Journal of Cardiovascular Disease Research

ISSN:0975 -3583,0976-2833 VOL11, ISSUE 04, 2020

Original research article

A study of surgical treatments and complications of inguinoscrotal swellings in children in paediatric age group

[1]Dr. Ravibhushan Kasale, [2]Dr. Chandrashekhar Santram Halnikar, [3]Dr. Dnyaneshwar G Panchal
[1,2,3]Assistant Professor, Department of General Surgery, VDGMC Latur, Maharashtra, India

Corresponding Author:
Dr. Dnyaneshwar G Panchal

Abstract
Most inguinal hernias are discovered by parents, at a well-baby checkup, or during a preschool examination. The groin, scrotum, or labia may sometimes swell; this is often seen during periods of elevated intra-abdominal pressure, such as while sobbing or straining. It might be present at birth or develop during the next few weeks, months, or even years. Hernias often have no symptoms. Parents usually worry that the infant's hernia may make them cranky or lead them to lose their appetite. The danger of incarceration and strangulation, which includes gangrene of the colon, testis, and ovaries, is the most crucial consideration in the therapy of newborn inguinoscrotal swellings. To prevent numerous consequences, timely, proper treatment is needed as soon as possible.
Keywords: Surgical, treatments, complications, inguinoscrotal, swellings, children

Introduction
The majority of inguinal hernias are discovered either by the parents of the affected child or during routine well-baby or preschool checkups. In most cases, there is a history of a bulge developing intermittently in the groin, scrotum, or labia. This bulge is most noticeable at times of increased intra-abdominal pressure, such as when the patient is sobbing or straining. There is a chance that it will be present at birth, but there is also a chance that it won't show up until weeks, months, or even years later. In most cases, hernias do not present any symptoms. When a newborn has a hernia, the parents sometimes worry that the child will become irritable or may lose their appetite as a result of the condition. In the majority of instances, the sole symptom that causes a patient to seek medical attention is an apparent swelling in the groin area. This swelling goes away when the patient relaxes, either on their own or in response to light, physical pressure. During physical activity, adolescents may experience discomfort in the groin or inguinal region. The intensity and duration of this discomfort might vary greatly from day to day. The patient may experience great pain and become exceedingly irritable if a loop of intestine gets caught in a hernia. This will be followed by indicators of intestinal blockage, which include abdominal distension, vomiting and a lack of flatus or stool. It is normal for people who are incarcerated to throw up and this is often the result of visceral distension. If there is vomitus that is tinged with bile, one must presume that there is an obstruction in the digestive tract. It is possible that the blood supply will be disrupted if the hernia is not minimized, which might lead to perforation and peritonitis. This procedure may take up to 2 hours to complete. As a result, minimizing the risk of a hernia developing while a patient is confined should be your first goal. The first six months of a person's existence are marked by a higher incidence of incarceration. After the second year, it occurs less often, and by the time a person is 5 years old, it is a rather uncommon occurrence. Sometimes a patient may arrive with symptoms of intestinal blockage even when there is no evidence of an inguinal hernia in their medical history. The most likely age for this to take place is during childhood. Examining for an incarcerated hernia should be performed on any and all pediatric patients who present with intestinal obstruction, regardless of age. A infant that is overweight is more likely to have a minor groin hernia, which might be easy to miss. The issue of hernias in children is often reduced to a few phrases' worth of discussion in surgical textbooks and systems, or the treatment concepts that are established for adults are blindly applied to children without any consideration [1]. Inguinoscrotal swellings are one of the disorders that affect children and adolescents the most often. It is estimated that 10-20 children out of every 1000 live births have an inguinal hernia [2]. Hernias and hydrocoeles are common disorders and inguinal herniotomy is one of the most commonly performed procedures. Both of these conditions may be repaired surgically. The term "hernia" originates from the Greek word "herons", which may be translated as "offshoot", "bulge" or "budding". It literally translates to "rupture of a part of a building" when translated from Latin. It is possible to describe it as the "protrusion of a viscus or portion of a viscus through a normal or an abnormal aperture in the wall of its enclosing cavity". This definition can be

ISSN:0975 -3583,0976-2833 VOL11, ISSUE 04, 2020

found in the medical encyclopedia. The occurrence of newborn inguinal hernia and hydrocele is on the rise along with the rise in the number of births that occur before their full term [3]. An inguinal hernia affects between 1 and 5 percent of all babies and between 9 and 11 percent of infants who were born preterm [4]. The majority of these swellings are detected either by a parent who observes a bulge when their kid is straining or weeping or by a physician during a normal physical examination. A parent may notice a bulge when their child is straining or crying. However, the typical bulge in the groin that sometimes vanishes and then reappears may not be there at the time of the examination, and the surgeon may be forced to depend on the description supplied by a knowledgeable observer in order to make a diagnosis. The danger of imprisonment and strangulation, which may result in gangrene of the colon, testis, and ovaries, is the most essential component in the treatment of infant inguinoscrotal swellings. In order to prevent a variety of consequences, rapid therapy that is both timely and suitable is required [5].

Aims and Objectives

1. To study the various complications like irreducibility, incarceration, obstruction and strangulation.
2. To study the postoperative complication rate.

Materials and Methods

The present study is a Prospective hospital-based study conducted in Department of General Surgery, Department of General Surgery, VDGMC Latur. In this study, 50 patients were selected by a simple random sample. The study was done from Jan 2020 to July 2020.

Inclusion criteria: All the selected patients 12years and below including both male and female patients who presented with swelling in inguinoscrotal region admitted to Department of General Surgery.

Exclusion criteria: All Patients above twelve years of age are excluded from the study.

1. Patients who refuse surgery.
2. Patient with systemic disorder not able to undergo surgery.
3. Patient with acute scrotal swelling like torsion of testis, epididymoorchitis, funiculitis, lymphadenitis and also other swellings like varicocele, lymph varix, cuticular and subcutaneous swellings and malignant extensions from testis.

After taking detailed history, all the registered patients were examined systematically which included examination of inguinal and groin region, scrotum and its contents. Respiratory system, cardiovascular system and per abdomen were also examined to know other associated congenital conditions like undescended testis and other connective tissue disorder.

Simple investigations like hemoglobin %, bleeding time, clotting time, routine urine examination were carried out for fitness for operation. Children with unilateral inguinal hernia underwent US examination for CPPV.

After proper evaluation of preoperative condition, the patients are then taken up for surgery after informed/written consent.

Injection Ceftriaxone 20mg/Kg/body weight was given before each operation.

Operative procedure

Surgery was decided by age. If the children <1 year of age, Mitchell banks operation is selected where in herniotomy done without opening the external oblique aponeurosis. If the children >1 year of age, Fergusson technique is selected where in herniotomy done after opening the external oblique aponeurosis, under suitable anesthesia as decided by anesthesiologist.

The findings are recorded and the patients are monitored post operatively for complications. The patients were usually discharged from the hospital on the 1st or 2rd postoperative day.

Postoperative follow up of the cases were done after one week, 4 weeks and 12 weeks from the date of operation.

Results

Associated congenital conditions

Table 1: Associated Congenital Conditions

SI No	Associated Congenital Conditions	No of cases	Percentage
1.	Congenital Hydrocoele	20	40%
2.	Encysted hydrocele of Cord	3	6%
3.	Undescended testis	4	8%
4.	Hypospadias	0	0

ISSN:0975 -3583,0976-2833 VOL11, ISSUE 04, 2020

Table 2: Operative Technique for Herniotomy

Operative Technique	No of Patients	Percentage
Mitchell Banks Surgery	1	2
Fergusson technique	49	98

Table 3: Postoperative Complications

SI. No.	Post Op Complication	Incidence	Percentage
1.	Wound Infection	2	4
2.	Seroma	1	2
3.	Stitch Granuloma	0	0

Recurrence

During the period of 2 years of study and follow up period of 12 weeks, there was no recurrence noted.

Discussion

During the course of this study, 4(8%) cases of undescended testis were detected, two of them were on the right side and two of them were on the left side, all four were situated in the superficial inguinal pouch. These patients had orchiopexy at the time of hernia repair and testis was placed in the sub dartos pouch. A study on 461 orchidopexies by Meijer RW *et al*. showed that in 281 of these cases (86.0%), the testis was located in the superficial inguinal pouch (SIP). In our study also the same finding was noted [6]. In a study conducted by Adesunkanmi AR *et al*., Undescended testes constituted the commonest associated operative finding in about 5% of the patients of the 208 patients who had presented with 237 inguinal or inguinoscrotal hernias [7].

The figures in the present study correlates well with other studies mentioned. There were 3 (6%) cases of encysted hydrocele of the cord, 2 on the left side and 1 on the right. All had PPV. This study is in accordance with Duckett J.W *et al*. who found 25 hydroceles of the cord (6.5%) in 380 hernia operations he had conducted [8]. There were 20(40%) cases of congenital hydrocele of which 12 were on the left side and 8 on the right. All of them had high ligation at deep ring while the distal portions were kept slit open. Thomas E. Simpson operated on 536 children for inguinal hernia and found
hydrocele to be associated in 189 cases (35.3%) [9]. In a study conducted by Sigmund H Ein *et al*. on 6361 infants and children with inguinal hernia, hydrocoeles were found in 19% [10]. A similar incidence was noted by Hugh B Lynn when he studied 240 inguinal hernia in children and found 17% were associated with hydrocele. Willis J. Potts in a study of inguinal hernia in 600 children found hydrocele to be associated in 9% of the cases [1]. Venugopal S while treating 271 cases of inguinoscrotal hernias and hydrocele at the University Hospital of West Indies found that 12.5% of the cases were hydroceles.[11] Ninety-nine children with inguinal hernia undergoing elective surgery over a 2-year period at the University College Hospital, Ibadan, were studied. Ipsilateral hydrocoeles were noted in 8% of the operated children [12]. Karabulut in a study of inguinal hernia in a 3 year study of inguinal hernia in 4012 infants and children found that hydroceles were present in 6.2% associated hernias. Most of the hydroceles were right-sided 72%, 20% left-sided, and 8% bilateral [13]. Out of 50 cases in this study, association of hypospadias was not observed in any of these cases. According to Andre Hebra, hypospadias is associated with an increased risk of inguinal hernia [14]. A similar finding was noted by Wu WH *et al*. that observed in his study that Inguinal hernia was the most common urogenital condition associated with hypospadias with a prevalence rate of 12.4% [15].

Hundred and thirty patients with hypospadias were studied between 1983 and 1990, and inguinal hernia was present in 3.8% [16]. The disparity in our finding could be because of the small sample size. The less number of complications in this series could be attributed to small sample size, larger number of elective cases and fewer emergency that were operated in time. All the cases were treated by Simple herniotomy under general anesthesia. For congenital hydrocele, the procedure followed was high ligation of the PPV at the deep ring and keeping the distal portion slit open. There was no operative or postoperative morbidity or mortality related to congenital hernia surgery in this series. All incarcerated hernia was treated by elective surgery after reduction.

Rowe *et al*. recommended elective surgery after reduction, since it has a lower rate of complication compared to emergency surgery [17]. Controversy exists for routine C/L exploration in presence of a clinical inguinal hernia. Recent 'Inguinal Hernia' guidelines of the Association of Surgeon of the Netherlands there is no indication for routine C/L exploration. Despite the significant risk of developing a C/L hernia in children with left sided hernia, the authors do not recommend routine right-sided exploration as the frequency is not high [18]. In the postoperative period of 50 children, there were 2 cases of wound infection and 1 case of seroma, amounting to 6% postoperative complication. No other complications were noted. All of them responded to conservative treatment. During the period of 1 & ½ years study and follow up period of 12 weeks to 52 weeks, no recurrence was noted. The recurrence may be associated with comorbid conditions including increased abdominal pressure, prematurity, malnutrition and anemia and connective tissue disorders. Recurrence is also seen more frequently after

ISSN:0975 -3583,0976-2833 VOL11, ISSUE 04, 2020

an initial operation for incarcerated hernia. The repair of a child's hernia is not a parlor piece, but a master's work and should be performed or supervised by a skilled surgeon.

Conclusion

Clarity in decision making and following meticulous operative techniques can avoid the complications in a procedure that can be gratifying equally for both the surgeon and the child. Inguinal herniotomy in children is a safe and effective operation.

References

1. Potts WJ, Riker WL, Lewis JE. The treatment of inguinal hernia in infants and children. Ann Surg. 1950;132(3):566.
2. Ferguson AH. Oblique inguinal hernia: A typical operation for its radical cure. JAMA. 1899;33:6.
3. Kapur P, Caty MG, Glick PL. Paediatric Hernia and Hydrocele. Paed Clin Nor Am. 1998;45(4):773-789.
4. Grosfeld JL. Current concepts in inguinal hernia in infants and children. World J Surg. 1989;13(5):506-515.
5. Uemura S, Woodward AA, Amerena R, Drew J. Early repair of inguinal hernia in premature babies. Pediatr Surg Int. 1999;15(1):36-9.
6. Meijer RW, Hack WWM, *et al*. Surgical findings in acquired undescended testis. J Pediatr Surg. 2004;39(8):1242-44.
7. Shalaby R, Desoky A. Needlescopic inguinal hernia repair in children. Pediatr. Surg Int. 2002;18(2-3):153-156.
8. Duckett JW. Treatment of congenital inguinal hernia. Ann Surg. 1952;135(6):879-884.
9. Simpson TE, Gunnar. Further Experience with Bilateral Operations for Inguinal Hernia in Infants and Children. Ann Surg. 1969;169:450-454.
10. Ein SH, Njere I, Ein A. Six thousand three hundred sixty-one pediatric inguinal hernias: a 35-year review. J Pediatr. Surg. 2006;41(5):980-986.
11. Venugopal S. Inguinal hernia in children. West Ind Med J. 1993;42(1):24-26.
12. Okunribido O, Ladipo JK, Ajao OG. Inguinal hernia in paediatric age-group: Ibadan experience. East Afr. Med J. 1992;69(6):347-348.
13. Karabulut B. One surgeon experiences in childhood inguinal hernias. J Korean Surg Soc. 2011;81(1):50-53.
14. Ferguson AH. Oblique inguinal hernia: A typical operation for its radical cure. JAMA. 1899;33:6.
15. Wu WH, Chuang JH, Ting YC, Lee SY, Hsieh CS. Developmental anomalies and disabilities associated with hypospadias. J Urol. 2002;168(1):229-32.
16. Kulkarni BK, Oak SN, Patel MP, Merchant S, Borwankar SS. Developmental anomalies associated with hypospadias. J Postgrad Med. 1991;37(3):140-3.
17. Rowe MI, Lloyd DA. "Inguinal Hernia" in 'Paed Surgery' edited by Welch Judson, Mark, James and Rowe. 1986;4(2):779-793.
18. Simons MP, D de Lange. The Inguinal hernia guideline of the Association of Surgeons of the Netherlands. Ned Tijdschr Geneeskd. 2003;147(43):2111-7.