



# Laparoscopic percutaneous extraperitoneal closure procedure for pediatric femoral hernia: case report

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**Abstract:** Femoral hernias are misdiagnosed in children. A 5-year-old boy who was operated for a right indirect inguinal hernia at the age of 3 was at our department by conventional route. However, a right inguinal bulge developed at 3 months after the first operation. Laparoscopy demonstrated that the patient had femoral hernia, which was located easily. The femoral orifice was closed using our LPEC method with non-absorbable thread. The patient's postoperative course was uneventful. The femoral hernia repair method using an LPEC needle turned out to be easy, safe and produce good cosmetic results.

**Keywords:** Femoral hernia; children; laparoscopic; percutaneous

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## Introduction

Femoral hernias are relatively rare in children, accounting for about 1% of all groin hernias (1). Most pediatric femoral hernias are repaired using the conventional Mc Vay procedure, in which closure is performed between the transversal fascia and Cooper's ligament through the open anterior approach (2). Laparoscopic percutaneous extraperitoneal closure is used for inguinal hernia in children. We report a case in which we use LPEC procedure for femoral hernia in children.

## Case presentation

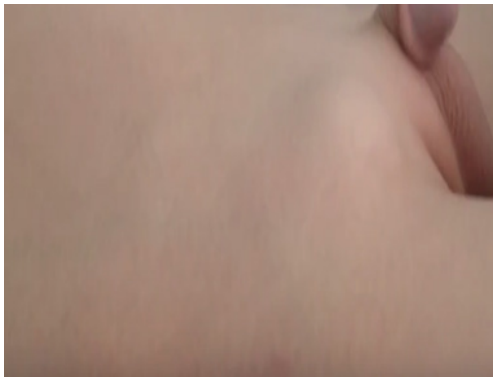
A 5-year-old boy who was operated for a right indirect inguinal hernia at the age of 3 was at our department by conventional route. However, a right inguinal bulge developed at 3 months after the first operation (*Figure 1*). Under general endotracheal anaesthesia with muscle relaxation, the patient was in the supine position. Pneumoperitoneum was established with an open technique by introducing a 5-mm reusable trocar through a trans-umbilical incision. Insufflation pressure was between 8 and 10 mmHg. A 5-mm flexible-tip laparoscope 30° was used for visualization throughout the procedure. The whole

peritoneal cavity was inspected. Laparoscopy demonstrated that the patient had femoral hernia, which was located easily. It was confirmed that the femoral orifice was located medial to the external iliac vein, under the iliopubic tract, and above Cooper's ligament (*Figure 2*). The femoral orifice was closed using our LPEC method with non-absorbable thread (3-0 prolene) (*Figure 3*). Therefore the iliopubic tract was sutured to Cooper's ligament, resulting in complete closure of the femoral orifice. The umbilical wound was closed with absorbable stitches and covered with pressure dressing to prevent hematoma formation. The skin puncture point in the inguinal region was left without any dressing. The total operative time was 40 min. The patient's postoperative course was uneventful.

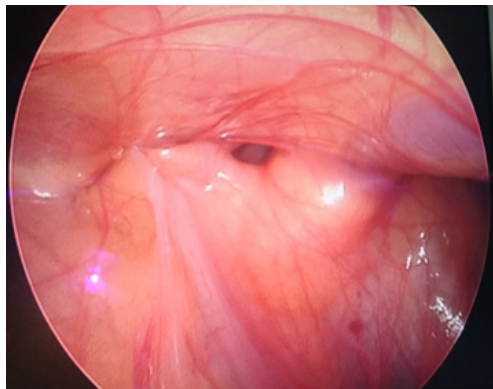
## Discussion

Femoral hernias are often misdiagnosed, and hence, are sometimes treated as regular inguinal hernias with open approaches (2). They are only correctly diagnosed in 53% of cases (3). In our case, the patient was also treated under a misdiagnosis of inguinal hernia. Laparoscopic groin exploration may be a valuable means of evaluating children with presumed recurrent inguinal hernias.

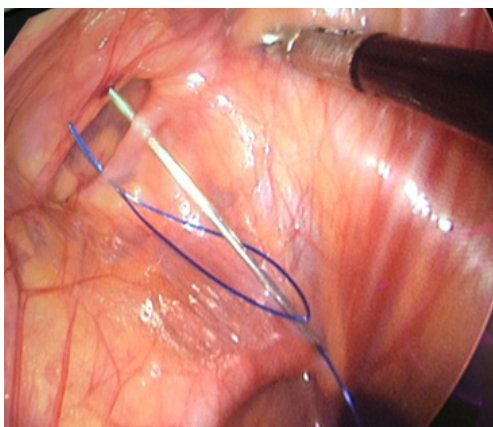
Adibe *et al.* reported a procedure in which the femoral



**Figure 1** The patient exhibited a right inguinal bulge at 3 months after the first operation.



**Figure 2** A right femoral hernia was observed below the iliopubic tract.



**Figure 3** The iliopubic tract was sutured to Cooper's ligament using non absorbable suture with LPEC method to close the femoral orifice.

sac was twisted and tied under laparoscopy, and the medial pectineal and inguinal ligaments were closed externally (4). Laparoscopic direct closing using the inguinal ligament and Cooper's ligament was reported as a new repair method that does not involve the use of prosthetic materials (5). The method using an LPEC needle allows clear laparoscopic visual inspection and reduction of numbers of incisions; the femoral defect is extracorporeally closed by directly suturing the abovementioned structures. The femoral hernia repair method using an LPEC needle which involves the extracorporeal suturing of the iliopubic tract to Cooper's ligament, turned out to be easy, safe with good cosmetic results (2). The LPEC approach to pediatric femoral hernia repair is a safe, effective, and efficient technique. The postoperative pain is minimal, and cosmesis is excellent.

### Conclusions

The femoral hernia repair method using an LPEC needle which involves the extracorporeal suturing of the iliopubic tract to Cooper's ligament, turned out to be easy, safe and produce good cosmetic results.

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### Footnote

*Conflicts of Interest:* All authors have completed the ICMJE uniform disclosure form (available at <http://dx.doi.org/10.21037/ales.2016.11.06>). The authors have no conflicts of interest to declare.

*Ethical Statement:* The authors are accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved. All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee(s) and with the Helsinki Declaration (as revised in 2013). Written informed consent was obtained from the patient for publication of this manuscript and any accompanying images.

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## References

1. Schier F, Klizaite J. Rare inguinal hernia forms in children. *Pediatr Surg Int* 2004;20:748-52.
2. Tainaka T, Uchida H, Ono Y, et al. A new modification of laparoscopic percutaneous extraperitoneal closure procedure for repairing pediatric femoral hernias involving a special needle and a wire loop. *Nagoya J Med Sci* 2015;77:531-5.
3. Lee SL, DuBois JJ. Laparoscopic diagnosis and repair of pediatric femoral hernia. Initial experience of four cases. *Surg Endosc* 2000;14:1110-3.
4. Adibe OO, Hansen EN, Seifarth FG, et al. Laparoscopic-assisted repair of femoral hernias in children. *J Laparoendosc Adv Surg Tech A* 2009;19:691-4.
5. Matthyssens LE, Philippe P. A new minimally invasive technique for the repair of femoral hernia in children: about 13 laparoscopic repairs in 10 patients. *J Pediatr Surg* 2009;44:967-71.

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