

Supplementary material

Supplementary Table 1 Characteristics of nine UC patients with flat-type dysplasia.

Patient No.	Age	Sex	Duration of disease, y	Extent	Mayo endoscopic score	Geboes histological score
1	69	Male	13	Extensive	0	0
2	39	Female	22	Extensive	0	0
3	46	Male	35	Extensive	0	0
4	54	Male	31	Extensive	0	0
5	69	Male	24	Extensive	0	0
6	70	Male	39	Extensive	0	1
7	56	Male	16	Left-sided	1	1
8	45	Male	24	Extensive	1	2
9	49	Female	14	Extensive	0	1

UC, ulcerative colitis.

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Supplementary Table 2 Endoscopic and histological findings from 10 dysplastic lesions.

Case No.	Location	Morphologic category (SCENIC)	Color	Size of lesion (mm)	Transmural invasion	Histology	
						Flat	Sessile
1	Ra	Flat	Red	38×20	M	LGD	
2	S	Flat	Red	25×23	M	HGD + LGD	
3	S	Flat > sessile	Red	36×30	M	LGD	HGD
4	S	Flat > sessile	Red	20×20	M	HGD + LGD	HGD
5	Rb	Flat	Red	32×12	M	HGD + LGD	
6	Ra	Flat	Red	50×25	M	HGD + LGD	
7	Rb	Flat > sessile	Red	50×50	M	HGD	HGD
8	A	Flat	Red	20×15	M	HGD	
9-1	Rs	Flat	Red	32×21	M	LGD	
9-2	Ra	Flat	Red	25×13	M	LGD	

LGD, low-grade dysplasia; HGD, high-grade dysplasia; A, ascending colon; S, sigmoid colon; Rs, rectosigmoid colon; Ra, rectum above the peritoneal reflection; Rb, rectum below the peritoneal reflection; M, mucosa.

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Supplementary Table 3 Histological assessment of intramucosal vascular density/size of 10 dysplastic lesions.

Case	Non-n	Vessel density (mm ²)			P value
		LGD (flat)	HGD (flat)	HGD (sessile)	
1	56.2 (26.1-77.3)	109.6 (81.6-132.4)		Non-n vs LGD (flat)	< 0.01
2	34.4 (23.2-42.1)	73 (58.4-88.5)	92.3 (78.9-98.9)	Non-n vs LGD (flat) Non-n vs HGD (flat)	< 0.01 < 0.01
3	48.1 (34.4-61.9)	96.3 (85.3-122.5)	67.8 (46.0-96.3)	Non-n vs LGD (flat) Non-n vs HGD (sessile) LGD (flat) vs HGD (sessile)	< 0.01 < 0.01 < 0.01
4	60.2 (44.2-76.3)	101.2 (75.9-120.5)	132.5 (104.7-159.6)	Non-n vs LGD (flat) Non-n vs HGD (flat) Non-n vs HGD (sessile) LGD (flat) vs HGD (flat)	< 0.01 < 0.01 < 0.01 < 0.01
5	36.1 (28.1-48.2)	81.7 (62.3-108.9)	96.4 (66.3-126.5)	HGD (flat) vs HGD (sessile) Non-n vs LGD (flat) Non-n vs HGD (flat) Non-n vs LGD (flat)	< 0.01 < 0.01 < 0.01 < 0.01

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6	20.1 (12.0-24.1)	34.4 (20.6-44.7)	48.1 (34.4-65.3)	Non-n vs HGD (flat) LGD (flat) vs HGD (flat)	< 0.01 < 0.01
7	28.8 (19.2-38.5)	40.2 (32.1-56.2)	59.1 (48.1-67.8)	Non-n vs HGD (flat) Non-n vs HGD (sessile) HGD (flat) vs HGD (sessile)	< 0.01 < 0.01 < 0.01
8	42.2 (30.1-54.2)	57.2 (47.4-71.5)		Non-n vs HGD (flat)	< 0.01
9-1	54.9 (35.7-74.2)	73.3 (61.5-89.0)		Non-n vs LGD (flat)	< 0.01
9-2	54.9 (33.0-65.9)	62.8 (44.5-89.0)		n.s	
Vessel size (µm)					
Case	Non-N	LGD (flat)	HGD (flat)	HGD (sessile)	P value
1	10.51 (8.52-12.68)	12.08 (10.04-14.87)			Non-n vs LGD (flat) < 0.01
2	9.88	9.92	10.92		n.s

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3	(8.08-13.22)	(8.28-12.70)	(8.98-13.94)		Non-n vs LGD (flat)	< 0.01
	10.89	9.88		12.57	Non-n vs HGD (sessile)	< 0.01
	(8.52-15.29)	(8.13-12.08)		(9.55-17.27)	LGD (flat) vs HGD (sessile)	< 0.01
4	9.37	10.04	11.82	13.35	Non-n vs LGD (flat)	< 0.01
	(8.08-11.71)	(8.28-12.60)	(9.71-15.05)	(10.24-17.83)	Non-n vs HGD (flat)	< 0.01
					LGD (flat) vs HGD (flat)	< 0.01
5	10.46	10.79	13.34		LGD (flat) vs HGD (sessile)	< 0.01
	(8.88-13.25)	(8.98-13.55)	(10.79-16.76)		HGD (flat) vs HGD (sessile)	< 0.01
					Non-n vs LGD (flat)	< 0.01
6	10.19	10.46	10.58		Non-n vs HGD (flat)	< 0.01
	(8.52-13.17)	(8.73-12.73)	(8.98-13.39)		LGD (flat) vs HGD (flat)	< 0.01
					Non-n vs HGD (flat)	< 0.01

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7	9.47 (8.52- 11.49)	10.06 (8.57-12.31)	11.71 (9.65-13.60)	Non-n vs HGD (sessile) HGD (flat) vs HGD (sessile)	< 0.01 < 0.01
8	12.98 (10.45- 16.86)	14.99 (12.29-20.00)		Non-n vs HGD (flat)	< 0.01
9-1	9.85 (8.75- 12.22)	10.26 (8.75-12.56)			n.s
9-2	10.40 (8.90- 12.89)	62.8 (8.90-13.14)			n.s

Non-n, non-neoplastic lesion; LGD, low-grade dysplasia; HGD, high-grade dysplasia.

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Supplementary Table 4 VEGF expression of dysplastic lesions and noncancerous surrounding mucosa.

Case	Non-n	LGD (flat)	HGD (flat)	HGD (sessile)
1	1+	2+	N/A	N/A
2	1+	3+	3+	N/A
3	0+	2+	N/A	3+
4	1+	2+	3+	3+
5	0+	2+	3+	N/A
6	0+	2+	3+	N/A
7	1+	N/A	3+	3+
8	1+	N/A	3+	N/A
9-1	0+	2+	N/A	N/A
9-2	0+	2+	N/A	N/A

VEGF, vascular endothelial growth factor; Non-n, non-neoplastic lesion; LGD, low-grade dysplasia; HGD, high-grade dysplasia; N/A, not available

Supplementary Table 5 Characteristics of 2 UC patients with intramucosal signet-ring cell carcinoma and HGD components.

Case	Age	Sex	Duration of disease, y	Extent	Clinical type
S1	80	Male	25	Extensive	Relapse-remitting
S2	30	Male	11	Extensive	Chronic-continuous

UC, ulcerative colitis.

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Supplementary Table 6 Endoscopic and histological findings from two dysplastic lesions with intramucosal signet-ring cell carcinoma and HGD components.

No.	Location	Morphologic category (SCENIC)	Color	Size of lesion (mm)	Transmural invasion	Histology
S1	Rb	Superficial elevated	discolored	18×9	M	Sig+HGD
S2	Rb	Depressed	discolored	11×8	M	Sig+HGD

Sig, signet-ring cell carcinoma; HGD, high-grade dysplasia.

Supplementary Table 7 Histological assessment of intramucosal vascular density/size of two intramucosal HGD and signet-ring cell carcinoma lesions.

Case	Vessel density (mm ²)			Vessel size (μm)		P value
	HGD	Sig	P value	HGD	Sig	
S1	82.3 (63.3-88.4)	23.8 (20.8-35.0)	< 0.01	11.48 (9.47-15.53)	9.9 (8.07-11.67)	< 0.01
S2	106.0 (91.5-110.2)	52.0 (46.8-58.7)	0.04	9.98 (8.13-13.16)	9.02 (8.08-11.71)	< 0.01

HGD, high-grade dysplasia; Sig, signet-ring cell carcinoma.