



Original Article

PEDIATRIC INGUINAL HERNIOTOMY WITH AND WITHOUT EXPLORATION OF INGUINAL CANAL

UDDIN SMB¹, WAHED MA², RAHMAN MT³, MOHAMMAD S⁴, ALAM MT⁵, SALAHUDDIN M⁶, ROY NC⁷, MOYENULLAH M⁸

Abstract:

Pediatric inguinal herniotomy can be done with exploration of inguinal canal and without exploration of inguinal canal. The External Oblique Aponeurosis (EOA) should be closed if herniotomy was done by exploration of inguinal canal. On the other hand, herniotomy can be performed through superficial inguinal ring without exploration of inguinal canal; because superficial and deep inguinal ring were superimposed in pediatric patient.

This prospective study was carried out in the department of Pediatric Surgery, M Abdur Rahim Medical College Hospital & other private hospitals in Dinajpur from July 2013 to June 2017. Total number of the patients were 180. Among them herniotomy were done without exploration (group A) of inguinal canal in 90 patients and with exploration (group B) in 90 patients. Age ranged from 1 month to 10 years in both groups.

Mean time was taken to complete the operation were 23 minutes and 29 minutes in group A & group B respectively. Results were uneventful in 85 and 83 patients in group A & group B respectively. Superficial wound infection occurred in 01 in group A and 02 patients of group B. Scrotal swelling occurred in 04 and 05 patients in group A and group B respectively. No recurrence or death was occurred in both groups of patients.

The overall outcome of inguinal herniotomy was found better in group A patients. So Pediatric inguinal herniotomy without exploration of inguinal canal could be a better option than that of conventional procedure.

Key Words: Inguinal Herniotomy, External Oblique Aponeurosis

Introduction :

Inguinal hernias are common in infants and children, for which surgery constitutes the most frequent method of treatment in the pediatric age group.¹ Open herniotomy has been time honored treatment for pediatric inguinal hernia. The constrains of the developing world, conventional open herniotomy can justly be performed hernias, as the standard of care, in centers lacking laparoscopy.²

Conventionally inguinal herniotomy was performed by giving incision to the external oblique aponeurosis (exploration of inguinal canal). The cremasteric muscle should be separated to identify hernial sac. After herniotomy the aponeurosis must be closed to maintain anatomical continuity. In our study herniotomy were done by both conventional method and new technique (without exploration of inguinal canal). The results were evaluated and patients were followed up for 06 months.

1. Dr. S. M. Borhan Uddin, Assistant Professor, Department of Pediatric Surgery, M Abdur Rahim Medical College, Dinajpur, E-mail: dr.smborhan@gmail.com Mobile: 01912857128 (For Correspondence)
2. Dr. Md. Abdul Wahed, Senior Consultant, Department of Pediatrics, General Hospital, Dinajpur.
3. Dr. Md. Tahidur Rahman, Consultant, Department of Surgery, M Abdur Rahim Medical College Hospital, Dinajpur
4. Dr. Sakil Mohammad, Medical Officer, Department of Pediatric Surgery, M Abdur Rahim Medical College Hospital, Dinajpur
5. Dr. Md. Touhid Alam Assistant Registrar, Department of Surgery, M Abdur Rahim Medical College Hospital, Dinajpur
6. Dr. Md. Salahuddin, Registrar, Department of Surgery, M Abdur Rahim Medical College Hospital, Dinajpur
7. Assistant Registrar, Department of Pediatric Surgery, M Abdur Rahim Medical College Hospital, Dinajpur
8. Indoor Medical Officer, Department of Surgery, M Abdur Rahim Medical College Hospital, Dinajpur.

Correspondence to : Dr. S. M. Borhan Uddin, Assistant Professor, Department of Pediatric Surgery, M Abdur Rahim Medical College, Dinajpur, E-mail: dr.smborhan@gmail.com Mobile: 01912857128

Materials and Methods :

This is a prospective study conducted in the admitted patients of Department of Pediatric Surgery, M Abdur Rahim Medical College Hospital and other private hospitals, Dinajpur from July 2013 to June 2017 (4 years). Data were collected from outdoor and indoor admission registrar, OT registrar and from follow-up of the patients.

Consent of the parents :

Appropriate written informed consent was taken from the legal guardians to include the patients in this study. Patients were selected randomly for both groups after admission in the hospital.

Objective of the study :

To compare the outcome of the pediatric patients undergoing inguinal herniotomy with and without exploration of inguinal canal.

Inclusion Criteria :

Male inguinal hernia
Female inguinal hernia
Communicating hydrocele
Vaginal hydrocele
Encysted hydrocele of the cord

Exclusion Criteria :

Strangulated inguinal hernia
Incarcerated inguinal hernia
Direct inguinal hernia
Recurrent inguinal hernia
Inguinal hernia with undescended testis (UDT)

Methodology :

Total numbers of admission were 190. Among them 10 Patients were excluded according to the exclusion criteria and 180 patients were finally included for the study.

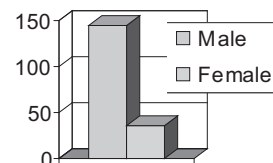
There are two groups of patients:

Group A: 90 patients who undergone herniotomy without exploration of the inguinal canal.

Group B: 90 patients who undergone herniotomy with exploration of the inguinal canal.

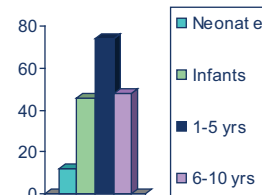
Sex of the patients:

Male: 145(76.31%)
Female: 35(23.69%)
M: F= 4.2:1



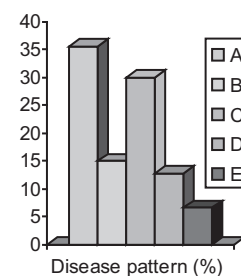
Ages of the patients:

Neonates: 12(6.6%)
Infants: 46(25.5%)
1-5 yrs: 74(41.1%)
6-10 yrs: 48(26.6%)



Disease Pattern:

- A. Unilateral inguinal hernia: 64(35.5%)
B. Bilateral inguinal hernia: 27(15%)
C. Communicating hydrocele: 54(30%)
D. Encysted hydrocele of cord: 23(12.7%)
E. Vaginal hydrocele: 12(6.6%)



Surgical Procedure :

GroupA (New technique):

Inguinal herniotomy was done without exploration of inguinal canal.

A small lower crease incision was given just lateral to pubic tubercle. Superficial inguinal ring was identified. The hernial sac was identified in the superficial inguinal ring. The sac was separated from vas & vessels up to the neck and herniotomy done. As the superficial and deep inguinal rings were superimposed in pediatric patient, so herniotomy was performed easily without exploration of inguinal canal in this group of patients. Here, no need of closure of any facial defect.

Advantage of Group A patients:

Maintain anatomical continuity (cremaster, EOA)
Less chance of ilioinguinal nerve injury and bleeding
Relative small incision (1-1.5cm)
Easy dealing of hydrocele & female hernia
Less tissue injury
Time saving (23 minutes)

Disadvantage of groupA patients:

Need expert surgical team
 Delineation of anatomy
 Difficult to handle complicated hernias

GroupB (Conventional procedure): Inguinal herniotomy were done by conventional procedure (with exploration of inguinal canal) by giving incision to the external oblique aponeurosis(EOA).

A lower inguinal crease incision was given more lateral than groupA patients. Then incision was given to explore EOA. After retraction of the cremasteric muscle hernial sac was identified, separated and ligated at deep inguinal ring after sac excision. Then external oblique aponeurosis was closed. During exploration and closure of the EOA ilioinguinal nerve was preserved carefully. After herniotomy closure of the EOA was mandatory to maintain anatomical continuity of the inguinal canal.

Advantage of groupB patients:

Approach- Relatively better
 Easier for the beginner

Disadvantage of groupB patients:

Breaking of anatomical continuity
 Separation of cremaster
 Cutting of EOA
 Repair of EOA
 Chance of Ilioinguinal nerve injury
 Possibility of bleeding
 Time consuming (29 minutes)

Results:

In Group A: uneventful outcome occurred in 85(94.4%), wound infection in 01(1.1%) and scrotal swelling in 05(5.5%) patients

On the other hand in Group B: uneventful outcome occurred in 83(92.2%), wound infection in 02(2.2%) and scrotal swelling 04(54.4%) patients.

No recurrence or death was occurred in both groups of patients.

Discussion:

Inguinal hernia is a common problem among pediatric age group. Surgery is the definite treatment for this particular problem. Pediatric Surgeons frequently do herniotomy operation. Both Laparoscopic and open herniotomy are practiced by the Pediatric Surgeon. Although the trend of laparoscopy in the treatment

of inguinal hernia is increasing, because of some economic factors, open surgery remains the most commonly approach.³ Inguinal herniotomy is performed via an inguinal skin crease incision and involves dissection, division and proximal ligation of the hernial sac.⁴ As no repair (herniorrhaphy) is to be performed in pediatric patients, there is an argument for disturbing the shutter mechanism of the inguinal canal as little as possible and preserving an unscarred superficial ring.⁵

Cosmetically acceptable minimum scar are desired by most of the parents. We can serve their purpose by minimal invasive surgery. This surgery should be done with a small incision, minimum tissue handling, minimum bleeding and without injuring vital structures. Time is also an important factor. David A. Lloyd has advocated that it is not necessary to incise the external oblique aponeurosis in infant, since the internal ring lies almost directly beneath the external ring.⁶ But we have done inguinal herniotomy without giving incision to the external oblique aponeurosis in older children also.

In our study, in groupA patients herniotomies were done without exploration of inguinal canal. Here, incisions were small, anatomical continuity of the canal were maintained, bleeding was less, less chance of injury of the ilioinguinal nerve and it was a time saving procedure. In a series of 66 patients of similar type study the authors have shown that the operation time was significantly shorter in inguinal hernia repair techniques without opening the external oblique muscle fascia than the other technique.⁷ Here, scrotal swelling occurred in 5 patients in groupA and 4 patients in groupB. Scrotal swelling in groupA patients was more, it was due to separation of whole sac in some cases of complete hernia or excision of big hydrocele. Scrotal swelling usually resolved spontaneously. Study has shown that scrotal swelling is frequent in small infant, with resolution occurring by six months after surgery.⁸ In our study, there was no recurrence of hernia was seen and mortality was also absent. Orver Swenson has stated that surgical repair of inguinal hernia in infancy and childhood has had an excellent record. The mortality rate has been low and the rate of recurrence has been far lower than in adults.⁹

Complications of the open approach include wound infection, bleeding, ilioinguinal nerve injury, vas and vessel damage and recurrence.¹⁰ David A. Lloyd also

observed that chance recurrence is more if herniotomy done with exploration of inguinal canal (due to weakness of posterior wall). Herniotomy by conventional procedure are usually practiced by most of the Pediatric Surgeons. This study shows better outcome in group A patients regarding almost all parameters except few limitations.

So, we can do inguinal herniotomy operations without exploration of inguinal canal except complicated hernias.

Limitation of the study :

Study period was only 04 years

Follow-up period was 06 months

Conclusion :

The anatomy of inguinal canal could be kept intact if herniotomy was done without giving incision to the external oblique aponeurosis. Risk of ilioinguinal nerve injury was less and the operation time was also less in Group A patients.

The findings of our study indicated that though the complications of two repair methods were almost similar but the time of procedure was shorter in herniotomy without exploration of inguinal canal (group A) than that of conventional procedure (group B). The overall outcome of inguinal herniotomies were found better also in group A patients. So, Pediatric inguinal herniotomy without exploration of inguinal canal could be a better option than that of exploration of inguinal canal.

Recommendation:

Uncomplicated pediatric inguinal herniotomy can be done through superficial inguinal ring, without exploration of the inguinal canal.

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