

## PREPERITONEAL APPROACH FOR REPAIR OF INDIRECT INGUINAL HERNIA IN CHILDREN

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**Background purpose:** *the authors have been using a preperitoneal approach for treatment of indirect inguinal hernia in children for the last 18 months. The aim of this paper is to report on this experience*

**Methods:** *between December 2000 and may 2002 we used the preperitoneal approach through a transverse lower central abdominal crease incision for repair of 45 boys with indirect inguinal hernias, 5 of them with clinically detectable bilateral hernia and 7 with incarcerated hernia, we explored the contralateral side in the same time.*

**Results:** *Herniotomy, reduction of contents and dealing with it were found to be much easier than the inguinal approach. Complications were minimal. Exploration of the contralateral side was an added advantage.*

**Conclusions:** *preperitoneal approach appears to be a safe and easy technique for repair of inguinal hernia in children and for solving the dilemma of contralateral exploration. The authors recommend that it should be used more commonly.*

*Key words:* Inguinal hernia, preperitoneal approach.

### INTRODUCTION

Repair of indirect inguinal hernia in children poses a surgical challenge, which is further heightened when the hernia becomes irreducible. It was described as one of the most difficult operations in the pediatric surgery field <sup>(1)</sup>.

The traditional approach is exploration via the external ring, although this has several limitations:

1. The nature of the sac contents can't be ascertained if the hernia reduces spontaneously after induction of anesthesia.
2. A second incision is usually required if bowel resection becomes necessary.
3. Dissection of the cord structures is difficult, making them vulnerable.
4. The hernia sac at this level is often friable and difficult to be repaired <sup>(2)</sup>.

Difficult hernia repairs in small infants, incomplete or inadequate dissection of the sac, unintentional and unrecognized tears in the sac at the internal ring, dissection and disruption of the floor of the inguinal canal, all, are associated with a higher incidence of hernia recurrence<sup>(3)</sup>.

In the classic anterior approach herniotomy, dissection of the intimately adherent fine thin vas necessitates great patient and delicate hands and we may need to inject saline through a fine needle to create a cleavage line. Attempted dissection of the cord structures from the sac before high ligation may lead to significant bleeding and postoperative induration and hematomas. Damage to the vas deference and testicular blood supply can result in sterility<sup>(4)</sup>.

After these precautions in dissections the postoperative edema and -in many times hematoma-are mostly inevitable. The incidence of vas injury is intimately related to the surgeon's experience, but it is still a significant factor in obstructive azospermia in adult life in bilateral cases.

Difficulty and high rate of complications seen after the traditional operation have initiated a search for an

alternative to the commonly used approach through the inguinal canal<sup>(2)</sup>. We have been using a preperitoneal approach for all cases of inguinal hernia in children for the last 18 months. The aim of this paper is to review our experience with this technique.

## PATIENTS AND METHODS

Between December 2000 and May 2002, forty five children were operated upon for indirect inguinal hernia using the preperitoneal approach. There were 5 cases of clinically detectable bilateral hernia and 7 cases with incarcerated hernia. Twelve children had ipsilateral impalpable testis. Incarcerated hernia were defined as those cases that failed to reduce with gentle manipulation or spontaneously under general anaesthesia.

### *Surgical Technique*

Under general endotracheal anaesthesia, through a central transverse lower abdominal crease incision, the anterior rectus sheath is incised transversely. The recti are separated apart in the midline, the peritoneum is peeled up to expose the back of the inguinal canal and the internal rings. The cord is identified on passing through the internal ring. The sac is peeled out of the canal as high as possible and dissected from the vas and the testicular vessels. The sac is opened to check for the viability of the contents in doubtful cases. The sac is cut and ligated high leaving the distal part to fall with the testis. The deep ring is narrowed by a single stitch in some cases with large hernial sac with wide internal ring. The contralateral side is explored in the same manner

## RESULTS

All our patients were boys. Their ages ranged from 3 months to 10 years with mean age of 4 years. Five of them were presenting with bilateral inguinal hernia, while 7 had incarcerated unilateral hernia. All hernias were de novo. The average operative time was 45 minutes (range from 25 to 70 minutes), longer time was reported with bilateral herniotomies and those with ipsilateral undescended testis.

All the hernias contained bowel (either small intestine or colon). We did not need to perform any resection in any of our patients. The operative difficulties were limited to accidental opening of the peritoneum in 7 cases, bleeding from the inferior epigastric vessels in 3 patients and they were managed by ligation of the bleeding vessels, and difficult reduction of the hernial contents in two of the incarcerated hernias and were easily managed by gentle external pressure aided by good relaxation provided by the anaesthetist. Single intra-operative dose of first generation cephalosporine was given according to the weight of the child. Post operative course was very quiet in almost all cases, sodium diclofenac suppository was given as an

analgesic in need. Post-operative complications were limited to superficial wound infection in 2 cases.

In all cases dissection of the sac from the vas and spermatic vessels at this high level was easy enough to cause no hematomas or injury of the vas and vessels.

Cases with impalpable ipsilateral testis were managed by retroperitoneal dissection of the testis and vas and orchidopexy in the dartos pouch.

Post-operatively, only those with ipsilateral maldescended testis developed mild edema of the cord. In all other cases we did not report any hematoma or edema of the cord or the testis. No reported cases of post-operative testicular ascend.

We did exploration of the contralateral side in all cases (through the same incision), we discovered a non manifested contralateral sac in 2 cases so a total of 7 bilateral cases (5 manifested, 2 hidden) were reported in our series (15.6%).

A single case of recurrence was recorded after 8 months, and it was the first case in our series. Recurrence is mostly due to improper identification of the peritoneal sac.

## DISCUSSION

The classic anterior approach for indirect inguinal hernia in children convinces most of the pediatric surgeons in spite of harbouring a lot of disadvantages. Difficulty in dissecting the cord structures, dealing with infarcted bowel is not easy (it may necessitate separate celiotomy), high dissection of the sac and repair of the torn sac is difficult and postoperative cord edema (and hematoma in many times) that occur in most cases are the main disadvantages of this classic approach.

Jones and Bagley described the preperitoneal approach for orchidopexy<sup>(5)</sup>, later, they described the same approach for management of incarcerated inguinal hernia in infants<sup>(6)</sup>.

Kamaledeen and shanbhogue., reported that the preperitoneal approach is safer for the children with incarcerated inguinal hernia and they recommended more common use of this technique in management of incarcerated inguinal hernia in children<sup>(7)</sup>. Turnock et al. agreed with his opinion and said that it is the ideal approach for incarcerated inguinal hernia in infants<sup>(2)</sup>.

Our results agree with the above series of having minimal operative difficulty (peritoneal tears) and minimal postoperative complications. We are concentrating on the great advantage of surprisingly very smooth postoperative course and absence of any cord edema or hematoma. In our

opinion this may represent the most obvious advantage of this approach.

Accessibility of the contralateral side for routine exploration can resolve the dilemma of to explore or not to explore the other side searching for innocent sac. From our results, the incidence of bilaterality of congenital sac (either manifested or hidden) is 15.6%.

Through this approach, dealing with other surgical problems can be made easier as impalpable undescended testis. This agrees with the results of Jones et al.<sup>(5)</sup>.

## CONCLUSION

The preperitoneal approach carries the advantages of 1) easier dissection of the vas and vessels, 2) accessibility of the hernia contents for further manoeuvres, 3) solving the dilemma of contralateral exploration as it is easily done through the same incision, 4) better dealing with associated high retroperitoneal maldescended testis.

We recommend a more common use of the preperitoneal approach when we are dealing with indirect inguinal hernia in children, even for the non complicated cases.

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