

## Original Research Article

# A study of clinical analysis and management of Inguinoscrotal swelling in paediatric age group

Mukesh Suvera\*, Pranay Chaudhari, Shreyakumari Patel

Department of General Surgery, Smt. SCL Hospital and Smt. NHL Medical College, Ahmedabad, Gujarat, India

**Received:** 05 July 2021

**Revised:** 30 September 2021

**Accepted:** 04 October 2021

### \*Correspondence:

Dr. Mukesh Suvera,

E-mail: [drmukeshsuvera@gmail.com](mailto:drmukeshsuvera@gmail.com)

**Copyright:** © the author(s), publisher and licensee Medip Academy. This is an open-access article distributed under the terms of the Creative Commons Attribution Non-Commercial License, which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

## ABSTRACT

**Background:** Inguinoscrotal swellings are one of the commonest congenital problems in infancy and childhood. Delay in diagnosis and treatment leads to loss of testis, ovaries or portion of bowel to incarceration or strangulation. This study was undertaken for clinical evaluation of age, sex, sidewise distribution management and management of complications.

**Methods:** Retrospective observational study done from April 2011 to March 2019. Children with age from 1 month to 12 years presenting with inguinoscrotal swelling

**Results:** In Total 174 children had inguinoscrotal swelling which include 155 (89%) male children and 19 (11%) female children. Most of the patients presented in 2 to 5 years (41%) age group out of 114 case of inguinal hernia include 63 on right, 47 on left and 4 bilateral and 60 case of hydrocele 48 on right, 10 on left and 2 bilateral. Out of 174 children 16 were discharge on same day of surgery. Out of 174 children 1 patient had taken as emergency operation due to irreducible hernia.

**Conclusions:** Inguinal hernia and hydrocele in children remain one of the most common congenital problems observed by surgeons. The childhood inguinoscrotal swellings are generally more predominant on the right side and this has been attributed to the delay in descent of the right testis. Regarding the sex prevalence, males are more commonly affected. Inguinal herniotomy in children is a safe and effective operation done as day care procedure.

**Keywords:** Inguinoscrotal swelling, Inguinal hernia, Hydrocele, Clinical analysis

## INTRODUCTION

Inguinoscrotal swellings in children are frequently encountered in the surgical practice. Most of these swellings are congenital and they have an asymptomatic presentation. Hernia is a Latin term meaning rupture of a portion of a structure. Inguinoscrotal swelling can be defined as a “protrusion of a viscus or part of a viscus through a normal or an abnormal opening in the wall of its containing cavity.”<sup>1</sup> As a result of improved neonatal medical care, more premature babies are being delivered and result in incidence of neonatal inguinal hernia and hydrocele is increased. All pediatric inguinal hernias

require operative treatment to prevent the development of complications, such as inguinal hernia incarceration or strangulation. They are related to the descent of the testes and the processus vaginalis.<sup>2</sup> The abnormalities in the descent result in ectopic or undescended testes. The undescended testis, which is found in more than 90% of the cases, is associated with congenital inguinal hernias.<sup>3</sup> Inguinal and scrotal swellings in children form a majority of the surgical conditions which require treatment. Inguinal hernia repair is the most frequently performed operation in the paediatric age group. Most often the herniae are asymptomatic, which are detected during the first few years of life and at birth in premature babies.

Routine hernia repairs are performed on a day care basis. The sensitivity and the specificity of ultrasonography in detecting a potential congenital inguinal hernia or patent processus vaginalis in the contralateral side was 87.1% and 98.6% respectively. Now a day laparoscopic hernia repair new advance technique is rising in infants and children.<sup>3</sup>

**Aims and objectives**

This study was undertaken for clinical evaluation of age, sex, sidewise distribution, management and management of complications like incarceration, strangulation and gonadal infarction

**METHODS**

**Study type**

The study is a Retrospective observational hospital based study in the department of surgery, Smt. SCL hospital under Smt. NHL municipal medical college, Ahmedabad, during the period from April 2011 to March 2019 taking approval from ethical committee.

**Inclusion criteria**

All children age ranged from 1 month to 12 years with inguinal scrotal swelling were included in the study.

**Exclusion criteria**

Exclusion criteria for current study were age >12 years of age, All children age ranged from 1 month to 12 years without inguinal scrotal swelling,

**Procedure and sampling technique**

Sex and congenital anomalies give as quantitative variables. Variable is a characteristic that varies from one individual member of population to another individual. Random sampling technique was employed and patient present with inguinal scrotal swelling were selected.

**Statistical method and tools**

Data of site, size, variability of size, history of non-reducibility or any underlying straining for micturition or presence or absence of testis in scrotal sac, were collected in number and in percentage calculated

**Material data**

Inguinoscrotal swellings were diagnosed by taking detailed history from parents in the form of site, size, variability of size, history of non-reducibility or any underlying straining for micturition or presence or absence of testis in scrotal sac, were collected in a prescribed proforma which contains history, clinical examination, investigation, management and other

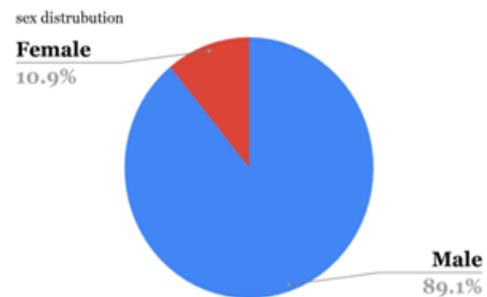
associated congenital anomalies like undescended testis data taken from case paper. Children's routine investigations like Hb%, BT, CT and USG data taken from case paper. After proper evaluation of preoperative condition and appropriate preparation, surgery is considered. Surgery is decided by age. Operative technique is selected where in herniotomy done after opening the external oblique aponeurosis and in orchiopexy testis located in the inguinal pouch, under suitable anesthesia as decided by anesthesiologist. After the surgery, children were nursed in post operative ward with one dose of IV antibiotics. Post operative complications were being taken care off. Observed for 6 hours and finally decided to discharge once patient is fit for discharge on the same day otherwise they discharge on next day.

**RESULTS**

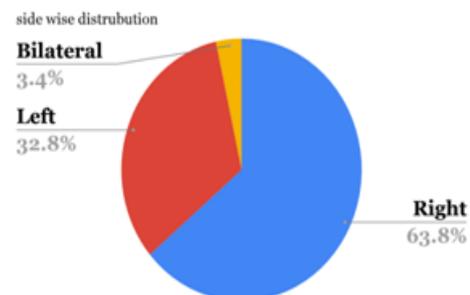
In the present study following observation were made. Total 174 children had inguinalscrotal swelling which include 155 (89%) male children and 19 (11%) female the age of the patients ranged from 1 month to 12 year.

**Table 1: Age distribution.**

Age (in year)	Male	Female	Total N (%)
1 month to 2 year	15	2	17 (9.7)
2-5	63	10	73 (41.9)
5-9	52	4	56 (32.1)
9-12	25	3	28 (16)
<b>Total N (%)</b>	<b>155 (89)</b>	<b>19 (11)</b>	<b>174</b>



**Figure 1: Gender based distribution.**



**Figure 2: Side distribution of inguinalscrotal swelling.**

**Table 2: Distribution of patients on the basis of type and location of hernia.**

Right	left			Bilateral			Total N (%)			
	Male	Female	Total	Male	Female	Total	Male	Female	Total	
Indirect hernia	57	6	63	38	9	47	-	4	4	114 (65.5)
Hydrocele	48	0	48	10	0	10	2	0	2	60 (34.5)
<b>Total</b>	111 (63.8%)			57 (32.8%)			6 (3.4%)			174

**Table 3: Showing direct and indirect associated condition like.**

Right	left	Bilateral	Total	
Undescended testis with indirect hernia	3	0	0	3
Hypospadias	-	-	-	1

They were divided into 4 groups, each with age of 1 month to 2 year-17 children, 2 to 5 year-73 children, 5 to 9 year-56 children and 9 to 12 year-28 children. The maximum numbers of cases were in the age group of 2-5 year=73 which is 41.9% of total patient and the minimum number was in the age group 1 month to 2 year=17 which is 9.7% of total patient seen. Out of 174 children 111 had right, 57 had left and 6 had bilateral inguinoscrotal swelling. On the right side out of 111 children which include 105 male and only 6 female. On the left side out of 57 children 48 male and only 9 female wherein bilateral out of 6 children 2 male and 4 female children.

**Table 4: Mode of operation.**

Parameters	No. of herniotomy
Elective	173
Emergency	1

**Table 5: Analgesia.**

Analgesic	N	%
General anaesthesia	112	64.3
Caudal block	18	18
Short GA+caudal block	44	44

**Table 6: Duration of hospital stay after herniotomy.**

Parameters	N	%
On day of surgery	16	9.1
On next day of surgery	158	90.9

### Type of inguinoscrotal swellings

Out of 174 children 114 Patient is of indirect hernia 95 male and 19 female children and rest 60 children is of hydrocele. Diagnosis was all confirmed by clinically, ultrasound and intra operatively. There were 3 cases of undescended testis. All were on the right side and located in the inguinal pouch. They underwent orchiopexy at the

time of hernia repair and the testis was placed in the sub dartos pouch. 1 case was associated with hypospadias was refer to pediatric surgery department after herniotomy. In the present study among 174 children 1 was taken as emergency procedure due to irreducible hernia. Postoperative analgesics were provided on a routine basis and were consist of diclofenac suppositories (1mg/kg) in children more than 1 year or caudal block. Out of 174 children 16 were discharge on same day of surgery and other 158 Children discharge on next day

### DISCUSSION

In majority of children with inguinoscrotal swellings treatment required surgery. Inguinal hernia repair is the most frequently performed operations in the pediatric age group. In controlled population based studies, there are between 10 and 20 inguinal hernias per 1000 live births.<sup>3</sup>In all the studies of inguinal hernia in children, there is male preponderance male-female ratio being 8.1:1 as compare to O Okunribido study There was a male-female ratio of 5.6:1.<sup>3</sup> Present study less than 2 years number of child less compared other age group mentioned. This is may be due to parents doesn't want surgery in infants and increased mortality of preterm babies at our hospital or uneducated parents. Childhood inguinoscrotal swelling are generally more predominant on the right side like in our study 63.8% as compare to O Okunribido study 56% of cases were located on the right side.<sup>3</sup>this has been attributed to the delay in descent of the right testis. Most of the inguinal scrotal swelling are asymptomatic swelling and acute presentation seen in 12% of children.<sup>4</sup> In our study most of the patients presented with asymptomatic swelling (99.43%) and acute presentation seen in 1 patients (0.57%). They presented with acute pain, vomiting, fever, swelling and irreducibility. Incidence of complication is low in our study this might be due to early diagnosis and most of the surgeons do not hesitate to operate on infants as early as possible due to availability of newer anesthesia and better NICU care.<sup>5</sup> Associated congenital anomalies like undescended testis, during the course of this study, 3 cases of undescended testis were detected, all of them were on the right side and situated in the superficial inguinal pouch. In those patients testis was placed in the subdartos pouch and orchiopexy done at the time of hernia repair in hypospadias. Out of 174 cases in this study, association of hypospadias was observed in 1 case. Hypospadias is associated with an increased risk of inguinal hernia. There was no operative or post operative morbidity or mortality related to congenital hernia surgery

in this study. The lesser complications during this study might be due to larger number of elective cases and fewer emergencies that too operated in time.

Post operative analgesia in our study, for 112 cases intraoperative rectal suppositories was put at the end of surgery and observed that all of cases were comfortable and were not required additional analgesia. For 62 cases caudal block given, it was observed that post operatively patient were comfortable without additional analgesia up to 5-7 hours after surgery. Use of suppositories have adequate pain control and can be used routinely instead of caudal block. Duration of hospital stay in our study Most of them discharged one day after surgery. 16 (9.1%) patient were discharged on the day of surgery as compare to Jadhav's study they discharged 84% of patient on same day of operation.<sup>6</sup> Post operative children were kept under observation for one day due to institutional hospital for better outcome. Inguinoscrotal swellings commonly affected in male and on right side. Majority of them were presented with inguinal hernia may be associated with other congenital anomaly like undescend testis and hypospadias. Most them are elective procedure rarely required emergency operative intervention and discharge within 24 hours. All the children in our study were operated by general surgeon so that data is small in number as compare to pediatric surgeon. It is essential that for better comparison and evaluation larger number of case required so that definitive conclusion will be made.

## CONCLUSION

Inguinal hernia and hydrocele in children remain one of the most common congenital problems observed by surgeons. The threat to loss of testis, ovary or a portion of bowel due to incarceration or strangulation remains. The childhood inguinal hernias are generally more predominant on the right side and males are more commonly affected. This has been attributed to the delay in descent of the right testis. Congenital anomalies like undescended testis and hypospadias can be associated with inguinal hernia and hydrocele. USG is a good alternative tool for diagnosing congenital patent processus vaginalis. An inguinal hernia will not resolve

spontaneously and should be repaired as soon as possible after the diagnosis because of the risk of incarceration or strangulation. Inguinal herniotomy in children is day care procedure, a safe and no disabling or prolonged morbidity related to this common operative procedure.

*Funding: No funding sources*

*Conflict of interest: None declared*

*Ethical approval: The study was approved by the Institutional Ethics Committee*

## REFERENCES

1. Eubanks S. Hernias in sabiston text book of surgery. 15th ed. USA: Elsevier; 1999(1):1215-7.
2. Zimmarson L. The history of Hernia Lloyd. 2nd ed. United States: Intechopen; 2005:1-13.
3. Okunribido O, Ladipo JK, Ajao OG. Inguinal hernia in paediatric age group, Ibadan experience. East Afr Med J. 1992;69(6):347-8.
4. Simons MP, de Lange D. The "Inguinal hernia" guideline of the association of surgeons of the Netherlands. Ned Tijdschr Geneesk, 2003;147(43):2111-7.
5. Muhammad TS. Complications of inguinal hernia in infants and children. Int Surg. 1969;51:95-8.
6. Dinesh LJ, Manjunath L, Vikas GK. A study of inguinal hernia in children. Int Surg. 2005;125:45-9.
7. Adesunkanmi AR, Adejuyigbe O. Prognostic factors in childhood inguinal hernia at Wesley Guild Hospital, Nigeria. East Afr Med J. 1990;76(3):144-7.
8. Frederick JR, Jay LG. Inguinal hernia repair in the perinatal period and early infancy: clinical considerations. J Paed Surg. 1984;19:832-6.
9. William BK, Lucio P. When should Hernia in the infant be treated bilaterally? JAMA. 1959;171:287-90.
10. Hugh BL. Inguinal Herniorrhaphy in children. Arch. Surg. 1961;83:105-10.

**Cite this article as:** Suvera M, Chaudhari P, Patel S. A study of clinical analysis and management of Inguinoscrotal swelling in paediatric age group. Int Surg J2021;8:3335-8.