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SHORT COMMUNICATION

Unilateral inguinal hernia: laparoscopic or inguinal approach. Decision making strategy: a prospective study

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Abstract The management of the contralateral region in a child with a known unilateral inguinal hernia is a debated issue among paediatric surgeons. The available literature indicates that the perspective of the child's parents is seldom. This study was performed to evaluate parents' views on this topic. After the Ethical Committee's approval, 100 consecutive patients under 12 years of age with a unilateral inguinal hernia were studied prospectively from March 2010 to September 2010. After an oral interview, a study form was given to the parents about the nature of an inguinal hernia, the incidence of 20 to 90% of a contralateral patency of the peritoneal-vaginal duct and the possible surgical options (inguinal repair or laparoscopic repair). The parents' decision and surgical results were analyzed. Eighty-nine parents chose laparoscopic approach, and 11 parents preferred inguinal exploration. Regarding their motives, all 89 parents requesting laparoscopic approach indicated that the convenience and risk to have a second anaesthesia was the primary reason of their decision. The 11 parents who preferred inguinal approach indicated that the fear of a new surgical technology was their primary reason. Conclusion There is no consensus about the management of paediatric patients with a unilateral inguinal hernia. We believe that a correct decision-making strategy for parents' choice is to propose them the both procedures. Our study shows that parents prefer laparoscopic inspection and repair in the vast majority of cases.

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Introduction

The management of the contralateral region in a child with a known unilateral inguinal hernia has been debated for several years [1]. Analyzing the international literature, there are mainly two procedures to adopt: unilateral inguinal repair and laparoscopic repair [9, 10]. There is no evidence in the international literature about the better procedure to adopt [3, 11, 12].

There are advantages and disadvantages with both approaches. Laparoscopy has the advantage to check and eventually treat a contralateral patency of the peritoneal-vaginal duct (PPVD), but it requires general anaesthesia with orotracheal intubation and a trocar to enter the abdominal cavity [11]. The inguinal approach has been the gold standard for decades, and the anaesthesia is lighter compared to laparoscopy; however, using the inguinal approach, there is the risk of missing a contralateral patency in 20–90% of cases and of a metachronous inguinal hernia in 8–20% of cases [1, 2, 4].

Although there are numerous articles regarding the data about the incidence of a contralateral patency of the peritoneal-vaginal duct, allowing surgeons to decide whether the inspection or the evaluation of the contralateral region is indicated, the perspective of the child's parents regarding these decisions is rarely reported [5, 10]. In our unit, both inguinal and laparoscopic repair are performed, we decided to set up a prospective study to evaluate parents' views on the question regarding their preferred technique to adopt in a child with a known unilateral inguinal hernia.

Patients and methods

After the Ethical Committee's approval, 100 consecutive patients under 12 years of age with a unilateral inguinal hernia seen in our unit were studied prospectively from March 2010 to September 2010. They were 75 boys and 25 girls with a median age of 3.2 years (1 month–12 years). Exclusion criteria were: a bilateral hernia, recurrent hernia, incarcerated hernia and the age limit under 1 month and over 12 years.

At the time of the initial preoperative visit and interview, a study form was given to both parents about the nature of an inguinal hernia, the incidence of 20 to 90% of a contralateral PPVD and the possible surgical options. Three surgical options were discussed with the parents, and they included: repair of the known unilateral inguinal hernia only, repair of the known unilateral inguinal hernia with contralateral inguinal exploration and repair of a PPVD if indicated, or laparoscopic procedure and contralateral laparoscopic repair of a PPVD if indicated.

The parents were given time to read independently the study form, and subsequently, all questions were answered. Additionally, they were told specifically that there was no evidence in the literature on this topic, and in our unit, both procedures (inguinal and laparoscopic) were available, and their preference was requested.

The parents were instructed that both procedures had the similar length of surgery and recurrence rate according to the literature reports. The surgeons never expressed their opinion to avoid influencing the parents' decision, even if often requested by the parents. Two different informed consents were prepared and both parents signed the correspondent informed consent before surgery.

Results

Eighty-nine parents chose laparoscopic approach, and 11 parents preferred inguinal unilateral exploration; no one chose the repair of the known unilateral inguinal hernia with contralateral inguinal exploration and repair of a PPVD if indicated. Regarding their motives, all 89 parents requesting laparoscopic approach indicated that the convenience and risk of having a second anaesthesia was the primary motive of their decision.

As for the 11 parents who preferred inguinal approach, they indicated that the fear of a new surgical technology and/or the insufflation of gas into the abdominal cavity were their primary motives.

As for technical results, all the patients were operated under general anaesthesia, the inguinal group with a laryngeal mask and the laparoscopic group with orotracheal intubation.

As for length of surgery, for the inguinal group, the length of surgery varied from 10 to 30 min (15 median), and for laparoscopic group, the length of surgery varied from 7 to 28 min (17 median). In the laparoscopic group, a contralateral patency was identified and treated in 40 patients (44.9%). In 25/40 cases, the diameter of PPVD was about 5 mm, and in 15/40 cases, about 10 mm. In the laparoscopic group, we identified a direct hernia in two patients (2.2%) (Table 1).

As for laparoscopic technique, we used a 5 or 10 mm 0° optic with two 3-mm trocars in triangulation. We used the laparoscopic repair according to Montupet's technique; after sectioning the periorificial peritoneum distally to the internal inguinal ring, the periorificial peritoneum was closed with a 3/0 suture of non-resorbable material.

In both groups with a minimum follow-up of 1 year, we had no complication and no recurrence of hernia. Cosmetic aspect was good in both groups.

Discussion

Inguinal hernia repair is one of the most common operations performed in children [1, 6, 7]. Inguinal exploration has a high success rate and a low complication rate.

However, this treatment is still controversial because of the four main aspects: (1) the exploration of the asymptomatic contralateral side, (2) the incidence of complications related to the possible damage of the vas deferens or the spermatic vessels, (3) the complications related to the surgical technique, such as recurrences of hernia or iatrogenic cryptorchidism and (4) the possibility to identify, using inguinal exploration, rare hernias such as direct or femoral

Table 1 Summary of the results of our prospective study on a series of 100 patients with unilateral inguinal hernia analyzed

Procedures proposed to the parents	Laparoscopic approach	Unilateral inguinal exploration	Bilateral inguinal exploration
Parental decision	89/100 patients	11/100 patients	0/100 patients
Anaesthesia	Orotracheal intubation	Laryngeal mask	NA
Length of surgery	7–28 min	10–30 min	NA
Contralateral patency	40/89 patients (44.9%)	NA	NA
Complications/recurrence	0/100 patients	0/100 patients	NA

NA data not available

hernias [3, 8, 10]. Several papers report that routine bilateral exploration would disclose a contralateral sac in about 20 to 90% of cases (>89% in the first year of life), but contend that only a small percentage of these sacs (8 to 20%) would evolve into clinical hernias [3, 6].

In the last decade, a lot of papers were published on the results of laparoscopic repair of inguinal hernia, and it seems that this technique gives similar results compared with inguinal repair [3, 10, 12]. However, analyzing the international literature, there is no evidence that one of the two procedures is preferable in paediatric patients with unilateral inguinal hernia [3, 6, 10].

Our surgical team with a large experience in laparoscopic hernia repair, together with our anaesthetists, thought to organize a prospective study to evaluate parents' preference in order to plan a decision-making strategy to adopt in children and infants with a unilateral inguinal hernia. We created a form to be shown to the parents, which described the nature of inguinal hernia and the different surgical treatments to adopt. Then, two different informed consents were created: the first one for laparoscopy and the second for inguinal approach.

We explained to the parents that in laparoscopy there is the possibility of evaluating the patency of contralateral side. In case of patency, we explained to the parents that their child could have developed a metacronous inguinal hernia (for larger PPVD) or a hydrocele (for smaller one), and for this reason, thanks to laparoscopic view, we could close the contralateral size to prevent hernia or hydrocele formation.

This study was approved by the Ethical Committee of our university. A similar study had already been performed by Holcomb III et al. (2004), but in this study, the surgeons did not offer to the parents the laparoscopic repair but only a unilateral hernia repair with laparoscopic evaluation of the contralateral region through the ipsilateral hernia sac [5]. The main characteristic of our study is to offer to the parents the possibility of deciding the technique to adopt for hernia repair after illustrating them the advantages and disadvantages of both procedures.

When given the information about the possibility of a PPVD on the opposite side, in this study, 89% of the parents requested laparoscopic repair (non capisco bene cosa vuoi dire modifica) [3, 10].

Regarding their motives, all 89 parents requesting laparoscopic approach indicated that the convenience and risk of having a second anaesthesia was the primary motive of their decision. As for the 11 parents who preferred inguinal approach, they indicated that the fear of a new surgical technology together with the fear of the insufflation of gas into the abdominal cavity were their primary motives.

We think that, when for a given paediatric pathology, there are different treatments, as in inguinal hernia, it is important before performing the operation to explain to the parents the pathology itself and the different techniques to treat it, and this is an important procedure to be taken also by paediatricians. In fact, we think that the message of our study is extremely important also for paediatricians who are the first to diagnose an inguinal hernia and meet the parents before surgeons. Our study shows that when we presented options regarding the management of a unilateral inguinal hernia, parents preferred laparoscopic inspection and repair in 89% of cases.

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References

1. Becmeur F, Philippe P, Schultz AL (2004) A continuous series of 96 laparoscopic inguinal hernia repairs in children by a new technique. Surg Endosc 18:1738–1741
2. Esposito C, Montupet P (1998) Laparoscopic treatment of recurrent inguinal hernia in children. Pediatr Surg Int 1:12–15
3. Esposito C, Montinaro L, Alicchio F, Settimi A (2009) Technical standardization of laparoscopic herniorrhaphy in pediatric patients. World J Surg 33:1846–1850
4. Gorsler CM, Schier F (1994) Laparoscopic herniorrhaphy in children. Surg Endosc 17:571–573
5. Holcomb GW III, Miller KA, Chaignaud BE, Shew SB, Ostlie DJ (2004) The parental perspective regarding the contralateral inguinal region in a child with a known unilateral inguinal hernia. J Pediatr Surg 39:480–482
6. Jona JZ (1996) The incidence of positive contralateral inguinal exploration among preschool children: a retrospective and prospective study. J Pediatr Surg 31:656–660
7. Kiesewetter WB, Oh KS (1980) Unilateral inguinal hernias in children. Arch Surg 115:1443–1445
8. Lau ST, Lee YH, Caty MG (2007) Current management of hernias and hydroceles. Semin Pediatr Surg 16:50–57
9. Montupet P, Esposito C (1999) Laparoscopic treatment of congenital inguinal hernia in children. J Pediatr Surg 34:420–423
10. Montupet P, Esposito C (2011) Fifteen years experience in laparoscopic inguinal hernia repair in pediatric patients. Results and considerations on a debated procedure. Surg Endosc 25:450–453
11. Schier F (2000) Direct inguinal hernias in children: laparoscopic aspects. Pediatr Surg Int 16:62–66
12. Schier F, Montupet P, Esposito C (2002) Laparoscopic inguinal herniorrhaphy in children: a three-center experience with 933 repairs. J Pediatr Surg 37:323–327