

## A tale of two ampullas: a rare anatomic anomaly captured on video during endoscopic retrograde cholangiopancreatography



Most commonly the fusion of the bile duct (BD) and pancreatic duct (PD) gives rise to a single opening known as the ampulla of Vater. Ten to fifteen percent of individuals have separate openings, however in these cases the openings are typically within the same papilla, separated by a septum. Rarely, complete nonunion of the BD and PD occurs resulting in a double ampulla of Vater [1, 2]. This has been reported in approximately 0.18% of patients undergoing endoscopic retrograde cholangiopancreatography (ERCP) [3]. This anatomic variant has been described in several case reports but, to our knowledge, has not been captured on video until this case.

A 48-year-old woman with no significant past medical history presented with right upper quadrant pain and laboratory tests consistent with cholestatic liver injury. Computer tomography showed a 10-mm biliary ductal dilation (► Fig. 1). ERCP was performed. The ampulla was identified (► Fig. 2). Cannulation of the BD proved to be difficult despite the use of the double wire technique and attempted cannulation over a PD stent (► Fig. 3). Goff sphincterotomy over a PD wire was performed with successful cannulation. The cholangiogram highlighted diffuse dilation of the common bile duct. Reinspection revealed a second ampulla of Vater. This ampulla was interrogated with facile biliary cannulation. A second biliary sphincterotomy was performed. A balloon sweep of the second ampulla retrieved stone fragments (► Video 1). The separate biliary tracts appeared to merge after the balloon sweep (► Fig. 4). A metal stent was placed in the common bile duct. Post-procedure, liver function tests trended downward. The patient underwent elective cholecystectomy. The hospital course was complicated by post-ERCP pancreatitis. Symptoms improved and the patient was discharged.



► Fig. 1 Computed tomography abdomen pelvis transverse (left) and coronal (right) views showing cholelithiasis and gallbladder sludge with biliary ductal dilation.



► Fig. 2 Single ampulla of Vater.



► Fig. 3 Pancreatic duct with 5 Fr x 3 cm plastic stent with full external pigtail in place.

She returned 4 months later for biliary stent removal (► Fig. 5).

A dual ampulla is a normal but rare anatomical variant. An increased risk of choledocholithiasis has been noted in association with its presence [3, 4]. Careful inspection of the ampulla may be necessary to identify dual ampulla, which can potentially be missed. Early identification of a second ampulla can help to minimize excess manipulation of the PD

and potentially reduce the risk of post-ERCP pancreatitis.

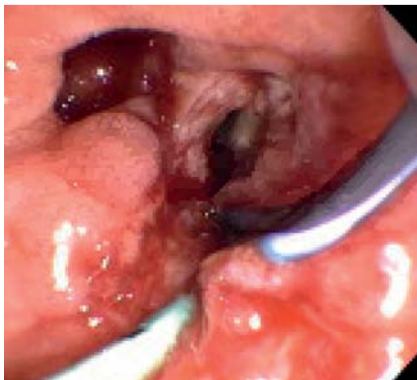
Endoscopy\_UCTN\_Code\_CCL\_1AZ\_2AK

### Competing interests

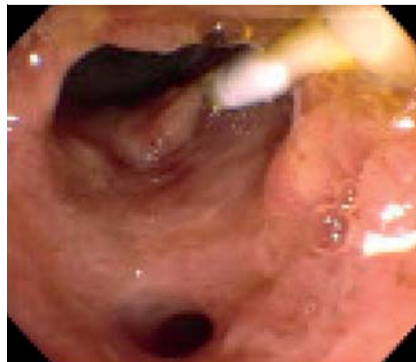
R. Sharaiha is a consultant for Boston Scientific and Olympus.



▶ **Video 1** Interrogation and cannulation of dual ampulla of Vater.



▶ **Fig. 4** Separate biliary tracts merged to a common channel with periampullary diverticulum.



▶ **Fig. 5** Separate biliary tracts merged to a common channel with widely patent biliary and pancreatic duct orifices after biliary stent removal 4 months from initial endoscopic retrograde cholangiopancreatography.

## The authors

**Tamasha Persaud<sup>1</sup>**, **Enad Dawod<sup>2</sup>**, **Shawn Shah<sup>3</sup>**, **Reem Z. Sharaiha<sup>2</sup>**, **Kartik Sampath<sup>2</sup>**

- 1 Department of Medicine, New York Presbyterian Hospital-Weil Cornell Medical Center, New York, NY
- 2 Division of Gastroenterology and Hepatology, New York Presbyterian Hospital-Weil Cornell Medical Center, New York, NY
- 3 Division of Digestive and Liver Diseases, University of Texas Southwestern Medical Center, Dallas, Texas

## Corresponding author

**Tamasha Persaud, MD**  
New York Presbyterian Hospital-Weil Cornell Medical Center, 505 E 70th St Tower, 4th Floor, New York, NY 10021, USA  
Tdp9003@nyp.org

## References

- [1] Horiguchi S, Kamisawa T. Major duodenal papilla and its normal anatomy. *Dig Surg* 2010; 27: 90–93
- [2] Laurel P, Hussain R, Nathani M. Rare anatomic variation of ampulla of Vater. *Am J Gastroenterol* 2007; 102: S363
- [3] Simon M, Moreira V, Merono E et al. The double papilla of Vater. *Gastrointest Endosc* 1985; 31: 353–354
- [4] Kubota K, Fujisawa T, Abe Y et al. Clinical significance of the duodenal papilla in patients with separate orifices for the bile and pancreatic ducts. *J Gastroenterol* 2007; 42: 70–78

## Bibliography

*Endoscopy* 2023; 55: E78–E79  
DOI 10.1055/a-1930-6202  
ISSN 0013-726X  
published online 30.9.2022  
© 2022. The Author(s).

This is an open access article published by Thieme under the terms of the Creative Commons Attribution-NonDerivative-NonCommercial License, permitting copying and reproduction so long as the original work is given appropriate credit. Contents may not be used for commercial purposes, or adapted, remixed, transformed or built upon. (<https://creativecommons.org/licenses/by-nc-nd/4.0/>)

Georg Thieme Verlag KG, Rüdigerstraße 14, 70469 Stuttgart, Germany



## ENDOSCOPY E-VIDEOS

<https://eref.thieme.de/e-videos>



*Endoscopy E-Videos* is an open access online section, reporting on interesting cases and new techniques in gastroenterological endoscopy. All papers include a high quality video and all contributions are freely accessible online. Processing charges apply (currently EUR 375), discounts and waivers acc. to HINARI are available.

This section has its own submission website at <https://mc.manuscriptcentral.com/e-videos>