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Inguinal Hernia Cases in Children Who Underwent Surgery in Karbala Hospitals

Hasan Mohammed Ridha

Medicine College, Department of Surgery, Karbala University, Karbala, Iraq.
Corresponding author's email: - Hassan.mohammad@uokerbala.edu.iq

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Abstract:

Background: Groin and scrotal swellings are common in pediatric patients and have been observed, diagnosed, and treated during surgical practice. Studying the factors associated with inguinal hernia in children is essential to control and manage it optimally.

Objective: To study the normal distribution and significant differences in inguinal hernia cases in pediatric patients and the most critical factors associated with them.

Setting and Design: A study was periodically undertaken in the Karbala Hospital Department of Surgery from (1/1/2023) to (14/2/2024). Children who were aged one day to 13 years were selected for the study. Out of 500 children who were admitted to the surgical ward, the children had inguinal hernia, 475 male and 25 female. Age groups were between one day and 13 years old, and the outcome of death was zero.

Methodology: The clinical history and examination specifics were gathered as precise clinical diagnostics, with surgically confirmed therapeutic approaches deemed appropriate. The acquired data was

examined using SPSS statistical tests.

Results: The inguinal hernia in the study group was between one day and 13 years old. One day – 3 months = 163 cases, 3 – 12 months = 130 cases, 1 – 3 years = 158 cases, and 3 – 13 years = 49 cases. While the Hernia sac content was as the following classify: small bowel = 456, appendix = 29, ovary = 5, sigmoid colon = 5, and omentum = 5 cases. There are significant differences (abnormality distribution) because the tests of normality are equal to .008 in the SPSS statistical study.

Conclusions: Inguinal hernia in children is a common congenital condition that surgeons encounter when examining patients, and there are difficulties in identifying and confirming the condition in the presence or absence of inguinal hernia. This study helps in knowing the necessary management to control hernia cases in different age groups of children, as there is a difference in the characteristics of inguinal hernia in pediatric patients. It is essential to know the related factors and direct researchers from specialists to shed light on them.

Introduction.

Inguinal hernias were documented before 1550 BC. Modern surgery commenced in the late nineteenth century with an enhanced comprehension of anatomy. Inguinal hernias in children result from a prolonged processus vaginalis in 99% of indirect instances [1]. Nonetheless, direct inguinal and femoral hernias may coexist infrequently in approximately 0.5–1% of instances [2, 3]. Congenital inguinal hernias are prevalent in newborns and children, with surgery being the predominant treatment modality in the pediatric population. The challenges faced with pediatric inguinal hernia are surgical complications related to a delicate, translucent sac, the relationship with undescended testis, and varying perspectives on the optimal timing for surgery when both disorders coexist. The parent reports swelling in the inguinal region, but the surgeon cannot verify its existence. Upon confirmation of the diagnosis, the protocol is to initiate repair. The additional challenge is determining if a contralateral examination should be conducted and, if so, whether the location, age, or sex should influence the decision. Further challenges include managing phenotypic females with karyotypic male characteristics, instances where the hernial sac contains testicular gonads, assessing the impact of spinal anaesthesia in premature infants, the presence of a direct inguinal hernial sac in pediatric patients, and the failure to identify and repair the sac, leading to recurrent inguinal hernias [4].

Diagnosis is established based on the clinical history and physical examination, characterised by a protrusion or lump that transmits a cough impulse, frequently observed after sobbing [5]. Imaging, particularly ultrasonography, is beneficial for ambiguous and less definitive clinical presentations [6]. Surgical intervention is recommended for all patients diagnosed with an inguinal hernia to mitigate the risks of incarceration and strangling of the colon, gonadal infarction, and atrophy [7]. The likelihood of incarceration in most patients typically varies from 3% to 16%, with babies exhibiting a comparatively elevated risk [8]. Hernia complications are linked to considerable morbidity, elevated mortality, and prolonged hospital stays [9].

Patients and methods:

A hernia occurs when there is a defect or weakness in the muscle layer of the abdominal wall; this means that organs or tissues within the abdominal cavity may protrude through the opening, creating a bulge in the skin. An inguinal hernia is a hernia that appears in the groin area. In children, these hernias are most often congenital, indicating that the defect was present at birth. The cases diagnosed and treated vary in terms of causes, age, gender, and the length of time the condition has been present before surgical treatment.

- 500 cases of pediatric inguinal hernia in karbala.
- Gender of patient 475 male, 25 female. Periodic time from (1\1\2023) to (14\2\2024).
- Unilateral 447 cases (Rt 230, Lt 217).
- Bilateral 53 cases.
- Term baby 360 cases.
- preterm 140 cases.
- Associated anomalies (heart, renal) 86 cases.
- No associated anomalies in 414 cases.
- Emergency surgery 96 cases.
- Elective surgery 404 cases.
- Day case surgery discharged on surgery day 315 cases.

- Overnight admission after surgery day 185 cases.
- Open external inguinal ring during surgery in 108 cases.
- No open external inguinal ring during surgery in 392 cases.
- ligation of sac only 471 cases.
- ligation of sac and repair of defect 29 cases.
- outcome and Complications
- Recurrent hernia 3 cases,
- Wound infection 10 cases,
- Hydrocele 75 cases.
- testicular atrophy post obstructed inguinal hernia 2.
- Death zero.

Results:

Table no.1: The total number of patients as age.

Number of patients as age (Age groups 0 – 13 years old)	
0 – 3 months	163 cases
3 – 12 months	130 cases
1 – 3 years	158 cases
3 – 13 years	49 cases

Table no.2: The Case Number of Hernia Sac Content.

Hernia sac content	
Small bowel	456
Appendix	29
ovary	5
Sigmoid colon	5
Omentum	5

Table no.2: There is significant differences (abnormality distribution)

Tests of Normality						
	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Hernia	.194	20	.048	.860	20	.008

a. Lilliefors Significance Correction

Discussion.

Most hernias are identified through visual observation or tactile sensation of the protrusion. Parents or caregivers may initially observe the hernia, although it is often the paediatrician or another primary care practitioner who ultimately diagnoses it. In older children, the patient may be the initial individual to recognize that something is amiss. Upon suspicion of a hernia, the patient is directed to a surgeon for diagnostic confirmation and to deliberate management strategies with the family. The management of direct hernia varies across different facilities. Specific authors advocate for Bassini

repair [10], while others endorse McVay repair for femoral hernia [11]. The hernia cases of children we treated were for ages ranging from (premature babies to 13 years old), as mentioned in Table No. 1.

After diagnosing and confirming the disease cases through clinical examinations according to the patient categories, it was found that the age group ranging from (0-3) months is the most numerous, reaching 163 cases, followed by the ages between (1-3) years, reaching 130 disease cases. As for the ages ranging from (3-12) months, their numbers reached 130 cases, while the ages ranging from (3-13) years are the lowest number among the total number of cases. This distribution of hernia cases between the categories is considered normal, and there are no significant differences, as shown in **Figure No. 1** below:

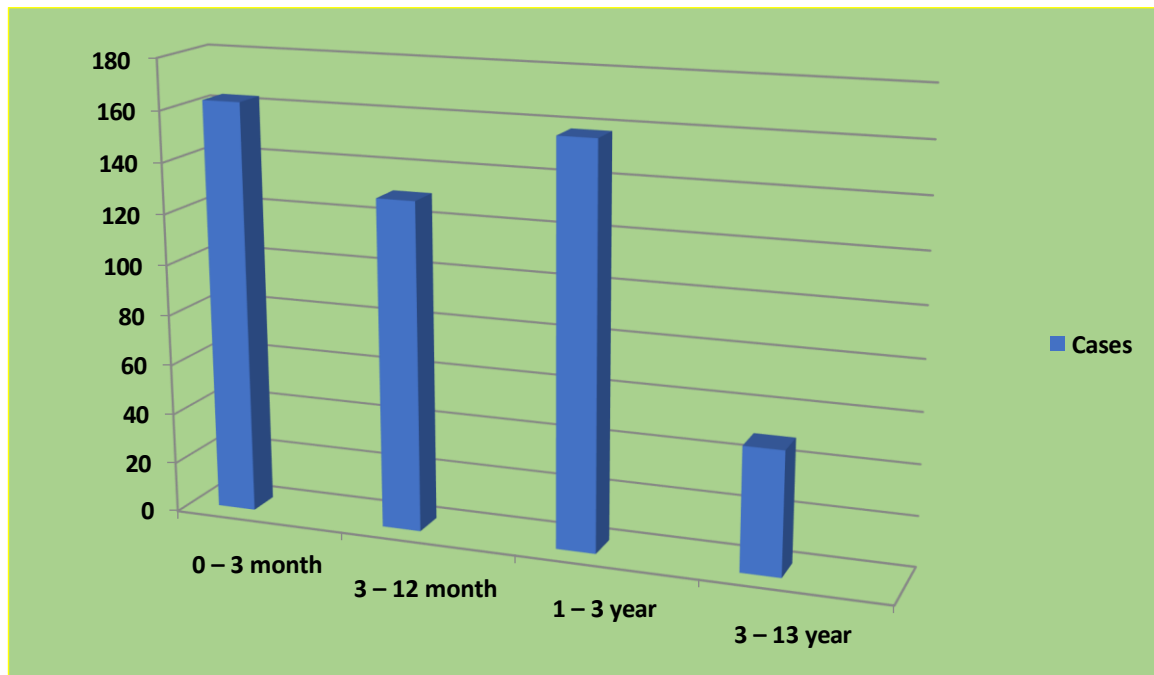


Figure No.1: Illustrated the age groups 0 – 13 years old.

About 1% to 5% of full-term babies get it, and boys get it more times more often than girls [12]. In boys, the small intestines are the organs that herniate the most, often inside the abdomen. The most common herniated organ in female babies is the ovary. However, after one year, the bowel becomes more common, and a teenager would not likely have a herniated ovary [13]. Hernias on the right side happen more than three times more often than those on the left. Premature babies are more likely to have bilateral hernias [14]. If a full-term female baby has two abdominal hernias that could contain ovaries, the baby should be checked for a possible androgen insensitivity syndrome. A part of the intestine can get stuck in the scrotum, known as incarceration. The bulge may get complicated, painful, swollen, and red.

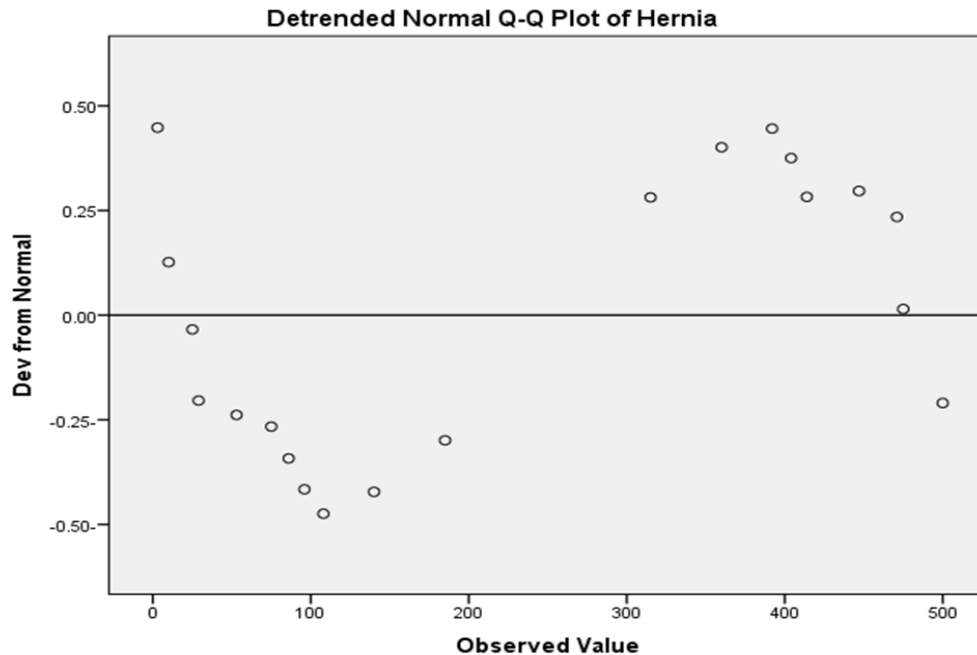


Figure No.2: Illustrated the abnormality distribution of inguinal hernia cases.

In the past, there has been mixed data about whether the recurrence rate is different after open surgery versus laparoscopic surgery. There is some proof that a non-absorbable suture needs to be used in laparoscopic surgery. In open surgery, on the other hand, recurrence rates are low even with late absorbable sutures [15]. A new meta-analysis shows no difference between open and laparoscopic techniques regarding complications, recurrence, time to recovery, or length of stay [16]. Since inguinal hernia varies according to the type of condition, its severity or development, and other factors related to the disease, it can be said that there are apparent significant differences and that the distribution is abnormal, as shown in Figure no.2. There has not been a lot of prospective study on whether one method is better than the other for cosmesis. Still, most evidence indicates that both methods are equally satisfying [17]. Even though the cuts are smaller, laparoscopic surgery usually needs at least three cuts, while open surgery only needs one. Clothes cover the more significant scar from open surgery. The cuts not in the umbilical cord are usually 3 mm long stab cuts that do not have a port.

Conclusion:

Inguinal hernia in children is considered one of the common congenital conditions that surgeons encounter when examining pediatric patients, and there are difficulties in determining the pathological condition and confirming the presence or absence of inguinal hernia in its types at different ages. This study helps identify the necessary measures to control inguinal hernia cases in various age groups of children since there is a difference in the characteristics of inguinal hernia in pediatric patients. It is essential to know the factors associated with it; we support directing researchers from specialists to shed light on this topic in all its aspects.

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