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Original Article

THREE YEARS EXPERIENCE OF INGUINAL HERNIA IN CHILDREN IN BSMMU

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Abstract:

Objective: **The aim of this study is to evaluate the management of inguinal hernias in children as a day case surgery in elective basis.**

Methods**: From July 2011 to June 2014, 141 infants and children with inguinal hernias were seen, operated on, and followed up as outpatient procedure in the Department of Paediatric Surgery of Bangabandhu Sheikh Mujib Medical University Dhaka, Bangladesh (BSMMU)**

Age, sex, side of hernia, presence of an associated hydrocele/ undescended testes/ VPshunt, occurrence of contralateral hernia, clinical aspects of these patients, type of surgery, mortality, and mobidity were studied

Results**: The ages ranged from 2months to 14 years (mean age, 6.28 years) with a male-to female ratio of 3:1. There were 59.6% right, 34.8% left, and 5.7% bilateral hernias (all are indirect variety).The most common associated anomaly was hydrocele in 29(20.8%)patients, undescended testis in 9(6.5%) patients and in 4(2.8%) patients had ventriculoperitoneal shunt.**

The content of the hernial sac in 56(39.7%) patients were omentum and next were intestine in 30(21.3%) patients.

Overall, there were 13 (9.2%) sliding hernias. Among them in five case of boys four (80%) patients contents were cecum and one (20%) patient was sigmoid colon. In case of girls, contents were ovaries in all eight patients.

Contralateral groin exploration was not done of any patients at the initial hernia repair.

There were recurrences in 2(1.4%) patients, 13(9%) patients developed wound infections, and 21(15%) patients had scrotal haematocele. There were no postoperative deaths. A contralateral hernia developed in three (2%) children within one year after the initial repair.

Conclusions**: Inguinal hernia is a common surgical condition in children. Elective surgery is associated with minimal morbidity. A routine contralateral groin exploration is not done at the initial hernia repair**

Keywords: Inguinal hernia, Children, Outcome

Introduction:

Inguinoscrotal swellings in children are frequently encountered in the surgical practice. Most of these swellings are congenital and they have an asymptomatic presentation. They are related to the descent of the testes and the processus vaginalis.[1] To date, the mechanism of the testicular descent is speculative, with various hypothesis being put forth, the most recent one being that of “WATER-TRAP” which was made by Heyns and Deklerk. The abnormalities in the descent result in ectopic or undescended testes. The undescended testis which is found in more than 90% of the cases, is associated with congenital inguinal hernias.[2]

The swelling in the inguinal region is described by the parent. Once the diagnosis is confirmed, the rule is to repair. The question arise whether a contra-lateral exploration should be performed or not, and if so, whether the decision should be based on the

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site, age or sex. Other problem is the failure of the recognition and the repair of the sac, which results in recurrent inguinal hernia.[3]

Congenital inguinal hernias are common in infants and children, for which surgery constitutes the most frequent method of treatment in the paediatric age-group. The difficulties which are encountered in paediatric inguinal hernia operation connected with a thin transparent sac in association with the undescended testis and the different in opinions on the timing of the operation when the two conditions co-exist.

The recent trend is to manage inguinal hernia by herniotomy on a day care basis. Although a laparoscopic hernia repair is conducted in various institutions in Bangladesh.

This study was conducted to report our experience of management of inguinal hernia in paediatric population.

Materials and Methods:

This retrospective study was carried out from July 2011 to June 2014 (3 years), 141 infants and children (mean age 6.28years) with inguinal hernias as elective outpatient procedure in the Department of Paediatric Surgery, of Bangabandhu Sheikh Mujib Medical University (BSMMU), Dhaka, Bangladesh.

Age, sex, side of hernia, presence of an associated hydrocele/undescended testes/ VPshunt, occurrence of contralateral hernia, clinical aspects of these patients, type of surgery, mortality, and mobidity were studied.

The ages of the children ranged from 2months to 14years (mean age 6.28years).

The congenital inguinal hernias were diagnosed by taking a detailed history from the parents, followed by clinical examinations and then after doing some routine investigations, operated on as elective outpatient procedure.

After obtaining the history, the children were examined systematically, which included an examination of the inguinal and the groin regions and the scrotum and its contents. The site, size, variability of the size, reducibility or any underlying straining for micturition /chronic constipation and the presence or absence of the testis in the scrotal sac were noted. The respiratory system, the cardiovascular system and the abdomen were examined for any associated congenital anomalies. The children were also subjected to routine investigations of the haemoglobin levels, total laeukocyte count, differential count, bleeding time, clotting time, the routine urine examination and X-ray of chest.

After the pre-operative assessment, the affected part was prepared for surgery. The type of surgery was decided, depending upon the age of the child. If the children were of (1-5)years of age, the Mitchell Banks operation was performed, where herniotomy was done without opening the external oblique aponeurosis. If the children were of more than five year of age, the Ferguson's technique was performed, where herniotomy was done after opening the external oblique aponeurosis. In both procedures as much of the distal sac as safely possible removed or laid open.

The operative repair was done by caudal block(Regional anesthesia) of a child more than one year of age. But under one year preferred general anesthesia. Skin crease incision was given and closure was in layers, with a subcuticular suture for skin.

After the surgery, the children were nursed in the post-operative wards with antibiotics and analgesics. The post operative morbidity was treated and the children were discharged when they were fit.

All sliding hernias were uniformly treated with as high a ligation as possible and then closure (or snugging up) of the internal ring (modified Bassini repair).

With all cases of orchiopexy in UDT, having hernia, repaired at the same time.

Hernia sac content (such as loops of bowel/ omentum/ VP-shunt tube) were left alone and pushed back into the peritoneal cavity before routine high ligation of the sac.

All the patients were asked to attend the Paediatric Surgery Outpatients Department for follow-up when it was required. The relevant data of the 141 cases were tabulated by using statistical methods and they have been presented here.

Results:

The ages of the infants and children at the time of operation ranged from 2months to 14years (mean 6.28 years). There were 108(76.6%) males and 33 (23.4%) females (ratio, 3:1) with 59.6% right, 34.8%left, and 5.7% bilateral inguinal hernias.

The most common associated anomalies were hydrocele 29 (20.8%) patients, undescended testis

9(6.5%) patients and 4(2.8%) patients had ventriculoperitoneal shunt.

The content of the hernial sac in 56(39.7%) patients were omentum and next were intestine in 30(21.3%) patients.

Contralateral groin exploration was not done any patients at the initial repair.\

Table-I
Demographic features of the study group

Age in years	Frequency	Percent
Age group	Less than 1year 12	8.5%
1-5years	64	45.4%
5-10years	45	31.9%
>10years	20	14.2%
Sex		
Male	108	76.6%
Female	33	23.4%
Total	141	

Most 17(58.6%) patients of the hydroceles were right-sided and 12 (41.3%) patients were left-sided.

4(2.8%) patients had VP shunts, of which 3 (75%) patients were on right side and 1 (25%) patients on left side.

Among the 9(6.5%) patients of undescended testes, 6(66.7%) patients on the right side and 3(33.3%) patients on the left side.

Overall, there were 13 (9.2%) sliding hernias. Among them in five case of boys four (80%) patients contents were cecum and one (20%) patient was sigmoid colon. In case of girls, contents were ovaries in all eight patients.

A contralateral hernia developed in three (2%) children. More than half (66.7%) of these contralateral hernias appeared within 1 year of the initial hernia repair.

There were 2 (1.4%) recurrences, all of them were boys. Recurrences occurred within 1 year of the initial hernia repair. No recurrent inguinal hernias, once repaired, recurred again.

13(9%) patients developed wound infections and 21(15%) patients developed scrotal haematocele. No deaths related to the hernia repair occurred during this 3-year series.

Table-II
Distribution of the study group according to diagnosis

Side		Frequency		Percent
Right sided inguinal hernia	Male	61	84	59.6%
	Female	23		
Left sided inguinal hernia	Male	43	49	34.8%
	Female	6		
Bilateral inguinal hernia	Male	4	8	5.7%
	Female	4		

Table-III
Associated Anomalies

Anomaly		Frequency		Percent
	Side	Total		
Hydrocele	Right	17patients(58.6%)	29patients	20.8%
	Left	12patients(41.3%)		
Undescended Testes	Right	6patients(66.7%)	9patients	6.5%
	Left	3patients(33.3%)		
VP Shunt	Right	3patients(75%)	4patients	2.8%
	Left	1patient(25%)		

Table-IV
Content of the Sac

Content	Sex	Frequency		Percent
Omentum	Male	56 patients		39.7%
Intestine(Enterocele)		30patients		21.3%
Caecum	Male	4 patients	5 patients	80%
Sigmoid colon		1 patient		20%
Ovary	Female	8 patients		100%

Table-V
Morbidity

Morbidity	Frequency	Percent
Wound Infection	13patients	9%
Scrotal Hematocele	21patients	15%
Occurence of contralateral hernia	3patients	2%
Recurrence	2patients	1.4%

Discussion:

Inguinoscrotal swellings in children form a majority of the surgical conditions which require treatment

In this study, among the 141 cases of congenital inguinal hernias, 59.6% was right side, 34.8% was left side and 5.7% was bilateral. Most often the hernias are asymptomatic.

The male-to-female ratio of 3:1 noted in this study agrees with that quoted in the literature (3:1 to 10:1), as does the higher incidence of right-sided occurrence.[4,5,6]

Our indirect hernia also agrees with the thinking that the pediatric inguinal hernia develops from a continued patency of the processus vaginalis into the inguinal canal rather than a fascial defect of the posterior wall (direct hernia) as in adults.[7] This is further reinforced by the 20.8% rate of associated hydroceles in this series. The presence of 58.6% hydroceles on the right, 41.3% on the left, mirrors the distribution of the hernias and further emphasizes their common embryology.[1,5]

In this study an orchidopexy of 9(6.5%) patients were done along with inguinal hernia repair.

4(2.8%) infants and children in this series with VP shunts and hernias.There were no incarcerations in our series compared with a 20% incidence reported by Grosfeld and Cooney.[7] The reason for this discrepancy is difficult to explain, although, compared with the scrotal bowel hernias in children, the hernias in VP-shunt patients tend to be almost all complete fluid hernias. The theoretical reason for this increase is said to be secondary to increased intraabdominal pressure from the cerebrospinal fluid shunted into the peritoneal cavity.[6,8] Our results do not suggest that a routine contralateral exploration be undertaken in VP-shunt patients.

Sliding inguinal herniae are uncommon in children. They are more common in girls than in boys. In a series of Grossed et al., ovaries and fallopian tubes were found in the sacs in as many as 15% of the hernias in girls.[2] The structures which were encountered in the sliding herniae were the caecum, appendix, bladder, sigmoid colon and rarely, the uterus. In the present study, overall, there were 13 (9.2%) sliding hernias. Among them in case five of boys, four (80%) patients contents were cecum and one(20%) patient was sigmoid colon. In case of girls, contents were ovaries inall 8(100%) patients.

All sliding hernias were uniformly treated with as high a ligation as possible and then closure (or snugging up) of the internal ring (modified Bassini repair).

Hernia sac content (such as loops of bowel and VP-shunt tubing) were left alone and pushed back into the peritoneal cavity before routine high ligation of the sac.

Routine hernia repairs are performed as day care basis.

Postoperative infection in the inguinal hernia repairs in this series was in 13(9%) patients.

A stitch abscess(es) in the subcuticular skin closure although minor complication but may require additional postoperative wound care, can lead to a poor cosmetic result and causes the children and their parents needless anxiety.[9] There are only 2 articles in the

pediatric surgical literature that address this common problem.[9,10] Surprisingly, Nagar describes only 15 stitch abscesses in 2447 pediatric inguinal hernias and states: all patients responded well to incision and drainage.[10] Our incidence of stitch abscesses was seldom required incision and drainage.

Postoperative scrotal hematocele also developed in our study about 21(15%) patients.

Most of these complications are of mild to moderate degree and can be treated by a conservative approach. Other series there are no such complication are seen.

The recurrence rate in our series (1.4%) falls between other reports of 0% and 3.8%.[4,6,7, 11,12,13,14] This recurrences were because of the sac being completely missed, incompletely repaired, or not being ligated high enough. Partrick et al reported no recurrences in his series of 35 teenagers with an indirect inguinal hernia repair using a polypropylene mesh plug inserted in the internal ring and a similar mesh onlay covering the posterior wall.[13]

In this study a contralateral hernia developed in three (2%) children. More than half (66.7%) of these contralateral hernias appeared within 1 year of the initial hernia repair.

A controversy exists for routine contra-lateral exploration in the absence of a clinical inguinal hernia. Various modalities have been described for detecting contra-lateral hernias, but their efficacy and necessity are debatable. Holder and Rescorla et al, recommended a routine exploration of the opposite site.[15,16] The recent consensus is on a contra-lateral exploration, only when it is indicated. In our study, only the side with an obvious hernia was operated on.

Conclusion:

Inguinal hernias are the common congenital conditions in children, presented with inguinoscrotal swellings. Unless an emergency, herniotomy is the choice of treatment as an elective day care surgical procedure without any significant complications.

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