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# Laparoscopic Transabdominal Pre-peritoneal Repair of a Bilateral Inguinal Hernia in a Pediatric Female Patient in Pakistan: A Case Report

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## Abstract

Inguinal hernias, although a common occurrence, pose a significant threat to the surgical community on account of their complexity and socioeconomic consequences. Bilateral inguinal hernias, which are a rare subtype of inguinal hernias, in particular, are problematic since there are no existing definitive international guidelines for their repair. It is estimated that between 8% and 30% of inguinal hernia patients have bilateral hernias, but there is still no clarity as to whether a bilateral hernia represents a special type of inguinal hernia or two different hernias in one patient. The transabdominal pre-peritoneal repair (TAPP), totally extra-peritoneal repair (TEP), and Lichtenstein repair techniques are commonly employed depending on the resources and surgical expertise available, but there is a need to conduct large-scale, prospective, randomized-controlled trials to guide the formation of evidence-based guidelines that could be followed globally. Herein, we present the first known case of a bilateral inguinal hernia in a female pediatric patient repaired by the laparoscopic TAPP technique from Pakistan.

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**Categories:** Pediatric Surgery, General Surgery

**Keywords:** pakistan, pediatric, female, inguinal hernia, bilateral, laparoscopic repair, tapp

## Introduction

An inguinal hernia (IH) is one of the greatest challenges in surgical pathology because of its complexity, frequency, as well as socioeconomic consequences. The lifetime occurrence of groin hernia (GH), which includes both IH and femoral hernia, is 27-43% in men and 3-6% in women [1,2]. IH is mostly symptomatic and is usually diagnosed by clinical history and examination. The content of the hernial sac may be determined by imaging, particularly through ultrasound and computed tomography. Surgery is the only curative therapy for IH [3,4]. The new International Guidelines of the HerniaSurge Group only recommend the transabdominal pre-peritoneal repair (TAPP), totally extraperitoneal repair (TEP), and Lichtenstein repair techniques for IH.

A special entity among inguinal hernias is represented by bilateral hernias and only a few studies in the literature have focused specifically on bilateral IH [5,6]. Bilateral IH is rarer in females as compared to males, and it is estimated that 8-30% of hernia patients have bilateral hernias, but there is still no clarity as to whether a bilateral hernia represents a special type of IH or two separate hernias in a single patient. Herein, we present the first known case of a bilateral IH in a female pediatric patient repaired by the laparoscopic TAPP technique from Pakistan.

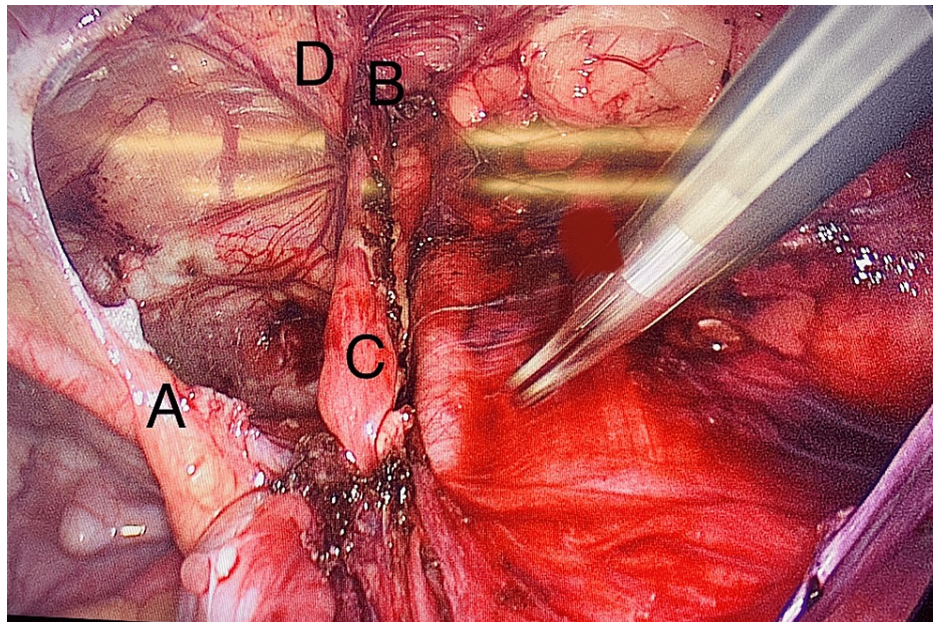
## Case Presentation

A 12-year-old female patient presented to a tertiary care hospital with a complaint of bilateral inguinal swellings since childhood. The swellings were gradually increasing in size and reducible and became more obvious when she strained, coughed, or assumed an upright position. There was no history of chronic cough, constipation, and urinary straining. The per-abdominal examination was unremarkable. The inguinal region exhibited bilateral inguinal swellings of 2.3 cm on the left side and 1.2 cm on the right side, with normal overlying skin and ill-defined edges. They were soft, non-tender, non-warm, and reducible. Ultrasound scan detected a defect of 1.2 cm in the left inguinal region and 0.8 cm in the right inguinal region, suggestive of bilateral IH.

After taking written, informed consent, bilateral laparoscopic TAPP repair was performed, which revealed a bilateral indirect IH containing the round ligament (Figure 1). Peritoneal flaps were raised 5 cm above and below the hernia defect. A prolene mesh was placed over the everted space and tagged with a tackler in order to reduce the recurrence rate. The peritoneal flaps were closed with a running non-absorbable suture. A similar procedure was done for the other defect. The postoperative period was mainly uneventful. The patient was discharged the next day and remained stable with no active issues on the follow-up visits.

### How to cite this article

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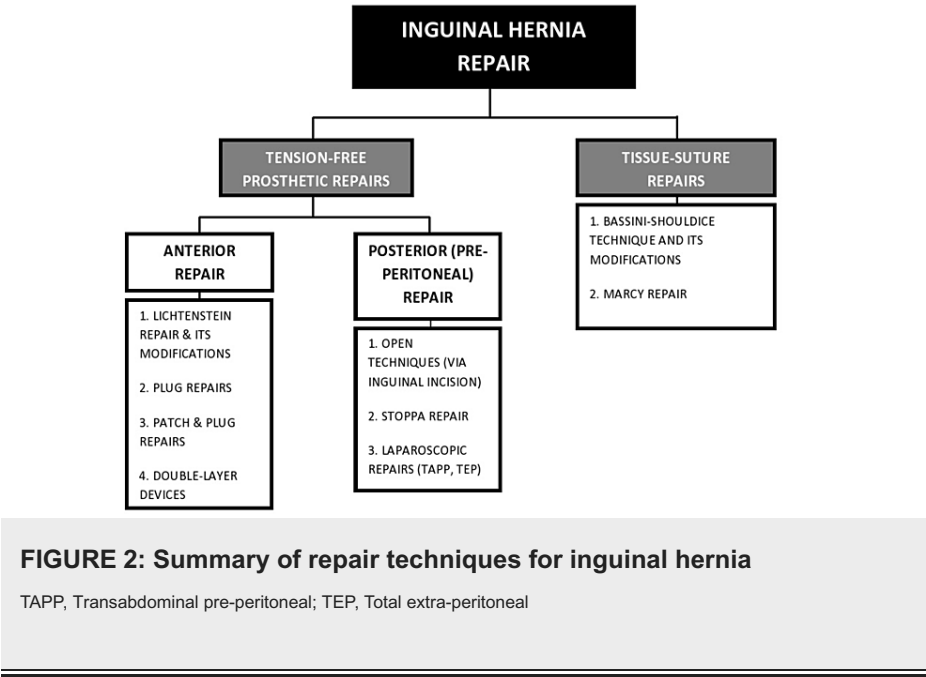


**FIGURE 1: Indirect inguinal hernia containing a round ligament**

A, Medial umbilical ligament; B, Deep inguinal ring; C, Round ligament of uterus; D, Inferior epigastric vessels

## Discussion

IH is comparatively rarer in females than males, comprising 2%-11.5% of all hernias [7]. This is due to a relatively narrower inguinal canal in females along with a wider rectus abdominis muscle. Apart from the typical symptoms of groin swelling, about one-third of the patients with IH present with a hernial complication such as abdominal pain, tenderness, irreducible hernia, and enterocutaneous fistula [8]. Out of all IH surgical repair techniques (Figure 2), the International Guidelines for GH Management recommend laparo-endoscopic repair for the treatment of primary bilateral IH, provided that surgeons with sufficient expertise and specific resources are available [1]; otherwise, the open technique is used. The TAPP and TEP approaches for IH so far have shown similar outcomes in terms of hospital stay, recovery, chronic pain, and quality of life [9]. TAPP is easier to perform; however, it has a longer operating time and a greater incidence of postoperative pain. On the other hand, TEP is reportedly associated with a greater incidence of seroma formation. A study reported that the risk for both seroma and hematoma formation is also comparable amongst TEP, TAPP, and open repair [10]. In our case, TAPP was performed based on local practices and the expertise of the surgeons involved.



While international guidelines exist for unilateral IH, no official recommendations exist for bilateral IH. However, the European Hernia Society has pointed out that laparoscopic repair of bilateral hernias is associated with improved short-term patient outcomes without compromising on long-term outcomes [3,11]. This is the primary reason why TAPP has been preferred in our local practices despite the lack of definitive guidelines. Moreover, TAPP has shown favorable outcomes for patients with unilateral IH in our setup, making it the wiser choice.

Only three randomized prospective trials (RCTs) compare laparoscopic repair of bilateral inguinal hernias to open repair. Sarli et al. demonstrated that laparoscopic repair was associated with faster recovery and decreased postoperative pain while days of hospitalization, complications, and recurrence rates were similar in both groups [12]. These results were subsequently supported by Mahon et al. in their study [13]. The third and last RCT by Ielpo et al. also seconded the results of the prior RCTs in terms of beneficial short-term results in laparoscopic repair, including recovery, postoperative pain, and complications [14]. However, all of the aforementioned trials included only a small number of patients, hence diminishing the credibility of the results. Also, only one large-scale study has deemed laparoscopic repair to be at least non-inferior to open repair and that it should be considered the ‘gold standard’ [15]. Given that this study was retrospective and non-randomized, the level of evidence is insufficient to establish a ‘gold standard’, nevertheless, it still provides an indication. Since our patient had an uncomplicated postoperative period, it is reasonable to support the prior statement and pursue the laparoscopic approach while we wait for definitive evidential guidelines.

Conclusions

TAPP repair for bilateral IH is a safe and reasonable option in terms of both short-term and long-term outcomes. Importantly, there is a need for high-quality prospective randomized studies to establish evidence-based guidelines for the definitive treatment of bilateral IH in order to streamline clinical practice and improve clinical outcomes universally. Finally, there is a further need to investigate the differences in the clinical presentation of IH and the efficacy of different surgical repairs for IH in women and men separately.

Additional Information

Author Contributions

All authors have reviewed the final version to be published and agreed to be accountable for all aspects of the work.

**Concept and design:** Shajie Ur Rehman Usmani, Arsalan Baig, Murk Lakhani

**Drafting of the manuscript:** Shajie Ur Rehman Usmani, Murk Lakhani

**Critical review of the manuscript for important intellectual content:** Shajie Ur Rehman Usmani, Arsalan Baig, Murk Lakhani

**Acquisition, analysis, or interpretation of data:** Arsalan Baig, Murk Lakhani

**Supervision:** Murk Lakhani

## Disclosures

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