International Journal of Research in Medical Sciences
Suvera MS et al. Int J Res Med Sci. 2013 May;1(2):112-115
www.msjonline.org
pISSN 2320-6071 | eISSN 2320-6012
DOI: 10.5455/2320-6012.ijrms20130515

Research Article

Surgery for inguinal hernia in pediatric age

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Received: 9 April 2013
Accepted: 13 April 2013

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ABSTRACT

Inguinal hernia repair is one of the most frequently performed surgical procedures in pediatric patients. An inguinal hernia does not resolve spontaneously and must be repaired because of high risk of complications. A retrospective analysis was performed on the hospital records including operative notes of admitted pediatric patients, aged up to 12 years, who underwent inguinal herniotomy. On observation, male affect more than female , right side inguinal hernia more common than left, due to let decent of testis on right side. Early detection and repair of inguinal hernia in pediatric is essential to decrease the potential morbidity and operative complications rate. This needs an increase in popular and pediatric awareness.

Keywords: Inguinal hernia, Herniotomy, Processus vaginalis, Strangulation

INTRODUCTION

An understanding of the management of pediatric inguinal hernias is a central component of modern pediatric surgical practice.[1,2] Inguinal hernia repair represents one of the most common operations performed in children.[1] The presence of an inguinal hernia in a child is an indication for surgical repair.[1,2] Pediatric inguinal hernia is a result of a congenital patent processus vaginalis (PPV) as a direct consequence of normal events in fetal development. Protrusion of PPV presents as a potential hernia and approximately 10% of these develop clinical hernia. In preterm infants, the incidence may be as high as 30%.[3] About one third of children with Inguinal Hernia are younger than 6 months, and males are affected about six times more often than females[3], and even more often in premature baby.[4] The right side is involved in 60% and the left in 30% of patients; bilateral hernias are seen in 10%.[3] Approximately 40% of children with a clinical unilateral inguinal hernia display a patent processus vaginalis on the contra lateral side, half of these children subsequently develop an inguinal hernia. Ultrasonography can be used routinely in the pre-operative diagnosis of inguinal hernia in children. PPV values higher than 4 mm, indicate hernia with a high accuracy rate.[4]

Incarceration that is entrapment of bowel without the vascular compromise of strangulation complicates 7-30% of inguinal hernias and occurs most often during the first six months of life.[5] The incidence of bowel infarction requiring resection is quite low, ranging from 0 to 1.4%.[6] In order to prevent strangulation of viscera trapped in the defect, management of inguinal hernias in pediatrics is straightforward and surgery is necessary and should not be postponed.[7] Conventional operation for pediatric inguinal hernia involves the use of a skin crease incision over the groin to dissect out the sac, taking care not to

injure the adjacent important structures, namely the vas deferens and testicular vessels. The sac is then divided and the proximal end transfixed.[7] Some body say that in males sometimes the scrotal approach for inguinal hernia or hydrocele repair is a safe procedure without added morbidity and with excellent cosmetic results.[8]

Laparoscopic inguinal hernia repair in pediatric patient is often considered controversial but as surgeon gains experience it has been proved to be feasible, safe and reliable technique. A contra lateral PPV is present in a significant number of children and laparoscopy offers safe alternative to treat both sides at the same sitting. An internal opening less than 2 mm can be left alone as it is unlikely to cause a hernia.[9] Pediatric patients with inguinal hernia can be good candidates for day care surgery.

Recurrence, injury to the vas deferens, wound infection, and postoperative hydrocele are recognized complications associated with Inguinal Hernia repair but occur with a frequency of less than 1%.[3] Most recurrences occur two years after the initial surgery.[10]

METHODS

A retrospective study conducted depending on the hospital records including operative notes of pediatric patients admitted in Smt SCL General Hospital, Smt NHL Municipal Medical College, Ahmedabad, in surgical department from October 2009 to march 2012. Data were collected including name, age, gender, side of hernia, type of presentation, associated conditions like other hernia, undescended testes or hydrocele.

Hernial sac was identified, dissected, the proximal part was transfixed at the level of internal ring with absorbable suture and excised, repair of weak floor with

absorbable sutures done in some cases. The external oblique aponeurosis and the subcutaneous fatty tissue was then closed in two layers, skin was closed by sub cuticle method with absorbable suture vicryl 3-0 cutting needle. The content of the hernia sacs, associated conditions noted pre and per-operatively. There were some associated pathologies like hydrocele, undescended testis, phimosis, umbilical hernia excluded from study. Post operative transient scrotal swelling which was not mentioned because they are not seen in female patients. Post operative complications including scrotal swelling, superficial wound infection, deep collection, fever, and recurrence were recorded during the subsequent follow-up by 3 days, 1 week, 1 month, six month checking.

RESULTS

A total of 65 patients were recruited into the study. Seven patients including 6 male and 1 female patients missed some days in their follow-up were excluded from the final analysis Therefore total 58 patients conducted in this study, their age up to 12 years. We divided our patients in three groups according to their ages: less than 2 years which compromise 21% of the cases, 2 to 6 years which compromise 47% and 7 to 12 years which compromise 32%. Total number of male was 51 and female was 7 giving M: F ratio of approximately 7:1.

Sixty herniotomies and in some cases herniorraphies were done for 58 patients. Most common age of presentation between 2-6 years.

Most of the patients 73% have right sided inguinal hernias, 23% have left sided and 4% have bilateral inguinal hernia seen. The right inguinal hernia is more than left in both sexes.

According to clinical type the elective group in which the hernia is already reduced, appear on crying or standing and reduced spontaneously after lying down. This group constitutes 96% of cases, 84% are males and only 12% are females, and the male: female ratio was about 7:1. The Emergency group, in which hernia not reduced under sedation and requires surgery and which consist 4%.

In relation to patient's presentation, the rate of complications was 6% in elective cases, increasing too much to reach 50% of the emergency cases, the operating time for emergency cases more compare to elective cases.

Table 1: Relation between age and sex distribution.

Age	Males		Females		Total	
	No.	%	No.	%	No.	%
Up to 2 years	12	21%	00	00%	12	21%
2-6 years	22	38%	05	09%	27	47%
7-12 years	17	29%	02	03%	19	32%
Total	51	88%	07	12%	58	100%

Table 2: Relations between the sex of patients and sides of hernias.

Site of hernia	Males		Females		Total	
	No.	%	No.	%	No.	%
Right Side	38	66%	04	07%	42	73%
Left Side	11	18%	03	05%	14	23%
Bilateral	02	04%	00	00%	02	04%
Total	51	88%	07	12%	58	100%

Table 3: Hernia presentations in relation to the sex of the patients.

Clinical Type	Males		Females		Total	
	No.	%	No.	%	No.	%
Elective	49	84%	07	12%	12	96%
Emergency	02	04%	00	00%	27	04%
Total	51	88%	07	12%	58	100%

Table 4: Complications in elective and emergency operation.

Post operative complications	Elective Group N=56 (96%)		Emergency Group N=02 (4%)		Total N=58 (100%)	
	No.	%	No.	%	No.	%
Non complicated N=54	53	94%	01	50%	54	93%
Complicated N=04	03	06%	01	50%	04	07%
Total N=58	58	100%	02	100%	58	100%

Table 5: Post operative complication in relation to the sex.

Post operative complications		Males, N=51		Females, N=07		Total, N=58	
		No.	%	No.	%	No.	%
Non- complicated cases N=54		48	89%	06	11%	54	100%
Complicated cases N=04	Superficial infection	02	67%	01	33%	03	100%
	Deep infection	01	100%	00	00%	01	100%
	Recurrence	00	00%	00	00%	00	00%
Total N=58		51	88%	07	12%	58	100%

In relation to the sex of the patients, the total numbers of complicated group are 4 (7%) patients, 3 (75%) are males and 1 (25%) are females with male: female ratio 3:1. Superficial infection is more common than deep infection. Recurrence was not noticed.

DISCUSSION

The inguinal hernia is one of the most frequently performed surgical procedures in pediatric patients. An inguinal hernia does not resolved spontaneously and must be repaired because of high risk of strangulation or incarceration.

Regarding age distribution, approximately 21%, 47% and 32% patients were from up to 2 years, 2-6 years and 7-12 years age respectively, which shows that the majority of inguinal hernias appears early in life, the fact that should raise the attention of people, parents, pediatrician and surgeon about this common and easily managed condition if treated at earlier time i.e. before obstruction, strangulation or incarceration. Female patients not reported hernia in up to 2 years age group and reported late, which may explain on the social background of our people that wouldn't present their female earlier. From 12 cases of female inguinal hernia, there were 4 (33%) of them containing ovary and fallopian tube in the hernial sac, that's why we must take the hernias in females seriously and should be treated by an early to prevents the subsequent complications like thrombosis and gangrene and during operation be careful not to injure it. In our study, out of 58 patients, the male to female ratio was

about 7:1, which shows a decreased number of females in comparison to other studies.[3,11] A total of 42 patients presented with right, 14 with left and 2 were having bilateral inguinal hernia, which represent a 73%,23% and 4% of cases respectively and these are comparable with the 60%, 30% and 10% respectively reported.[3,12] The rate of post operative complications in elective group was 6% while it is 50% in emergency group; this means that the numbers of complications are increased highly in the emergency cases, which necessitates the early management of inguinal hernia.

CONCLUSION

Early detection and repair of inguinal hernia in pediatric patients is essential to decrease the potential morbidity and operative complications. This needs an increase in population, pediatrician, parents, and surgeon awareness.

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DOI: 10.5455/2320-6012.ijrms20130515

Cite this article as: Suvera MS, Damor PB, Patel SV. Surgery for inguinal hernia in pediatric age. Int J Res Med Sci 2013;1:112-5.