

**Supplementary Table S1.** Clinicopathological features and statistical analysis between learning and validation sets.

Variables	Learning set (2011-2015)	Validation set (2016-2017)	P-Value
	<i>n</i> = 91	<i>n</i> = 49	
Age, median (years) *	66 (41–86)	66 (35–84)	0.740
Sex (male/female)	59/32	28/21	0.371
Location (colon/rectum)	54/37	32/17	0.489
Greatest diameter, median (mm)	20 (0–50)	20 (6–66)	0.703
Preoperative CEA ( $\geq 5/5 < \text{NA}$ ) (ng/mL)	12/78/1	11/36/2	0.362
Preoperative CA19-9 ( $\geq 38/38 < \text{NA}$ ) (ng/mL)	5/85/1	3/44/2	0.845
Degree of differentiation (tub1/tub2/others)	57/30/4	29/19/1	0.474
Depth of invasion, median ( $\mu\text{m}$ ) *	2000 (0–9000)	2200 (91–12000)	0.324
Lymph node metastasis (+/-)	7/84	7/42	0.215
Lymphatic invasion (+/-)	24/67	16/33	0.433
Vascular invasion (+/-)	12/79	7/42	0.856
Budding grade (1/2, 3/NA)	54/16/21	37/8/4	0.513

\* Continuous variables were evaluated.

CEA, Carcinoembryonic antigen; CA19-9, Carbohydrate antigen 19-9; NA, Not applicable

**Supplementary Table S2.** The percentage of endoscopic images with incorrect AI diagnosis in the validation set.

		AI diagnosis	
		Tumor area	Other area
Pathological classification	SM-s	28 images	36 images
	64 images	(43.8%)	(56.2%)
	SM-d	15 images	23 images
	38 images	(39.5%)	(60.5%)