The safety of radiofrequency ablation using a novel temperature-controlled probe for the treatment of residual intraductal lesions after endoscopic papillectomy

Young Hoon Choi, Seung Bae Yoon,
Jae Hyuck Chang, and In Seok Lee

가톨릭대학교
THE CATHOLIC UNIVERSITY OF KOREA

Disclosure statement

- All authors have nothing to disclose

Aim of study

- To determine the **safety** of RFA using a **novel temperature-controlled RF probe** for the treatment of residual intraductal lesions after endoscopic papillectomy.

Methods

- Retrospective study, single tertiary center (Seoul St. Mary's H)
- November 2017 to June 2019
- A cohort of patients that received RFA for residual intraductal lesions after endoscopic papillectomy
- A novel temperature-controlled probe (ELRA^{TM}, STARmed, Goyang, Korea) was used for intraductal RFA

Methods

- RFA catheter: 7Fr large, 175cm long,

  bipolar electrodes of 4mm width and 11mm length
- RF generator set: maximum temperature of 80℃, power 7W
- RFA time: within 90 seconds
- After RFA, prophylactic biliary and pancreatic stents were inserted
- Follow-up endoscopy: 1-2 months → 3-6 months within 1year from RFA → 6 months x2 → every 1year

Methods

- Primary endpoint
  - The incidence of adverse events after intraductal RFA

- Secondary endpoint
  - The rate of successful endoscopic treatment
    - defined as the absence of adenomatous tissue in the follow-up biopsy

Results

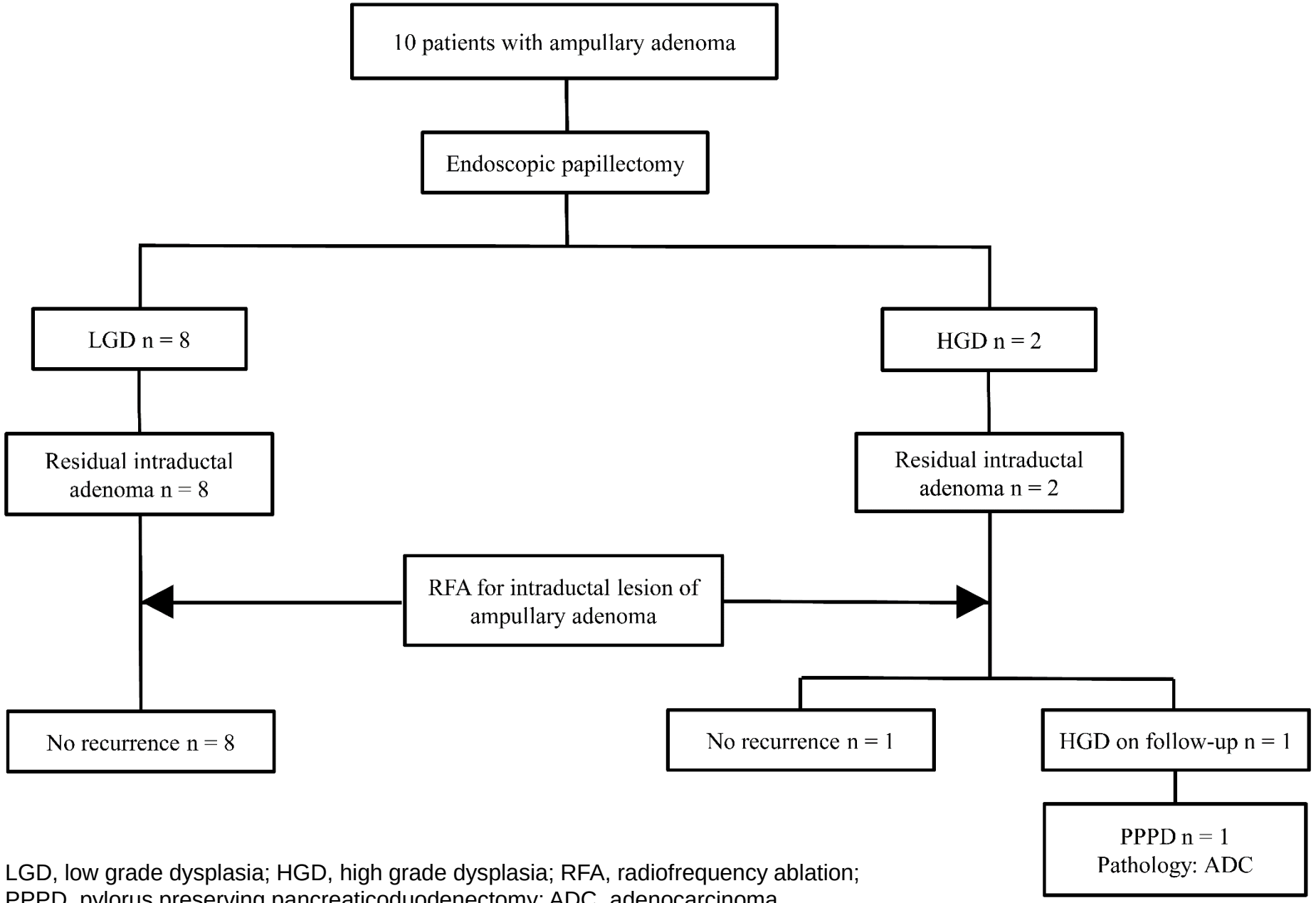
Table 1 Clinical Characteristics of 10 Patients

Patient No.	Age (years)	Sex	Adenoma Size (mm)	Adenoma Pathology	Initial Deep/Lateral margin involvement	Duct (s) involved	Intraductal extension length (mm)	Worst ductal pathology	Time from Papillectomy to RFA (days)	No. of RFA sessions	ERBD/ ERPD after RFA	Final follow-up pathology	Follow-up duration (days)
1	70	M	25	TA-HGD	+/-	CBD, PD	6, 11	TA-HGD	2	1	+/+	Normal	333
2[†]	75	F	15	TV-HGD	+/-	CBD	10	TV-HGD	6	1	+/+	ADC m/d	622
3	23	M	7	TA-LGD	-/-	CBD	7	TA-LGD	1150	1	+/-	Normal	570
4	54	M	15	TA-LGD	-/-	CBD, PD	10, 10	TA-LGD	86	1	+/+	Normal	275
5	36	F	10	TA-LGD	-/-	CBD, PD	5, 5	TA-LGD	728	1	+/+	Normal	357
6	71	M	10	TA-LGD	-/-	CBD, PD	8, 5	TA-LGD	738	1	+/+	Normal	74
7	26	F	4	TA-LGD	UA	CBD, PD	10, 4	TA-LGD	410	1	+/+	Normal	231
8	74	M	10	TA-LGD	-/-	CBD	7	TA-LGD	122	1	+/+	Normal	123
9	74	F	10	TA-LGD	-/-	CBD, PD	10, 5	TV-LGD	132	1	+/+	Normal	186
10	64	F	30	TA-LGD	UA	CBD, PD	10, 4	TA-LGD	4	1	+/+	Normal	91

ADC, adenocarcinoma; CBD, common bile duct; ERBD, endoscopic retrograde biliary drainage; ERPD, endoscopic retrograde pancrea tic drainage; F, female; HGD, high grade dysplasia; LGD, low grade dysplasia; M, male; m/d, moderately differenti ated; No., number; PD, pancreatic duct; TA, tubular adenoma; TV, tubulovillous adenoma; UA, unable to assess.

[†]Patient No. 2 showed high grade dysplasia on follow -up biopsy 2 months after endoscopic papillectomy, and adenocarcinoma on the pathologic results of subsequent surgical treatment.

Flowchart summarizing overall results



LGD, low grade dysplasia; HGD, high grade dysplasia; RFA, radiofrequency ablation; PPPD, pylorus preserving pancreaticoduodenectomy; ADC, adenocarcinoma.

Results

Table 2 Adverse Events

Characteristics	*n* (Patient No.)
Pancreatitis	2 (Patient No. 5, 7)
Cholangitis	0
Bleeding	0
Perforation	0
Nonsymptomatic biliary stricture detected at ERCP	1 (Patient No. 1)

ERCP, endoscopic retrograde cholangiopancreatography

Conclusion

- RFA using a temperature-controlled RF probe showed acceptable safety without serious side effects in 10 patients with residual intraductal lesions after endoscopic papillectomy.
- Avoiding excessive heat using temperature-controlled RFA is expected to reduce adverse events, and future prospective studies are needed to confirm whether this method is significantly safer than other RFA methods.