



Pediatric ERCP with a single-use duodenoscope in an immunocompromised child

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During the past decade, an increasing number of multidrug-resistant infections caused by contaminated duodenoscopes have been reported. These have even resulted in fatal outcomes.

The duodenoscope is the most difficult endoscope to reprocess, with reported contamination rates of up to 23%.¹ Prevention of duodenoscope-related infections is a challenge, and manufacturers have developed new duodenoscopes with a detachable distal cap² or disposable elevator cap³ to facilitate cleaning and disinfection. Recently, a disposable single-use duodenoscope (Exalt Model-D, Boston Scientific, Marlborough, Mass, USA) became available to solve the problem of duodenoscope-related infections.

A 7-year-old girl with combined immunodeficiency (dedicator of cytokinesis 8 deficiency) was referred to our unit. The patient had atopic dermatitis since the age of 6 months and a history of recurrent infections (impetiginisation, parotitis, varicella zoster, genital candidiasis with abscess of the labia majora, pneumonia, mononucleosis) and received intravenous immunoglobulins (15 g) every 3 weeks. During the last year, the patient had a persistent increase on liver function tests (alanine aminotransferase $\times 3$,

GammaGT $\times 6$), a reduction in IgM (18 mg/dL), and an increase in IgE (300-600 mg/dL). Common bile duct dilatation (11 mm) with irregular intrahepatic ducts was evident on magnetic resonance cholangiography, and liver biopsy results were compatible with primary sclerosing cholangitis. Because the patient was a candidate for stem cell transplantation to treat immunodeficiency, after multidisciplinary discussion, biliary sphincterotomy was chosen to prevent worsening of biliary obstruction during the forthcoming transplantation period.

To reduce the risk of duodenoscope-related infection in this immunocompromised child, ERCP was performed with a single-use duodenoscope (Exalt Model-D); intravenous immunoglobulins were administered the day before ERCP, and antibiotic prophylaxis (amoxicillin + clavulanic acid) was used before the procedure. The patient's weight was 24 kg (53 lb), and ERCP was performed with the patient in the supine position because general anesthesia with orotracheal intubation was needed (Fig. 1). Advancing the single-use duodenoscope with the patient in the supine position did not cause particular difficulties. Single-use duodenoscope performance is technically similar to standard reusable duodenoscopes, but the scope should be reserved for expert operators because it is stiffer than a regular endoscope.



Figure 1. Introduction of the single-use duodenoscope in a 24 kg (53 lb) child.

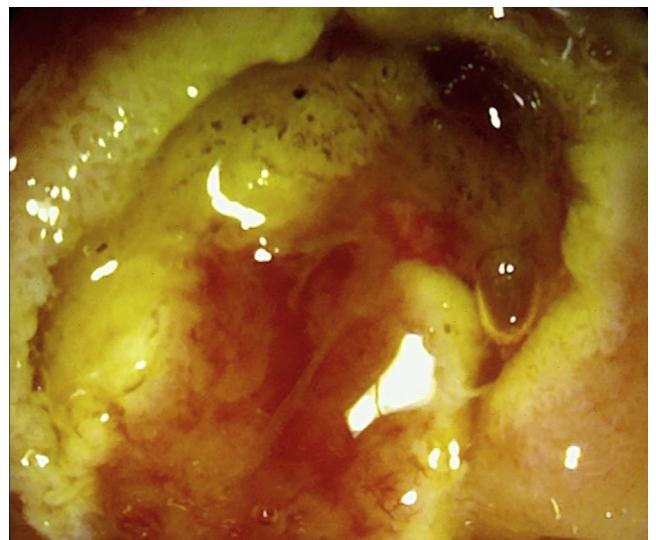


Figure 2. Fibrotic aspect of the papilla after endoscopic sphincterotomy.



Figure 3. Cholangiogram shows common bile duct dilatation and irregularity of the intrahepatic ducts.

After biliary sphincterotomy, a fibrotic appearance of the papilla was seen (Fig. 2), and cholangiogram confirmed common bile duct dilatation with irregular peripheral intrahepatic ducts (Fig. 3), compatible with primary sclerosing cholangitis (Video 1, available online at www.giejournal.org). The patient was discharged 24 hours after ERCP in good clinical condition. Six months after the endoscopic sphincterotomy, liver function test results were within normal values, and the patient received stem cell transplantation.

Despite knowing that the high costs of a disposable duodenoscope can have ethical implications,⁴ this device can be considered in selected immunocompromised cases like ours. Expert endoscopists can complete ERCP in 96% of cases, according to a recent study in adults.⁵ Our case

shows, for the first time, the feasibility of ERCP in a pediatric patient using a single-use duodenoscope.

DISCLOSURE

Dr Costamagna is a member of the advisory board for Cook Medical, Olympus, and Ethicon and has a research grant from Boston Scientific Corp and Apollo Endosurgery. All other authors disclosed no financial relationships.

ACKNOWLEDGMENT

We wish to thank Franziska Lohmeyer for her English language assistance.

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<https://doi.org/10.1016/j.vgje.2020.12.004>