

## ERCP-directed radiofrequency ablation of ampullary adenomas: a knife-sparing alternative in patients unfit for surgery

The management of ampullary adenomas includes surgical and endoscopic ampullectomy or pancreaticoduodenectomy. The latter is associated with prolonged hospital stay, increased morbidity, and increased costs. Mortality rates of up to 15% have been reported [1–4]. Because the surgical risks may outweigh the benefits and endoscopic ampullectomy is less radical, with recurrence or incomplete resection in up to 30% of cases [4,5], adjunctive minimally invasive endoscopic treatments are needed.

Endoscopic retrograde cholangiopancreatography (ERCP)-directed radiofrequency ablation (RFA) has the potential to fulfill this need. The technique, which induces local coagulative necrosis by delivering thermal energy from high frequency current via bipolar probes, has not previously

been described in this setting. We report here the first three cases.

(i) A 49-year-old woman with familial adenomatous polyposis refused pancreaticoduodenectomy when intraductal recurrence was noted at follow-up after endoscopic ampullectomy (► Fig. 1). ERCP-directed RFA of both the common bile duct and main pancreatic duct with curative intent and double duct stenting were performed (► Fig. 2, ► Video 1). (ii) A 63-year-old man with end-stage kidney disease, severe ischemic heart disease, recent stroke, obstructive jaundice due to common bile duct stones, and low grade dysplasia adenoma (12 mm) was treated with bile duct ERCP-guided RFA (► Fig. 3). (iii) A 54-year-old man with alcoholic cirrhosis (Child-Pugh score of B), recent variceal bleeding, ischemic heart disease, and ob-

structive jaundice was treated for high grade dysplasia adenoma (20 mm) by bile duct ERCP-guided RFA and double duct stenting (► Fig. 4). No major complications occurred.

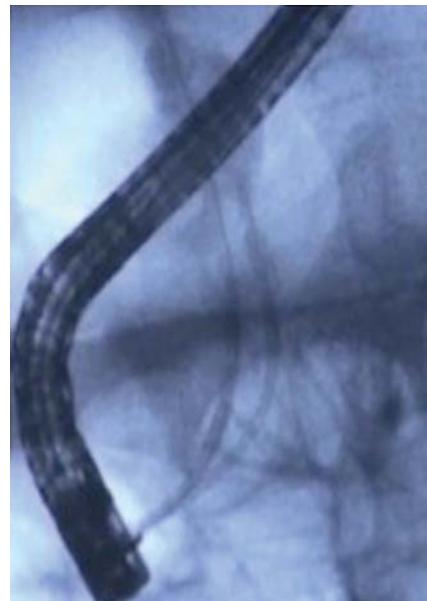
The first patient is disease-free without histological recurrence of adenoma at 26 months' follow-up. The second and third patients received successful prolonged palliation of jaundice at 12 and 36 months' follow-up, respectively. The third patient died of complications of cirrhosis. In conclusion, ERCP-guided RFA is a safe and cost-effective alternative in patients who refuse or cannot undergo surgery and could be a long-term, palliative strategy in high risk patients (American Society of Anesthesiologists [ASA] class IV) whose 1-year life expectancy is not affected by their underlying co-morbidities.

Endoscopy\_UCTN\_Code\_TTT\_1AR\_2AF

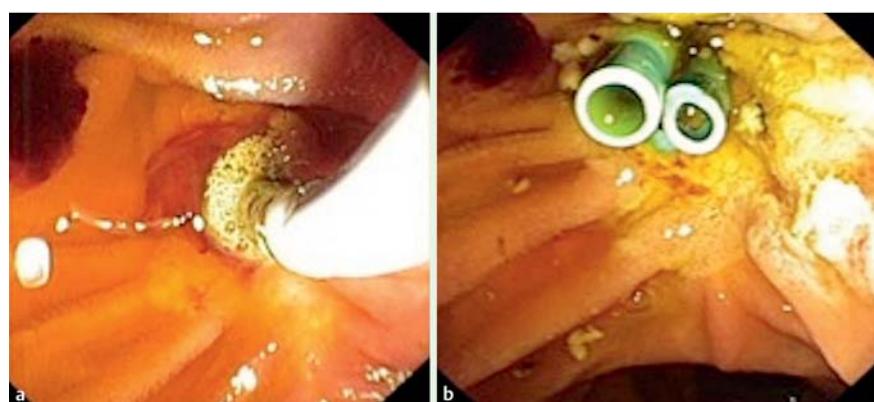
**Competing interests:** None



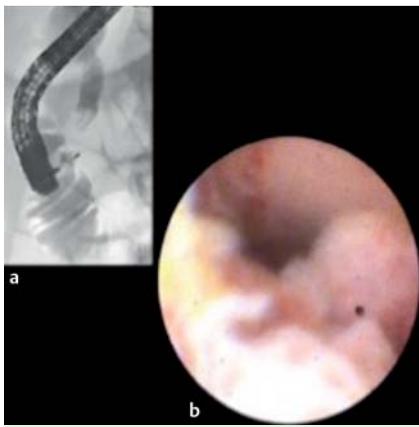
**Fig. 1** Recurrent adenoma with high grade dysplasia. **a** Before treatment. **b** After treatment.



**Fig. 3** Habib EndoHPB catheter in the bile duct and a protective pancreatic stent during treatment with radiofrequency ablation at 10W for a total of 2 minutes.



**Fig. 2** **a** Application of the Habib EndoHPB EM/6800 bipolar 8-Fr probe (EMcision, London, UK) and VIO 300D radiofrequency generator (Erbe Elektromedizin, Tübingen, Germany) at 7W for 90 seconds twice in both the main pancreatic duct and common bile duct. **b** Double duct stenting.



**Fig. 4** Radiofrequency ablation treatment of 2-cm high grade dysplasia adenoma of the bile duct with the Habib EndoHPB probe set at 10W for 2 minutes. **a** Cholangiographic view. **b** Peroral cholangioscopic view (Spyglass; Boston Scientific, Natick, Massachusetts, USA).

### Video 1



Insertion of the Habib EndoHPB probe into the main pancreatic duct with subsequent radiofrequency ablation and final appearance after treatment.

**Roberto Valente<sup>1,2</sup>, Ondrej Urban<sup>3</sup>,  
Marco Del Chiaro<sup>1</sup>, Gabriele Capurso<sup>2</sup>,  
John Blomberg<sup>1</sup>, J. Matthias Löhr<sup>1</sup>,  
Urban Arnelo<sup>1</sup>**

<sup>1</sup> Department of Clinical Science, Intervention and Technology (CLINTEC), Karolinska Institutet and Center for Digestive Diseases, Karolinska University Hospital, Stockholm, Sweden

<sup>2</sup> Digestive and Liver Disease Unit, Sant'Andrea Hospital, Sapienza University of Rome, Faculty of Medicine and Psychology, Rome, Italy

<sup>3</sup> Digestive Diseases Centre, Vítkovice Hospital, Ostrava, Czech Republic

### References

- 1 Ma T, Jang EJ, Zukerberg LR et al. Recurrences are common after endoscopic ampullectomy for adenoma in the familial adenomatous polyposis (FAP) syndrome. *Surg Endosc* 2014; 28: 2349–2356
- 2 Shubert CR, Kendrick ML, Thomsen KM et al. Identification of risk categories for in pancreaticoduodenectomy based on diagnosis. *HPB* 2015; 17: 428–437
- 3 Kachare SD, Liner KR, Vohra NA et al. Assessment of health care cost for complex surgical patients: review of cost, re-imbursement and revenue involved in pancreatic surgery

at a high-volume academic medical centre. *HPB* 2015; 17: 311–317

4 Strand DS, Cosgrove ND, Patrie JT et al. ERCP-directed radiofrequency ablation and photodynamic therapy are associated with comparable survival in the treatment of unresectable cholangiocarcinoma. *Gastrointest Endosc* 2014; 80: 794–804

5 Gluck N, Strul H, Rozner G et al. Endoscopy and EUS are key for effective surveillance and management of duodenal adenomas in familial adenomatous polyposis. *Gastrointest Endosc* 2015; 81: 960–966

### Bibliography

**DOI** [http://dx.doi.org/  
10.1055/s-0034-1392866](http://dx.doi.org/10.1055/s-0034-1392866)  
**Endoscopy** 2015; 47: E515–E516  
© Georg Thieme Verlag KG  
Stuttgart · New York  
ISSN 0013-726X

### Corresponding author

**Urban Arnelo, MD, PhD**

Department of Clinical Science, Intervention and Technology (CLINTEC)  
Karolinska Institutet and Center for Digestive Diseases  
Karolinska University Hospital  
Stockholm 14186  
Sweden  
Fax: +46-8-58582340  
Urban.Arnelo@ki.se