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. 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.

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Competing interests

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

E-Videos

▶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 × 3 cm plastic stent with full external pigtail in place.
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