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Intraoperative Diagnosis of Contralateral Inguinal Hernia Using Biliary Endoscopy

*Yuji Shinagawa**, *Ryoichi Shimizu***, *Kenji Wadamori****, *Kiichiro Hashimoto****
and *Hideto Hayashi****

* Department of Surgery, National Kokura Hospital

** Department of Surgery II, Yamaguchi University School of Medicine

*** Department of Surgery, Ogori Daiichi General Hospital

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Abstract Bilateral Inguinal hernias are problems in pediatric patients with unilateral hernia by history and physical examination. Many surgeons perform contralateral groin open exploration in infants and young children with symptomatic unilateral hernia. The practice of contralateral exploration, however, is controversial because of potential complications. We have developed a new method to inspect the contralateral inguinal region using the biliary endoscope and manual abdominal wall lifting. The endoscope is inserted through the hernia sac into the abdominal cavity to provide adequate visualization of the contralateral side similar to that afforded in laparoscopic hernia repair. Thus only the patients with a confirmed contralateral hernia undergo the exploration of the groin and unnecessary exploration can be avoided.

Introduction

The diagnosis of bilateral inguinal hernias is very important because the incidence of those in pediatric patients is 9 percent,¹⁾ and may be higher in premature infants.²⁾ Many pediatric surgeons routinely explore the contralateral groin in boys less than 2 years old and girls less than 5³⁾ to avoid missing the presence of contralateral inguinal hernia or the potential contralateral inguinal hernia that subsequently requires an additional operation. However, routine contralateral groin exploration in all patients is controver-

sial, because the procedure requires the second incision and inguinal canal dissection, causes increased postoperative discomfort and risk of contralateral vas deferens injury in the male. Groner and co-workers reported the use of groin laparoscopy to examine bilateral hernias.⁴⁾ In their procedure, pneumoperitoneum is required. In addition, it may be difficult to obtain a front view of the contralateral internal inguinal ring because the scope is rigid. We have developed a simple new technique to detect a contralateral inguinal hernia using a biliary endoscope. This method can be rapidly performed, is safe, does not involve additional

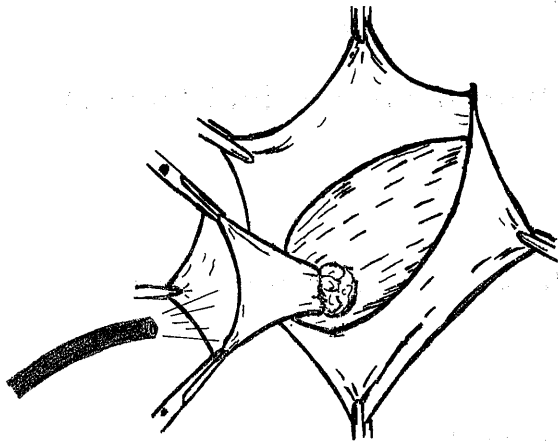


Fig. 1 Scheme showing the procedure of inserting the flexible endoscope through the hernia sac.

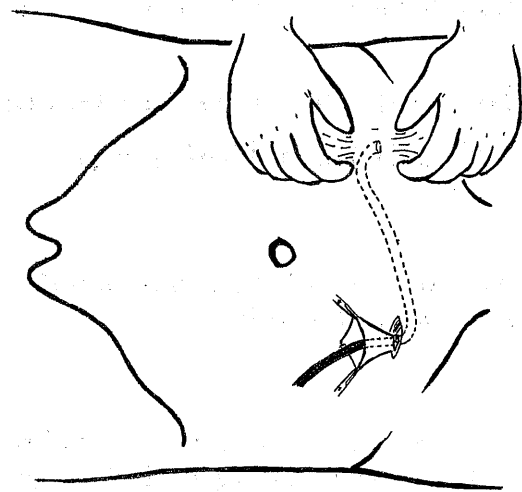


Fig. 2 Adequate observation is obtained by abdominal wall lifting.

cost, does not require pneumoperitoneum, and provides complete observation of the contralateral inguinal region.

Technique

The patient is positioned in the supine position. Under general anesthesia, the operative area is prepared in the usual fashion, and a skin incision made on the symptomatic side. A standard hernia operation is performed. The hernia sac is identified and opened to confirm the communication between the sac and the abdominal cavity. After the sac is completely separated from the surrounding tissues and dissected up to the internal ring, a biliary endoscope (7.0mm in diameter, CHF T20, OLYMPUS, Japan) is gently inserted through the hernia sac into the abdominal cavity (Fig. 1). The skin and subcutaneous tissue of the contralateral groin is lifted up by an assistant with both hands (Fig. 2). This allows enough of a field to visualize the contralateral internal inguinal ring and we can easily confirm if contralateral hernia sac is existent or not. During the examination, the light of the endoscope transilluminating through the abdominal wall can indicate the position of the contralateral internal inguinal ring. After completing the endoscopic examination, the scope is withdrawn and high suture liga-

tion of the hernia sac is performed at the level of the internal ring with nonabsorbable suture. Contralateral hernia repair is only performed in the patients with positive endoscopic findings.

Discussion

The surgical exploration of the contralateral groin in all children with unilateral inguinal hernias is controversial. Nonetheless, missing the contralateral inguinal hernia can result in the subsequent development of a clinical contralateral hernia in 10% or more of children undergoing unilateral repair. For this reason, many surgeons support routine contralateral groin exploration. If we can reduce the risks associated with contralateral surgical exploration and prevent unnecessary surgery on the contralateral side, we can examine the contralateral inguinal ring without hesitation.

Groner and his co-workers introduced a groin laparoscopy.⁴⁾ They insert a rigid laparoscope via hernia sac opened in pediatric inguinal hernia repair, and evaluate the contralateral internal inguinal ring. With the procedure, they can avoid the unnecessary second incision and the risk of vas deferens injury. However, the procedure requires pneumoperitoneum, rigid laparoscopy may risk damage to the internal ring and

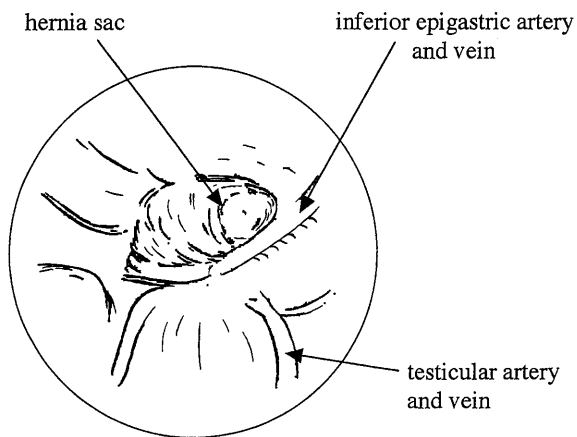


Fig. 3 View of the contralateral hernia sac (left side) through the endoscopy.

cannot provide adequate visualization of the contralateral internal ring.

Our procedure does not require the pneumoperitoneum, which may cause hypercapnea. And a flexible biliary endoscope can provide a front view of the contralateral internal inguinal ring without the injury of the operating side internal ring.

It is easy to identify a contralateral hernia sac with a biliary endoscope. The average duration of the endoscopic procedure is only 5 minutes in our experience. No additional charges for the endoscopic inspection are involved. The view of the sac through the endoscope is similar to that afforded in laparoscopic hernia repair (Fig. 3), and a

sliding ovary can be visualized if present. Moreover, the precise localization of the internal ring indicated by the light of a biliary endoscopy transilluminating through the abdominal wall can make the contralateral skin incision shorter.

This procedure is safe, and can be performed swiftly and easily without additional cost. We now use this method on all pediatric patients with inguinal hernia. And the correct incidence of bilateral hernias can be determined using this method.

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