

Arterioportal fistula following diagnostic or therapeutic interventions is rarely reported in the literature. It most commonly complicates percutaneous liver biopsy or it is seen after liver injury [1]. Arterioportal fistula accompanying hepatic hemangioma or following hepatobiliary surgery occurs rarely [2]. It presents clinically with unexpected esophageal variceal bleeding [3]. To our knowledge, arterioportal fistula following endoscopic retrograde cholangiography (ERC) has not been described in the literature.

A 77-year-old woman underwent atypical liver resection of colorectal metastasis in segments II and VII, and a T-drain was placed in the bile duct during the operation. The postoperative course was initially uneventful. At postoperative day 9, a radiological examination of the biliary tree was carried out, with instillation of contrast media through the T-drain (Figure 1). The bile duct was seen to be extremely dilated due to a gallstone in the prepapillary region, and endoscopic extraction was suggested. An endoscopic examination was done through the T-drain, followed by ERC with needle-knife sphincterotomy. At 6 hours after ERC the patient developed hepatic failure, with elevation of liver parameters (aspartate aminotransferase (AST) from 77 to 2325 U/l, alanine aminotransferase (ALT) from 118 to 2806 U/l) and liver synthesis disorders (change in Quick value from 102% to 25%, in bilirubin from 0.6 to 3.0 mg/dl). The patient was admitted to the intensive care unit. Computed tomography of the abdomen demonstrated an arterioportal fistula in the liver hilum (Figure 2). Because the fistula was located in the liver hilum and as there was no unexpected bleeding during the ERC, we excluded deep precutting as the cause of the fistula; rather, it was an unfortunate penetration by the wire. The patient developed hemobilia and melena. Because of her poor general condition, it was decided to abandon interventional therapy. The patient died of hepatic failure on postoperative day 45.



Figure 1 Retrograde application of contrast media into the bile duct revealed a gallstone (arrow) just proximal to the papilla.



Figure 2 A transverse abdominal computed tomography view showed a large arterioportal fistula (arrow) in the liver hilum. Early arterial contrast enhancement of the portal vein branches via the fistula could be detected.

The risk factors for perforation during sphincterotomy are difficult to quantify because of the rarity of the event. It is more common in patients with a Billroth II anatomy, with needle-knife sphincterotomy, and in patients with suspected sphincter of Oddi dysfunction [4,5]. In the case of arterioportal fistula, interventional radiology techniques such as transarterial embolization or occlusion of the

fistula using detachable balloons must be individually evaluated [1,2]. To our knowledge, this is the first documented case of an arterioportal fistula after ERC.

**G. C. Sotiropoulos¹, J. Treckmann¹,
A. Radtke¹, G. Antoch², E. I. Brokalaki¹,
J. Schlaak³, C. E. Broelsch¹**

¹ Department of General Surgery and Transplantation, University Hospital Essen, Essen, Germany

² Department of Diagnostic and Interventional Radiology, University Hospital Essen, Essen, Germany

³ Department of Gastroenterology and Hepatology, University Hospital Essen, Essen, Germany.

References

¹ Gomez-Valero JA, Sardi J, Vilaseca J et al. Pancreatitis and haemobilia due to arterioportal fistula after percutaneous liver biopsy resolved by selective arterial embolization. *Eur J Gastroenterol Hepatol* 2001; 13: 727–730

² Davenport M, Redkar R, Howard ER et al. Arteriportal hypertension: a rare complication of partial hepatectomy. *Pediatr Surg Int* 1999; 15: 543–545

³ Aithal GP, Alabdi BJ, Rose JD et al. Portal hypertension secondary to arterio-portal fistulae: two unusual cases. *Liver* 1999; 19: 343–347

⁴ Freeman ML. Adverse outcomes of endoscopic retrograde cholangiopancreatography. *Rev Gastroenterol Disord* 2002; 2: 147–168

⁵ Enns R, Eloubeidi MA, Mergener K et al. ERCP-related perforations: risk factors and management. *Endoscopy* 2002; 34: 293–298

Corresponding Author

G. C. Sotiropoulos, M. D.

Department of General Surgery and Transplantation, University Hospital Essen

Hufelandstraße 55

45122 Essen

Germany

Fax: + 49-201-7231113

E-mail: georgios.sotiropoulos@uni-essen.de