Single-channel endoscopic closure of ERCP-related large duodenal perforations

Duodenal perforation is a rare but potentially lethal complication of endoscopic retrograde cholangiopancreatography (ERCP) [1–3]. Large duodenal perforations, which may occur during ERCP and which cannot be closed using titanium clips, require immediate surgery or are treated with two-channel endoscopic closure using nylon loops and endoclips [4–7]. Here, using a single-channel endoscope, we describe the successful closure of one ERCP-related large duodenal perforation using nylon loop sutures and titanium clips. An 81-year-old man was admitted with repeated right upper abdominal pain, fever, and jaundice for 1 year. During ERCP, the endoscope penetrated the contralateral papilla of the descending duodenum giving a large perforation 3.0 cm in diameter (Fig. 1a), and entered the retroperitoneum. Substantial pneumatisos was observed around the right kidney under X-ray (Fig. 1b), and duodenal perforation was diagnosed. To repair the ERCP-related large duodenal perforation, the pouch was sutured with a large nylon loop and titanium clips using a single-channel endoscope with a disposable distal attachment (Fig. 1c). The procedure is shown in Video 1. Subsequently, the patient improved and was discharged on post-ERCP day 10. Re-examination by endoscopy 5 months later revealed that the scar of the perforation had completely healed (Fig. 1d).

An endoscopic perforation is usually large and located in the descending duodenum, where it is very difficult to close using a titanium clamp. The purpose of using a single-channel endoscope with a distal attachment was to maintain a clear field of vision while making it possible to fix the titanium clips. This is the first report of closure of an ERCP-related large duodenal perforation with a nylon loop suture of the pouch and titanium clips using a single-channel gastroscope. The patient recovered well after surgery and the method used reduced potential hospitalization expenses. We conclude that closure of an ERCP-related large duodenal perforation using a single-channel endoscope with a distal attachment may be an effective nonoperative approach.

Video 1

Steps for closure of an endoscopic retrograde cholangiopancreatography (ERCP)-related large duodenal perforation with a nylon loop and titanium clips, by suturing the pouch using a single-channel endoscope. The nylon loop was slowly tightened until the perforation was completely closed using the pouch suture.

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Chun-Yan Zeng, Yong Zhu, Gui-Hai Guo, You-Xiang Chen

Department of Gastroenterology, First Affiliated Hospital of Nanchang University, Nanchang, China
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Corresponding author
You-Xiang Chen, MD
Department of Gastroenterology
First Affiliated Hospital of Nanchang University
17 Yongwaizheng Street
Nanchang
China
Fax: +86-791-88692540
chenyx102@126.com