



Prospective Randomized Trial

Laparoscopic pediatric inguinal hernia repair: a controlled randomized study



Mohamed Abd-Alrazek*, Hatem Alsherbiny, Mohamad Mahfouz, Omar Alsamahy, Rafik Shalaby, Abdelmoniem Shams, Ahmed Elian, Yasser Ashour

Pediatric Surgery Department, Al-Azhar University Hospitals, Cairo, Egypt

ARTICLE INFO

Article history:

Received 15 January 2017

Received in revised form 7 July 2017

Accepted 9 July 2017

Key words:

Laparoscopic hernia repair
Purse string suture
Intracorporeal sutures
Disconnection of the hernia sac
Inguinal hernia

ABSTRACT

Background: Inguinal hernia repair is one of the most frequently performed surgical procedure in infants and young children. Laparoscopic hernia repair in infancy and childhood is still debatable. There are many techniques available for laparoscopic hernia repair in pediatrics. The aim of the study is to compare laparoscopic intracorporeal purse-string suture ligation of the hernia defect leaving the sac intact versus disconnection of the hernia sac with intracorporeal suturing of proximal part.

Patients and methods: A prospective controlled randomized study of laparoscopic repair of congenital inguinal hernia (CIH) was conducted over a period of 2 years and 8 months from April 2014 to December 2016. All patients were randomized into two equal groups: Group I (n = 66) received intracorporeal purse string suture ligation of the hernia sac at internal inguinal ring [IIR] leaving the sac intact; and Group II (n = 66) received disconnection of the hernia sac with intracorporeal suture of proximal part at IIR.

Inclusion criteria: Male patient with bilateral CIH, questionable other side, cases of CIH associated with umbilical hernia and parental request.

Exclusion criteria: Recurrent cases, complicated cases, hernia of canal of Nuck in females, inguinal hernia with undescended testis, parental refusal. The main outcome measurements were operative time, postoperative hydrocele formation, recurrence rate.

Results: This study included 132 patients with 157 hernia defects. Their age ranged from 6 months to 3 years. Statistically significant differences regarding the demographic data of the groups. All cases were completed successfully without conversion. There was no statistically significant difference between groups regarding intraoperative complications and hospital stay. There was statistically significant difference in the operative time and post-operative complications between the studied groups.

Conclusions: Laparoscopic inguinal hernia repair by disconnection of the hernia sac at the IIR with peritoneal closure is safe and feasible method. It has a lower recurrence rate than the purse string suturing leaving the sac intact.

Published by Elsevier Inc.

Congenital inguinal hernia is a common pediatric surgical disease [1]. It is traditionally treated by open herniotomy with high ligation of the hernia sac (gold standard). However, laparoscopy is gaining popularity nowadays and indeed, it has an established role in the management of pediatric inguinal hernia and it is fast becoming an alternative to open herniotomy [2].

Initially, laparoscopy was used to examine the contralateral groin, either through the opened processus vaginalis during open unilateral herniotomy, or through placement of umbilical port [3]. Recently, many centers routinely perform laparoscopic hernia repair in children and there have been numerous reports describing various laparoscopic

techniques. Reported advantages of laparoscopic hernia repair include; excellent visual exposure, minimal dissection, less complications, comparable recurrence rates, and improved cosmetic results compared with the traditional open approach [4–6].

The recurrence rate of laparoscopic hernia repair is about 4%, which is mostly due to technical factors of early-phase and lack of surgical experience in the beginning of the training curve. However, the non-transection of the hernia sac in most cases of laparoscopic hernia repair may be the important factor for recurrence and postoperative hydrocele formation [7].

Becmeur et al. and Tsai et al. described a technique in which they resected the processus vaginalis and then close the inguinal ring and they claimed that they have excellent results with 0%–1.2% recurrence [8,9]. Riquelme et al. [10] described technique based on the theory that CIH is due to a patent processus vaginalis, and therefore, the

* Corresponding author at: Al-Azhar University Hospitals, Cairo, Egypt. Tel.: +20 1223975160.

E-mail address: a.mohamad70@yahoo.com (M. Abd-Alrazek).

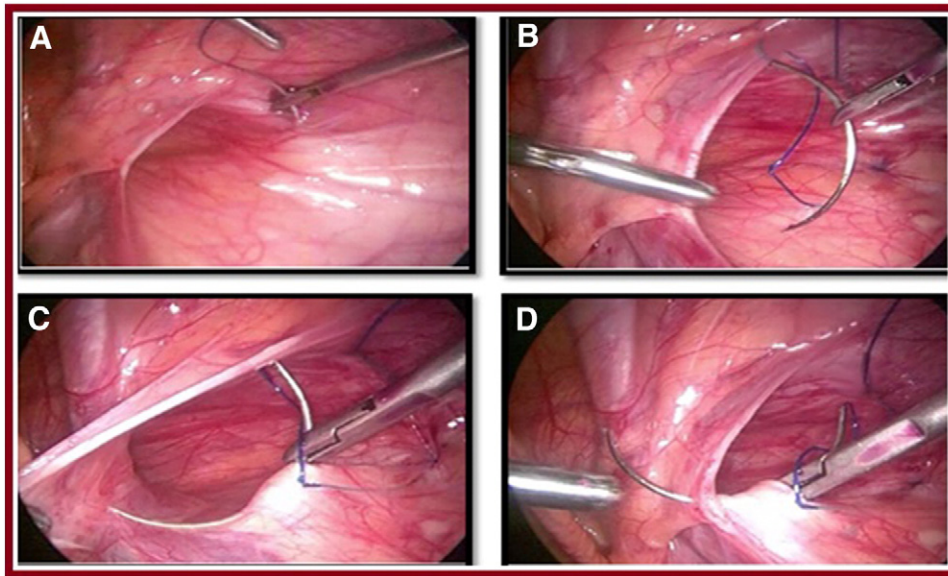


Fig. 1.-1: Showing needle is passing around the lower margin of IIR during purse string suture of hernia sac at the IIR (A-D). 1-2: Showing needle is passing around the upper margin of IIR (A-B). Complete encirclement of suture around the hernia sac at the IIR without skip area. Tightening of the suture around the IIR (C-D).

procedure should be entirely resect it, with or without closure of the internal ring. This allows the peritoneal scar tissue to close the area of the ring. Also, this scarring occurs in the extent of the inguinal canal where the dissection took place, therefore causing the same peritoneal scarring and sealing of the inguinal floor with complete resolution of the problem.

However, a few studies address the superiority of a technique the others and to date there is no controlled randomized study to compare laparoscopic hernia repair with disconnection of the hernia sac and closure of the peritoneum at IIR versus insertion of purse string and ligation of the sac in continuity. That is why we are conducting this controlled randomized study to evaluate these different laparoscopic techniques for CIH repair to address any value of disconnection of

the hernia sac on the outcome as recurrence, hydrocele and testicular atrophy [2].

1. Patients and methods

This prospective controlled randomized study of laparoscopic inguinal hernia repair [LIHR] was conducted on 132 male infants and children at the Pediatric Surgery Department, Al-Azhar University Hospitals, Cairo, Egypt, over a period of 2 years and 8 months from April 2014 to December 2016. The protocol was discussed and approved for clinical study by the Ethical Research Committee of Al-Azhar University and a written informed parental consent was obtained. All parents were informed about the pathology and the suggested

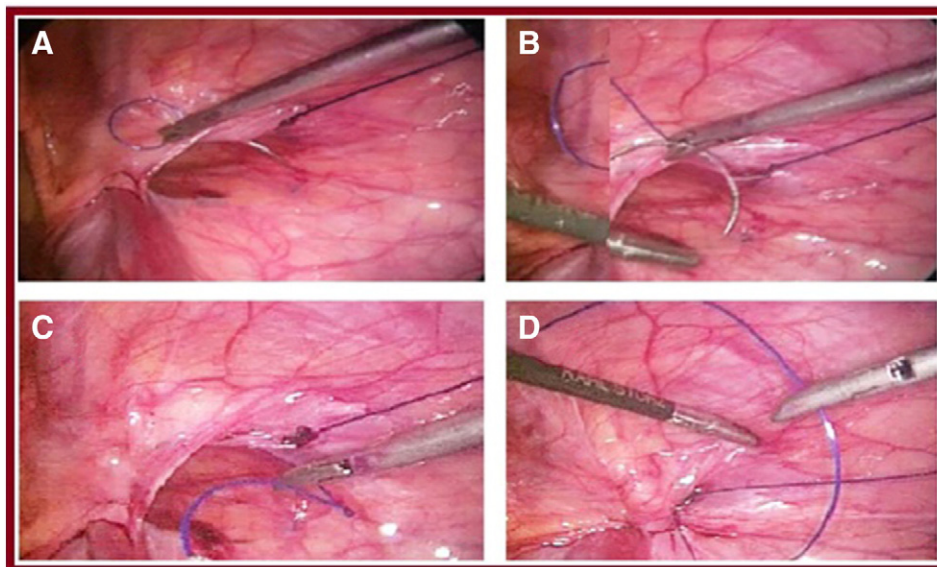


Fig. 1.-2: Showing needle is passing around the upper margin of IIR (A-B). Complete encirclement of suture around the hernia sac at the IIR without skip area. Tightening of the suture around the IIR (C-D).

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