Incidence of Urological and Non Urological Intra Abdominal Masses in Pediatric Age Group

Sr. No.	System Involved	No. Of Cases	Percentage
01	Urological	10	33.33 %
02	Non Urological	20	66.66 %
	Total	30	100 %

**TABLE 6 :** Anatomical Origin of Various Intra Abdominal Masses in Pediatric Age Group

Sr. No	Anatomical Origin	Malignant Lump	Non Malignant Lump	Total	Percentage
01	Gastrointestinal System	01	10	11	36.66 %
02	Genitourinary	04	06	10	33.33 %
03	Others (Lymphoid Tissue, Neuroblastoma)	05	04	09	30.00 %
	Total	10	20	30	100 %

**TABLE 7 :** Therapeutic Measures In Management Of Intra Abdominal Masses In Pediatric Age Group

Sr. No.	Management	No. Of Cases	Percentage
01	Medical Line of Treatment	01	3.33 %
02	Surgery Only	22	73.66 %
03	Surgery and Chemotherapy	02	6.66 %
04	Chemotherapy	02	6.66 %
05	Hydrotherapy	02	6.66 %
06	Usg Guided Catheterisation	01	3.33 %
	Total	30	100 %

**CONCLUSION**

In our study of Intra abdominal masses, excluding hepatosplenomegaly, in pediatric age group

- 1) Maximum age incidence was between 1 month to 1 year.
- 2) Males and females were equally affected.
- 3) Masses arise in equal proportion from intra as well as retro peritoneum
- 4) 2/3 rd of the intra abdominal masses were benign.
- 5) 2/3 rd of the intra abdominal masses had non-urological origin.
- 6) Intussusception was the commonest intra abdominal mass in the pediatric age group.
- 7) Wilms tumor and Hydronephrosis were the commonest masses found in urological origin.

8) Abdominal pain and lump were the commonest clinical presentation in pediatric age group.

9) Operative intervention was the best mode of management in majority of abdominal masses.

**LIMITATIONS OF THE STUDY**

However, our series is small and the paucity of literature in this field of comparing and evaluating various intra abdominal masses in pediatric age group refrains us from making any dogmatic conclusions.

Hence a further detail study in this regard is suggested to arrive at more concrete conclusions.

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