

Original Research Article

# A study on clinical profile and management of inguinal hernia in children in tertiary care centre


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## Abstract

**Background:** Inguinal hernia is a common condition observed in children, characterized by the protrusion of abdominal contents through the inguinal canal. It occurs due to a weakness in the abdominal wall, allowing the intestines or other organs to bulge through the inguinal region. While inguinal hernias can affect individuals of all ages, they are particularly prevalent in children, with a higher incidence in males compared to females. Understanding the clinical profile of inguinal hernia in children is crucial for early detection, accurate diagnosis, and prompt intervention, thereby preventing complications and ensuring optimal patient outcomes. This article provides an overview of the clinical presentation and associated factors related to inguinal hernia in infants.

**Materials and methods:** This study is based on retrospective collection of data for a period 6 months from the prospective follow up of patients who were getting admitted at Pediatric Surgery Department for inguinal hernia; for 6 months and collection of data from them and retrospectively analyzing it for the different risk factors involved in the incidence of inguinal hernia in infants and also to look into the complications that occur in them post operatively.

**Results:** The expected outcomes for children with inguinal hernia depended on several factor, including the age of the child, the size and type of hernia and the promptness of diagnosis and treatment. Generally, with appropriate management, the prognosis for inguinal hernia in infants is favorable.

**Conclusion:** Incidence of inguinal hernia is higher in boys compared to girl babies. Gestational age wise, term infants were at higher risk of having inguinal hernia when compared to preterm infants. During follow up it was found that there was no recurrence of hernia or associated wound infection / testicular atrophy.

## Key words

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Hernia, Children, Risk factor, USG evaluation.

## Introduction

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Inguinal hernia is a common condition observed in children, characterized by the protrusion of abdominal contents through the inguinal canal. It occurs due to a weakness in the abdominal wall, allowing the intestines or other organs to bulge through the inguinal region. While inguinal hernias can affect individuals of all ages, they are particularly prevalent in children, with a higher incidence in males compared to females [1]. Understanding the clinical profile of inguinal hernia in children is crucial for early detection, accurate diagnosis, and prompt intervention, thereby preventing complications and ensuring optimal patient outcomes. This article provides an overview of the clinical presentation and associated factors related to inguinal hernia in infants.

## Aim and objectives

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The aim of this study was to investigate and analyze the clinical profile of inguinal hernia in children and to identify any variations in clinical profile and management based on factors such as age, sex, and underlying medical conditions.

## Materials and methods

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This study was based on retrospective collection of data for a period 6 months from the prospective follow up of patients who were admitted at Pediatric Surgery Department for inguinal hernia for 6 months. Data were collected and analyzed for the different risk factors involved in the incidence of inguinal hernia in infants and also to look into the complications that occur in them post operatively.

## Study design

It is a retrospective and prospective observational study.

### Inclusion criteria

All inguinal hernia cases that were seen as outdoor patient/ getting admitted as a case of inguinal hernia in Paediatric Surgery Department for surgical intervention

**Exclusion criteria:** NIL

**Study period:** From November 2022 to April 2023.

### Data retrieval:

Data for the retrospective cases were collected from the patient records and for the prospective study; data were collected from the cases that were seen as outdoor patient/ getting admitted in Paediatrics/ Paediatric Surgery Department as Inguinal hernia.

## Results and Discussion

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In this observational study regarding the clinical profile of inguinal hernia in infants, 15 babies were included in the analysis. Those who were admitted as cases of inguinal hernia at Pediatric surgery Department, MGMC & RI, Puducherry underwent surgery and discharged; between November 2022 to April 2023 were recruited in the study and followed up for 6 months.

Of the 15 infants who were included in the study, all infants with swelling in groin were analyzed for their birth related data from the records available in their outpatient files. These cases were followed up for a period of 6 months during review at Pediatric Surgery Department to look for the occurrence of any complications related to surgery or occurrence of opposite side hernia.

In the study group of 15 individuals, 12 (80%) were males and 3 (20%) were females. In the

study done by Rajput, et al. [2] it was concluded that incidence of hernia was as high as 79% in males compared to 21% of hernia cases observed in females. Boo cock, et al. [3] who analyzed the same reported that incidence of inguinal hernia was as high as 88% in males as compared to 12% in females, whereas in the study done by Suver, et al. [4] in the incidence of hernia cases according to gender; male to female ratio was 7:1. Kumar, et al. [5] reported an incidence of hernia of 87% in males as compared to 13% in female babies.

Regarding the order of birth and its relation to incidence of inguinal hernia, there is no similar data observed in other studies. In our study it was more common in 1st born child. Regarding family history of inguinal hernia, none of the study participants had a family history of inguinal hernia.

In the study, gestational age was classified as preterm (37 weeks) infants. Of 15 individuals analysed, 13.3% were preterm, 13.3% were late preterm and 73.3% were term individuals. The results derived were similar to the study reported by Kumar, et al. [5]. They had reported that the incidence of hernia was more in preterm and low birth weight and lower gestational age individuals than compared to term babies. In the study by Rajput, et al. [2] it was observed that the incidence of hernia was more in low birth weight babies and more in preterm babies who had received NICU care for a prolonged duration.

In our study, 26.6% (33) babies received NICU care, the rest did not. The incidence of hernia is higher in those children who are small for gestational age and extremely low birth weight as reported by Kumar, et al. [5].

Of the 15 babies, 13.3% required supportive ventilator care, it has been reported by Kumar, et al. [5] that positive pressure ventilation and prolonged need of oxygen support is an independent risk factor for the occurrence of inguinal hernia especially preterm infants.

Regarding the prevalence of sidedness, 33.3% presented with bilateral inguinal hernia, 60% with left sided hernia and 60% with right sided hernia. Kumar, et al. [5] reported that 50% of the cases were bilateral and during surgery total of 80% were found to be bilateral.

Bilateral herniotomy was done in 13.3% of the cases and the rest 86.6% required only unilateral intervention. As per Kumar, et al. [5] bilateral herniotomy was done in 90% of the cases as per Derya Erdogan, et al. [6] bilateral hernia incidence was 9.5%.

33.3% of the inguinal hernias were irreducible at presentation while 63% were reducible. Of the 15 cases analyzed in this study, 100 % had no obstruction at presentation. In the study done by Derya Erdogan, et al. [6] the incidence of irreducible hernias were similar.

In the study of 15 cases, 20% had immediate post-operative complications and others do not. Other co-morbidities that have shown to increase the risk of postoperative apnea are anemia, history of apnea, lower GA, lower birth weight, and need for supplemental oxygen as per Lee, et al. [7]. In our study also 17 % of the cases required postoperative ventilation of which all were low birth weight infants or had lower gestational age.

None of the 15 cases had post-operative wound infection/ recurrence of hernia during the follow up period. Derya Erdogan, et al. [6] reported an incidence of 2% of recurrence of hernia in their analysis of 3776 children with hernia. There was neither testicular atrophy in any of the post op cases during long term follow up. As per Lee, et al. [7] there are chances of testicular atrophy during long term follow up.

There were no associated hydrocele in any of the cases during presentation. In the study done by Barry de Goodge, et al. [8] there has been 2%. 77 incidence of hydrocele associated with hernia cases in their study. Analysis of small sample size may be the limitation factor in our study.

There were no cases of occurrence of contralateral hernia during the follow up period. In the study published by Derya Erdogan, et al. [6] of analysis of 3776 children with hernia, the incidence of hernia was 1.2%. In our study, there were no occurrence of hernia, may be due to the small size of the samples surveyed.

So as per our study, it has been found that incidence of inguinal hernia were more common in preterm when compared to term and more in boys than girl babies. In the studies published by Kumar, et al. [5] and Lee, et al. [7] the incidence of hernia was higher in preterm infants and were more common in those infants who were less than 32 weeks of gestational age and very low birth weight infants. Our study analysis also yielded the same results and similar risk factors.

### **Conclusion**

Inguinal hernia must be operated after its diagnosis to avoid its complications such as strangulation, obstruction as depicted in our study. Prolonging the surgery after diagnosis will increase complications of hernia. Pediatric hernia has multiple causative factors pertaining to maternal and peripartum risk factors. USG plays a key role in management of hernia. Studies in large scale are needed in future to access the exact etiopathogenesis of inguinal hernia in children.

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