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Operative Resection of Duodenal Carcinoid Tumors: A Single Center Experience

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BACKGROUND: Duodenal carcinoids (DC) reflect <3% of intestinal carcinoids and can be removed by operative (OR) or endoscopic resection (ER). We previously found no differences between ER techniques regarding margin positivity and local tumor recurrence. How OR compares with ER is unclear.

METHODS: 18 patients underwent dedicated DC ORs between 2006 and 2017. We compared tumor and patient characteristics within types of OR and with ER (n=28). Primary endpoints were margin and nodal status, recurrence, and survival. Standard descriptive statistical analyses were performed using Stata/IC 15.1.

RESULTS: 8 patients underwent Whipple, 8 targeted resection and 2 Billroth II gastrectomy. Median age was 54, 56% female, 76% white, 81% without genetic syndrome. 63% underwent surgery for concerning features; 19% not amenable to ER; 19% due to other factors. There were no differences in tumor size, margins, penetration or differentiation among OR subtypes. More Whipple patients had G2 tumors (p=0.03). Median post-op stay of 7 days, no major complications. 89% patients alive at 3.8 years. Of 4 patients with positive lymph nodes, all low grade, tumor size was 10.5mm (5mm for ER, p=0.01), all survived. Comparing OR and ER, there was no difference in tumor differentiation, grade, patient demographics, or survival (Table 1). There was a trend for tumor size (OR 8mm; ER 5mm, p=0.09). ER left more positive margins (69 vs 0%, p<0.01). Local recurrence confirmed in 3/28 ERs after 1, 3, & 7 months vs. distant recurrence in 3/19 ORs, at 17, 18, & 37 months (p=0.61). There was an increased use of ER vs OR over time (p<0.01).

CONCLUSION: Operative resection of DC is rare, even in our tertiary care referral center, but has excellent resection margins and survival. Outcomes appear similar to ER. Patients with larger tumors are appropriate for surgery. There has been a trend towards ER over time.

Table 1.

	Surgery (n=18)	Endoscopy (n=28)	p-value
Age at procedure, median (IQR)	54 (44, 63)	57 (52, 67)	0.29
Female	10 (56%)	9 (32%)	0.12
White	13 (76%)	17 (61%)	0.25
Size of DC (mm), median (IQR)	8 (3,12)	5 (3,8)	0.085
Well-differentiated	14 (100%)	27 (96%)	0.47
WHO pathologic grade Low (all others intermediate)	9 (69%)	22 (92%)	0.077
Ki-67 expression <3% (all others 3-20%)	5 (56%)	19 (90%)	0.028
Mitoses <2/HPF (all others 2-20/HPF)	14 (88%)	23 (100%)	0.082
Clean margins	18 (100%)	8 (31%)	0.47
Surviving	16/17 (1 died, 1 lost to follow up)	21/28 (2 died, 5 lost to follow up)	0.743