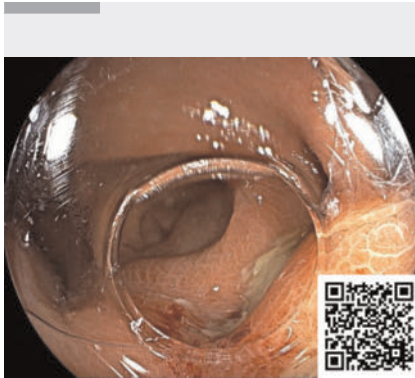
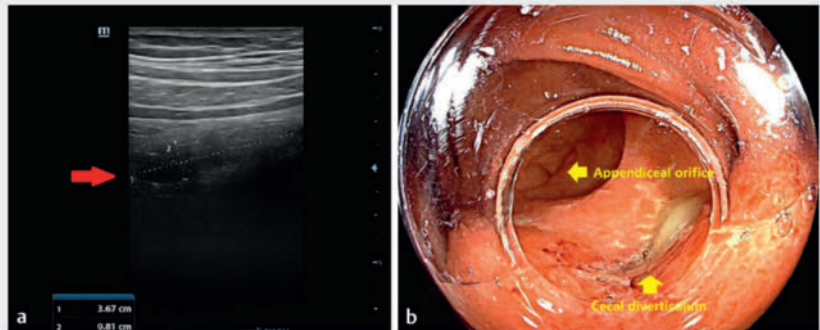


Endoscopic direct therapy for appendicitis and diverticulitis in one patient with right-sided abdominal pain

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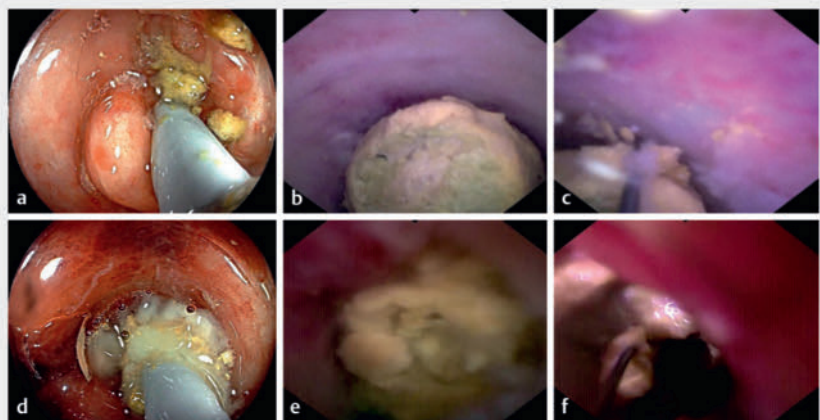
▶ Video 1 Initial report on the application of digital single-operator cholangioscopy for endoscopic direct therapy.



▶ Fig. 1 **a** Abdominal ultrasonography showed a tubular mass in the right lower quadrant of the abdomen (3.67×0.81 cm), and appendicitis was considered. **b** Colonoscopy revealed appendicitis and cecal diverticulitis.

Acute appendicitis and cecal diverticulitis are both common causes of acute right-sided abdominal pain, but it is extremely rare for both to be found in one patient. Acute appendicitis and diverticulitis are mainly treated through medication and surgical intervention [1,2]. Digital single-operator cholangioscopy (dSOC) has proven effective for managing inflammation in natural conduits such as the bile duct, pancreatic duct, and appendix [3, 4]. Herein, we present endoscopic direct therapy for appendicitis and diverticulitis in a man with right-sided abdominal pain (**▶ Video 1**).

A 33-year-old man presented with right-sided abdominal pain for 4 days. Abdominal ultrasonography showed a tubular mass in the right lower quadrant of the abdomen (3.67×0.81 cm) and appendicitis was considered (**▶ Fig. 1 a**). Colonoscopy revealed appendicitis and cecal diverticulitis (**▶ Fig. 1 b**). Endoscopic direct appendicitis therapy and endoscopic direct diverticulitis therapy utilizing dSOC was performed, and a milk-like pus was observed pouring out and a substantial volume of fecaliths (**▶ Fig. 2 a–d**). These fecaliths were meticulously fragmented, extracted, and removed using a disposable basket following repeated

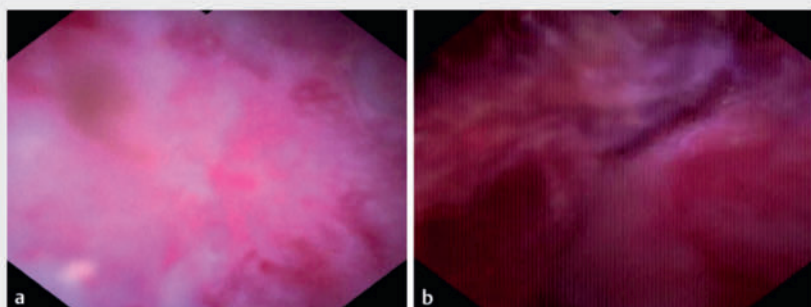


▶ Fig. 2 The process of endoscopic direct therapy. **a, b** A lot of milk-like pus was observed pouring out from the appendiceal orifice/cecal diverticulum. **c, d** A considerable amount of fecaliths within the diverticular cavity/appendiceal lumen was visualized using digital single-operator cholangioscopy (dSOC). **e, f** The fecaliths were dissected, extracted, and removed using a disposable basket under the visual guidance of dSOC.

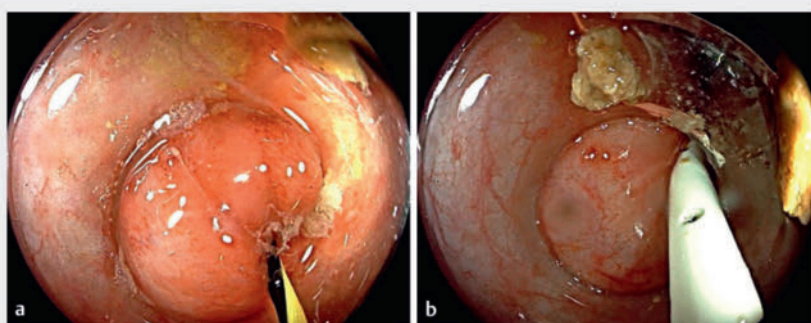
lavages with metronidazole and sodium chloride (**▶ Fig. 2 e, f**), rendering the mucosa cleansed yet characterized by roughness and swelling without evidence of perforation (**▶ Fig. 3 a, b**). A 7Fr pancreatic duct stent was strategically placed to ensure unobstructed drainage (**▶ Fig. 4 a, b**). The procedure was completed in 165 minutes. The patient's abdominal pain was relieved immediately

after the procedure. Subsequent computed tomography revealed fecaliths had been removed completely and the stent discharged (**▶ Fig. 5**). No recurrence or adverse events were noted during the 4-month follow-up.

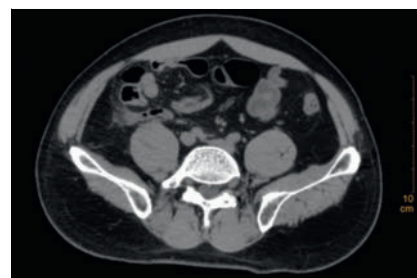
As advancements in dSOC continue to evolve, significant innovations in the diagnosis and management of gastrointestinal diseases have been achieved



► **Fig. 3 a, b** Through endoscopic direct therapy, the diverticular cavity/appendiceal lumen was observed to be clear.



► **Fig. 4 a, b** The stent was strategically placed to ensure unobstructed drainage.



► **Fig. 5** Postoperative computed tomography demonstrated fecaliths had been removed completely and the stent discharged.

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Endoscopy 2024; 56: E687–E688
 DOI 10.1055/a-2361-1361
 ISSN 0013-726X
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through endoscopic direct therapy. This therapy provided a feasible, safe, and effective alternative approach for diagnosis and management of acute right-sided abdominal pain. To the best of our knowledge, this is the first reported case of a successful cure of acute appendicitis combined with diverticulitis with fecalith using endoscopic direct therapy. This combined approach could reshape the management of acute right-sided abdominal pain, emphasizing the importance of technological integration in endoscopic practices.

Endoscopy_UCTN_Code_TTT_1AQ_2AF

Funding Information

National Science Foundation of China
 82341019

Guangdong Province Clinical Teaching
 Base Teaching Reform Research Project
 2021JD086

Conflict of Interest

The authors declare that they have no conflict of interest.

The authors

Jianzhen Ren¹, Silin Huang¹, Jun Cai¹, Bo Li¹,
 Guang Yang¹, Suhuan Liao¹, Ronggang Zhang¹

¹ Department of Gastroenterology, South
 China Hospital, Medical School, Shenzhen
 University, Shenzhen, China

Corresponding author

Silin Huang, MD

Department of Gastroenterology, South
 China Hospital, Medical School, Shenzhen
 University, No. 1, Fuxin Road, Longgang
 District, Shenzhen, P.R. China
silinhuang@szu.edu.cn