

## Complications Postoperative of inguinal hernia in Iraqi Pediatric Patients

By

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### Abstract:

**Background:** Inguinal hernia repair is one of the surgical procedures that is most frequently carried out on pediatric patients due to the high risk of complications. **Patients and methods:** The study included every child with an inguinal hernia who visited a pediatric surgical unit, during the period (January – November)-2022 and was between the ages of less than 1 year and more than 12 years. A thorough history from the parents. **Results:** of these patients, 25 (41.6%) were 1-6 years old, followed by 14 (23.4%) 6-12 years old, and 8 (13.4%) were under 1 year old ,right-sided hernias (No.=33,55%) of a child more than left-sided hernias (No. 21,35%),So irritability/excessive crying was the most prevalent presenting symptom as (86%) in patients, followed by swelling (80%), both poor feeding and vomiting (63%) in patients, so constipation and abdominal distension as (37, 23) % respectively and rectal bleeding in (1.5%) patients, also forty-seven (78.4%) children presented as electives more than thirteen (21.6%) children presented as emergency cases,as well as type of complications as Scrotal edema (No.= 8,13.3%), Wound infection (No.= 4, 6.6%) , Hematoma (No.= 2, 3.3%), Recurrence of hernia (No.= 1, 1.6%),So, all types of complications in Emergency (P value < 0.001).**Conclusion:** Inguinal hernia is more prevalent in Patients with age(1-6) years old, followed 6-12 years old, Right-sided hernias in a child more than left-sided hernias, so the irritability/excessive crying was the most prevalent presenting symptom in patients, followed by swelling and both poor feeding and vomiting as well as children presented as elective cases more than children presented as emergency cases.so type of complications as Scrotal edema (No.= 8,13.3%), Wound infection (No.= 4, 6.6%) , Hematoma (No.= 2, 3.3%), Recurrence of hernia (No.= 1, 1.6%), So all types of complications in Emergency.

**Keywords:** Complications; Postoperative; inguinal hernia; Iraqi Pediatric Patients

## Introduction:

A common surgical issue in children is an inguinal hernia <sup>(1)</sup>. Before 1550 BC, inguinal hernias were described. However, with a more precise understanding of the anatomy, contemporary surgery only started in the late nineteenth century<sup>(2)</sup>, One to five percent of full-term infants are thought to be affected by it, and it is six times more likely in boys than in girls. In the months immediately following a baby's delivery, weak abdominal (belly) muscles can cause an inguinal hernia to form. They commonly occur in boys who have undescended testicles or whose inguinal canals do not seal after the testicles have entered the scrotum. The most frequently burst intra-abdominal contents in men are the small intestines, and some kids are more prone to having an inguinal hernia. <sup>(3&4)</sup>.

A paediatric surgeon must be consulted soon once for hernias in infants under three months old; young children should normally be seen within a week. When attempting reduction and in patients who have been transported to the emergency room, basic analgesics can be used. However, if the hernia cannot be diminished or if it is sensitive, a referral to the emergency room is required. Infants under one year of age are at an increased risk of strangulation, with the highest risk happening in the first few months of life<sup>(5, 6)</sup>, therefore, an inguinal hernia is a common condition among kids that needs surgery. Inguinal hernias affect 3 to 5% of term neonates and 30% of infants born at less than 33 weeks gestation. <sup>(7)</sup>.

General anaesthesia is usually used for inguinal hernia surgeries, which has a high risk of postoperative complications, especially in premature newborns. There is a 12% chance of problems, such as apnea and bradycardia<sup>(8)</sup>

The purpose of the current study was to evaluate the complications associated with inguinal hernia repair in pediatric patients who underwent the procedure.

### Patients and methods:

The study included every child with an inguinal hernia who visited a pediatric surgical unit, during the period (January – November)-2022 and was between the ages of less than 1 year and more than 12 years. A thorough history from the parents, including information on the location, size, variability of the size, and history of non-reducibility, was used to diagnose the inguinal hernia.

**Statistical analysis:** to conduct analysis using SPSS 13.0

### Results:

Of these patients, 25 (41.6%) were 1-6 years old, followed by 14 (23.4%) 6-12 years old, and 8 (13.4%) were under 1 year old. Table (1).

**Table (1): Distribution of patients according to age.**

Age (years)	No.	%
< 1	8	13.4
1 - 6	25	41.6
6-12	14	23.4
> 12	13	21.6
Total	60	100

Regarding the hernia's side, (No.=33,55%) of a child have right-sided hernias, (No. 21,35%) have left-sided hernias, and just (No.=6,10%) have bilateral hernias (as results in a table (2)).

**Table (2): Side of inguinal hernia**

Site	No.	%
Right side hernia	33	55
Left side hernia	21	35
Bilateral hernia	6	10
Total	60	100

According to Table 3, irritability/excessive crying was the most prevalent presenting symptom in (No.= 56,86%) patients, followed by swelling in (No.= 52,80%), poor feeding and vomiting in (No.= 41 (63%) patients, constipation in (No.= 24 (37%) patients, abdominal distension in (No.= 15 (23%) patients, and rectal bleeding in (No.= 1,1.5%) patients.

**Table (3): symptoms and Signs for patients with inguinal hernia**

symptoms and Signs	No. (%)
Irritability/ excessive crying	56 (86%)
Swelling	52(80)
Poor feeding	41(63%)
Vomiting	41 (63%)
Constipation	24(37%)
Abdominal distension	15(23%)
Bleeding per rectum	1(1.5%)

Forty-seven (78.4%) children presented as electives more than thirteen (21.6%) children presented as emergency cases (table-4).

**Table (4): patient distribution according to Elective and Emergency Surgery**

Type of operation	No.	%
Emergency	13	21.6
Elective	47	78.4
Total	60	100

Type of complications as Scrotal edema (No.= 8,13.3%), Wound infection (No.= 4, 6.6%) , Hematoma (No.= 2, 3.3%), Recurrence of hernia (No.= 1, 1.6%),So, all types of complications in Emergency (P value < 0.001)(Table-5).

**Table (5): Frequency of postoperative complications in patients subjected to emergency and elective operations.**

Type of complication	Emergency	Elective	Total
Scrotal edema	8 (13.3 %)	0(0%)	8(13.3 %)
Wound infection	3(5 %)	1(1.6%)	4(6.6%)
Hematoma	1(1.6 %)	1(1.6%)	2(3.3%)
Recurrence of hernia	1(1.6%)	0(0%)	1(1.6%)
Total	13 ( 21.7 %)	2(3.3 %)	15(25%)
* P value < 0.001			

## Discussion:

According to the current study, there were approximately 25 (41.6%) patients aged 1-6 years, 14 (23.4%) patients aged 6–12 years, and 8 (13.4%) kids aged 1 year, so the study by Kalantari *et al.*,<sup>(9)</sup> clarified about 196 (65.0%) patients were up to 2 years old, while 123 (40.9%) patients were up to 6 months old. Also, In the Nassiri study, 394 (75.7%) patients were older than 12 months, while 127 (24.3%) patients were younger than 12 months<sup>(10)</sup>.

So my study showed the right-sided hernias occur more frequently than left-sided ones, and just (No.=6,10%) have bilateral hernias, Silen, 2004 Clarified Premature babies are more likely to have bilateral hernias<sup>(11)</sup>, So our findings were consistent with those of Ravikumar *et al.*,<sup>(12)</sup> who reported an incidence of right-sided inguinal hernia of (64 and 56) % in their studies, respectively. Our results were comparable to those of another study, as De Lange *et al.*, revealed that the right side of inguinal hernias occurs more frequently (59.5–59.9%) % in patients<sup>(13)</sup> as well as Omar *et al.*, found that roughly 60.1% of patients had right-side, 35.3% had left-side, and 4.6% had bilateral<sup>(14)</sup>.

Irritability/excessive crying was the most prevalent presenting symptom in (No.= 56,86%) patients, followed by swelling in (No.= 52 ,80%), poor feeding and vomiting in (No.= 41 (63%) patients, constipation in (No.= 24 (37%) patients, abdominal distension in (No.= 15 (23%) patients, and rectal bleeding in (No.= 1 ,1.5%) patients.

Forty-seven (78.4%) children presented as electives more than thirteen (21.6%) children presented as emergency cases, Kadhem *et al.*,<sup>(15)</sup> showed in their results

that Post-operative complications occurred in 27 (1.5%) after 825 elective herniotomies and in 27 (32.4%) after 52 emergency herniotomies.

Type of complications as Scrotal edema (No.= 8,13.3%), Wound infection (No.= 4, 6.6%) , Hematoma (No.= 2, 3.3%), Recurrence of hernia (No.= 1, 1.6%), So all types of complications in Emergency (P value < 0.001).Complications from inguinal hernia repair were found more in emergency cases due to incarceration, obstruction, or strangulation, so Davies *etal.*, reported higher post-operative complications in emergency hernia surgery<sup>(16)</sup>.

Scrotal edoema, a common issue following inguinal hernia repair in children, was the most common side effect seen in the current study. Scrotal edoema is regarded as an issue because the severity of the condition varies from patient to patient and worries the carers. According to some publications, inguinal hernia surgery frequently causes scrotal edoema <sup>(17&18)</sup>.

The link between inguinal hernia repair and post-operative problems in emergency procedures may be explained by the high risk of wound infection and inadequate demarcation of tissue planes. The increased infection rate seen in the current investigation may be caused by environmental and patient-related variables. Our patients were most severely impacted when they were infants (less than 1 year of age). Additionally, Bamigbola et al also reported a high percentage of complications in inguinal herniarepair in infants <sup>(19)</sup>.

## Conclusion

- ✚ Inguinal hernia more prevalent in Patients with age(1-6) years old, followed 6-12 years old.
- ✚ Right-sided hernias in a child more than left-sided hernias

- ✚ Irritability/excessive crying was the most prevalent presenting symptom as (86%) in patients, followed by swelling (80%), both poor feeding and vomiting (63%) in patients, so constipation and abdominal distension as (37, 23) % respectively and rectal bleeding in (1.5%) patients.
- ✚ Children presented as elective cases more than children presented as emergency cases.
- ✚ Type of complications as Scrotal edema (No.= 8,13.3%), Wound infection (No.= 4, 6.6%) , Hematoma (No.= 2, 3.3%), Recurrence of hernia (No.= 1, 1.6%), So all types of complications in Emergency (P value < 0.001).

## References:

- 1) Hutson JM, O'Brien M, Beasley SW, Teague WJ, King SK. Jones' clinical paediatric surgery. 7th edn. Chichester: John Wiley & Sons, 2015. p. 332.
- 2) Holcomb GW III, Ostlie DJ. Ashcraft's Pediatric Surgery. 6th ed; 2014
- 3) Bowling K, Hart N, Cox P, Srinivas G. Management of paediatric hernia. *BMJ* 2017;359:j4484. doi: 10.1136/bmj.j4484.
- 4) Öberg S, Andresen K, Rosenberg J. Etiology of inguinal hernias: A comprehensive review. *Front Surg* 2017;4:52.
- 5) Zamakhshary M, To T, Guan J, Langer JC. Risk of incarceration of inguinal hernia among infants and young children awaiting elective surgery. *CMAJ* 2008;179(10):1001–05.
- 6) Teague WJ, King SK. Paediatric surgery for the busy GP – Getting the referral right. *Aust Fam Physician* 2015;44(12):890–94.
- 7) Grosfeld JL. Current concepts in inguinal hernia in infants and 12 children. *World JSurg.* 1989;13(5):506– 515.



- 8) Somri M, Gaitini L, Vaida S, Collins G, Sabo E, et al. Postoperative outcome in highrisk infants undergoing herniorrhaphy: comparison between spinal and general anaesthesia. *Anaesthesia* . 1998;53(8): 762- 766.
- 9) Kalantari M, Shirgir S, Ahmadi J, Zanjani A, Soltani AE. Inguinal hernia and occurrence on the other side: a prospective analysis in Iran. *Hernia* 2009; 13:41–43.
- 10) Nassiri SJ. Contralateral exploration is not mandatory in unilateral inguinal hernia in children: a prospective 6-year study. *Pediat Surg Int* 2002; 18 (5–6):470–471.
- 11) Silen W. Inguinal and incisional hernias. *Lancet*. 2004;363(9402):83-4.
- 12) Ravikumar V, Rajshankar S, Hareesh R.S.Kumar, Nagendra Gowda M.R.: A clinical study of the management of inguinal hernias in children on the general surgical practice, *Journal of Clinical and Diagnostic Research*, 2013 January, Vol-7(1), 144- 147
- 13) De Lange DH, Kreeft M, Van Ramshorst GH, Aufenacker TJ, Rauwerda JA, Simons MP. Inguinal hernia surgery in the Netherlands: are patients treated according to the guidelines? *Hernia*. 2010;14:143–148.
- 14) Omar AR, Omar AM, Shaheen AN, Geryani MH. Treatment strategy of inguinal hernia in infants and children in eastern Libya. *Saudi Med J*. 2004;25:753–755.
- 15) Kadhem, S. H; Ali.,H.H. and Jassim,H.A. .Pediatric inguinal Hernia in Basrah , *Bas J Surg*, 2015,21: 61-65.
- 16) Davies M, Davies C, Morris-Stiff G, Shute K. Emergency presentation of abdominal hernias: outcome and reasons for delay in treatment-a prospective study. *Ann R Coll Surg Engl*. 2007; 89(1): 47-50

- 17) Javaid S, Rasool N, Choudhry M. Incidence of PostOperative complications of Inguinal Hernia and Hydrocele Open Surgery in Children. *PJMHS*. 2018; 12(2): 440-2.
- 18) Taqvi SR, Akhtar J, Batool T, Tabassum R, Mirza F. Complications of inguinal hernia surgery in children. *J Coll Physicians Surg Pak*. 2006; 16(8): 532-5.
- 19) Bamigbola KT, Nasir AA, Abdur-Rahman LO, Adeniran JO. Complicated childhood inguinal hernias in UITH, Ilorin. *Afr J Paediatr Surg*. 2012; 9: 227-30.
- 20) Panabokke G, Clifford ID, Craig SS, Nataraja RM. Reduction of pediatric inguinal hernias, *Emerg Med Australas* 2016;28(2):224–27.