Choledochoscope-assisted percutaneous fibrin glue sealing of bile leak complicating transarterial chemoembolization of hepatocellular carcinoma after liver transplantation



Fig. 1 Computed tomography (CT) scan showing: **a** biloma in hepatic segment VII with all-purpose drainage loop (APDL) indwelling catheter; **b**, **c** the fistula is well visualized between the biloma and the segmental biliary branch (black arrows).

Transarterial chemoembolization (TACE) is recommended for patients with unresectable hepatocellular carcinoma (HCC); however, it is not a risk-free procedure and biloma may occur as a complication [1].

A 45-year-old man, following liver transplantation, presented with recurrent HCC



Fig. 2 Percutaneous cholangioscopy confirming the biliary fistula.



Fig. 3 Choledochoscopic view of the fistula orifice.

in the caudate lobe, close to the caval vein, and was treated by TACE. Subsequently, the patient was admitted for abdominal pain and fever. Computed tomography (CT)-guided percutaneous cholangiography confirmed the diagnosis of infected biloma (**• Figs. 1**, **2**). During the following weeks there was abundant drainage, despite both external drainage and endoscopic treatment. It was decided to attempt direct closure of the fistula with a choledochoscope-assisted procedure. Briefly, an inverse rendezvous procedure was successfully carried out, allowing the retrieval of the endoscopic guide wire, fol-



Fig. 4 Choledochoscopy-assisted fibrin glue injections using a 19-G needle.

lowed by insertion of a percutaneous wire-guided choledochoscope (Polyscope, Lumenis Inc., Santa Clara, California, USA) into the biloma. An angiographic introducer was inserted beside the choledochoscope and a 19-G needle was inserted in the introducer. The choledochoscopic approach allowed multiple fibrin glue injections (Tissucol, Baxter Healthcare, Deerfield, Illinois, USA) around the distal opening of the peripheral bile duct, for a total volume of 3 mL (• Fig. 3–5). A CT scan taken after a few days showed absence of fluid in the biloma, confirming healing of the biliary fistula (• Fig. 6).



Fig. 5 Choledochoscopic view after fibrin glue sealing of bile leak.

Conservative management of biloma allows resolution in more than 80% of cases [2-4]. However, cases resistant to wellestablished conservative strategies still represent a challenge. To our knowledge, this is the first report of a novel technique in the management of hepatic biloma. Use of fibrin glue injection to seal a bile leak could represent an indication for therapeutic choledochoscopy, although it requires confirmation through application in further patients.

Video 1

Choledochoscope-assisted percutaneous fibrin glue sealing of bile leak complicating transarterial chemoembolization of recurrent hepatocellular carcinoma after liver transplantation.

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Fig. 6 Follow-up computed tomography (CT) scan showing the absence of fluid in the biloma in spite of the closure of the all-purpose drainage loop (APDL) catheter, thus demonstrating healing of the biliary fistula.

V. Cennamo¹, L. Fuccio¹, E. Giampalma², E. Terzi³, L. H. Eusebi¹, C. Mosconi², F. Piscaglia³

- ¹ Division of Gastroenterology, Department of Digestive Disease and Internal Medicine, S. Orsola-Malpighi General and University Hospital, Bologna, Italy
- ² Division of Radiology, Department of Digestive Disease and Internal Medicine,
 S. Orsola-Malpighi General and University Hospital, Bologna, Italy
- ³ Division of Internal Medicine, Department of Digestive Disease and Internal Medicine, S. Orsola-Malpighi General and University Hospital, Bologna, Italy

References

- 1 Sakamoto I, Aso N, Nagaoki K et al. Complications associated with transcatheter arterial embolization for hepatic tumors. Radiographics 1998; 18: 605–619
- 2 Morelli J, Mulcahy HE, Willner IR et al. Endoscopic treatment of postliver transplantation biliary leaks with stent placement across the leak site. Gastrointest Endosc 2001; 54: 471-475
- 3 *Kim JH, Ko GY, Sung KB et al.* Early posttransplant hepatic venous outflow obstruction: Long-term efficacy of primary stent placement. Liver Transplant 2008; 14: 1142-1149
- 4 Shah JN. Endoscopic treatment of bile leaks: current standards and recent innovations. Gastorintest Endosc 2007; 65: 1069-1072

Bibliography

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Corresponding author

V. Cennamo Division of Gastroenterology Department of Digestive Diseases and Internal Medicine S. Orsola-Malpighi General and University Hospital 40138 Bologna Italy Fax: +39-51-6363338 cennamoit@yahoo.it This document was downloaded for personal use only. Unauthorized distribution is strictly prohibited.