NARROW BAND IMAGING FOR DETECTION OF NON-POLYPOID COLORECTAL NEOPLASMS ; A PROSPECTIVE STUDY

T. Fujii*[1], K. Fu[2]

[1]Gastroenterology, TF clinic, Tokyo, [2]Gastroenterology, Juntendo University Nerima Hospital, Tokyo, Japan

TF clinic

Background

Non-polypoid (flat and depressed) colorectal neoplasms (NP-CRNs) are more difficult to detect by conventional white light colonoscopy (WLC) or computed tomography colonography, because the subtle findings can be difficult to distinguish from those of normal mucosa. Narrow band imaging (NBI) has been reported to highlight the mucosal capillaries of neoplastic lesions, and thus increase the detection rate of colon polyps, however, the detection rate of NP-CRNs, especially depressed in shape, has not been assessed yet.

Aim

To investigate the detection rate of NP-CRNs using NBI colonoscopy in comparison to WLC.
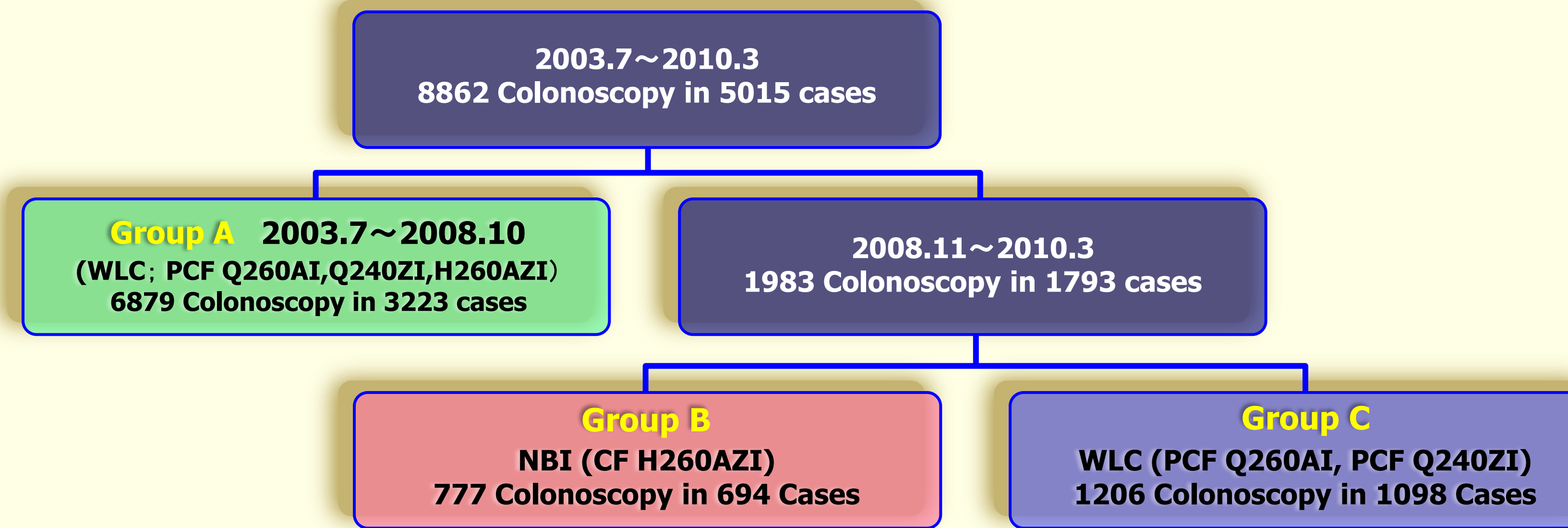
Patients and method

From July 2003 to March 2010, a consecutive of 8862 colonoscopies in 5015 patients conducted in TF clinic was recruited in this study. All colonoscopies were performed by a single experienced endoscopist (TF), an expert in the field of magnifying chromoendoscopy. Total colonoscopy was introduced into cecum with WLC, and then withdrawn with WLC or NBI for observation. The patients were divided into three groups as follows for analysis; 6879 colonoscopies in 3223 patients (July 2003 to October 2008;GroupA) examined with WLC before introducing NBI system, 1206 colonoscopies in 1098 patients (November 2008 to March 2010; Group C) examined with WLC after introducing NBI system, 777 colonoscopies in 694 patients (November 2008 to March 2010; GroupB) examined with NBI. The primary endpoint of this study is to assess the detection rate of NP-CRNs with NBI. The difference of detection rate of all neoplastic lesions, polypoid lesion, and NP-CRNs between WLC (before NBI;GroupA or after NBI; Group C) and NBI (GroupB) was also investigated.

Results

1. A total of 397 NP-CRNs (4.5%) was detected in this study population.

2. NBI colonoscopy detected significantly more NP-CRNs than WLC before NBI (7.2% vs 4.3%, $p<0.001$) and WLC after NBI (7.2% vs 3.6%, $p<0.001$).

Conclusion

NBI colonoscopy can detect a significant number of NP-CRNs. This new technique has the potential to detect more NP-CRNs than WLC. Further prospective study in randomized fashion is necessary to clarify this difference.
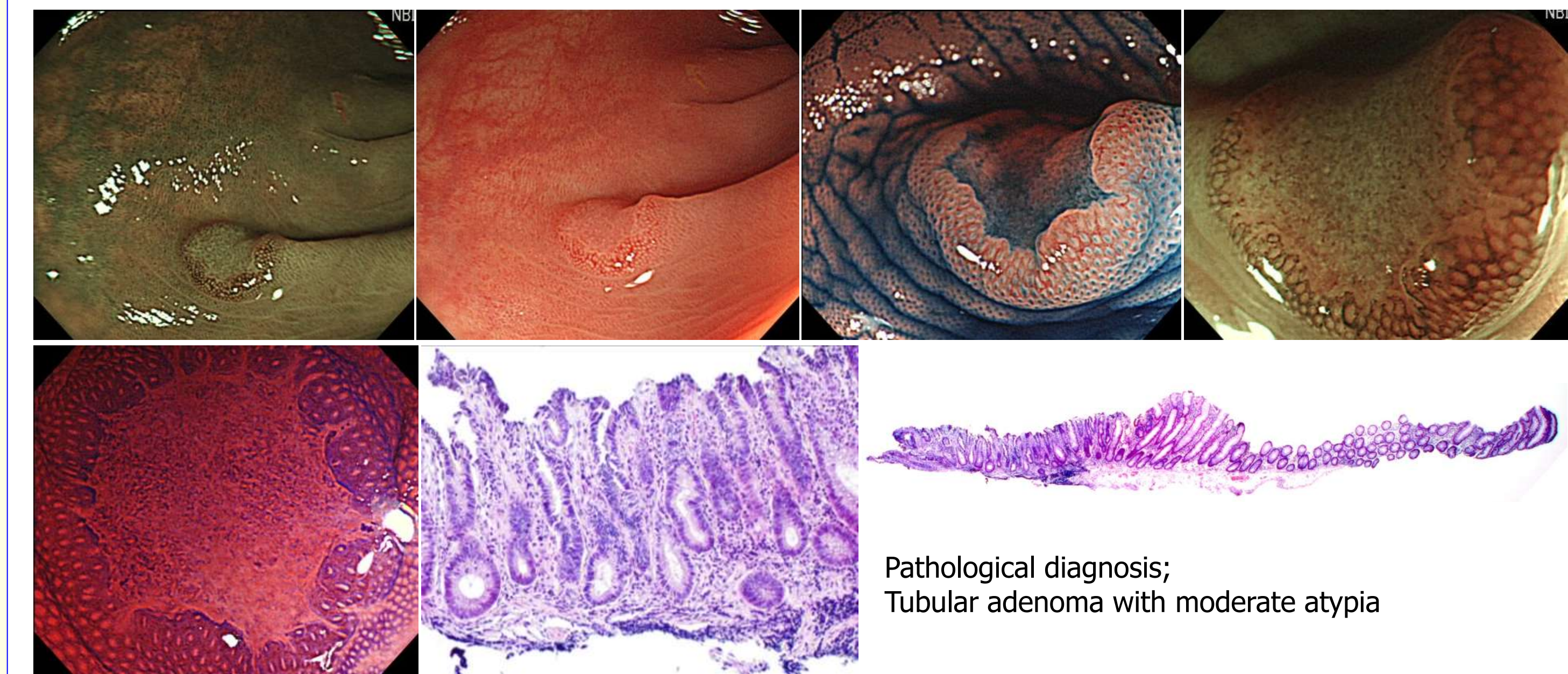
Study flow

2003.7～2010.3
8862 Colonoscopy in 5015 cases

Group A 2003.7～2008.10
(WLC；PCF Q260AI,Q240ZI,H260AZI)
6879 Colonoscopy in 3223 cases

2008.11～2010.3
1983 Colonoscopy in 1793 cases

Group B
NBI (CF H260AZI)
777 Colonoscopy in 694 Cases

Group C
WLC (PCF Q260AI, PCF Q240ZI)
1206 Colonoscopy in 1098 Cases

	Group A 2003.7～2008.10 (WLC) N=6879	Group B 2008.11～2010.3 (NBI) N=777	Group C 2008.11～2010.3 (WLC) N=1206	Total N=8862
Mean Age (yrs)	57.2	59.9	58.2	57.6
Gender (male)	3818 (55.5%)	605 (77.9%)	460 (38.1%)	4883 (55.1%)
Extubation time (min)	8.54	9.48	8.00	8.12
No abnormality	3570 (51.9%)	375 (48.3%)	670 (55.6%)	4615 (52.1%)
1 or more adenomas	2506 (36.4%)	321 (41.3%)	397 (32.9%)	3224 (36.4%)
Total Adenomas	4926 (71.6%)	564 (72.6%)	639 (53.0%)	6129 (69.2%)
Total Advanced Adenomas	654 (9.5%)	55 (7.1%)	70 (5.8%)	779 (8.8%)
Total Mucosal (M) Ca.	186 (2.7%)	15 (1.9%)	14 (1.2%)	215 (2.4%)
Total Submucosal (SM) Ca.	28 (0.4%)	4 (0.5%)	4 (0.3%)	36 (0.4%)

Gender: $p<0.001$, $p<0.001$
No abnormality: $P<0.05$, $p<0.001$
1 or more adenomas: $P<0.01$, $p<0.001$
Total Adenomas: $P<0.05$, $p<0.001$
Total Advanced Adenomas: NS, NS
Total Mucosal (M) Ca.: NS, NS
Total Submucosal (SM) Ca.: NS, NS

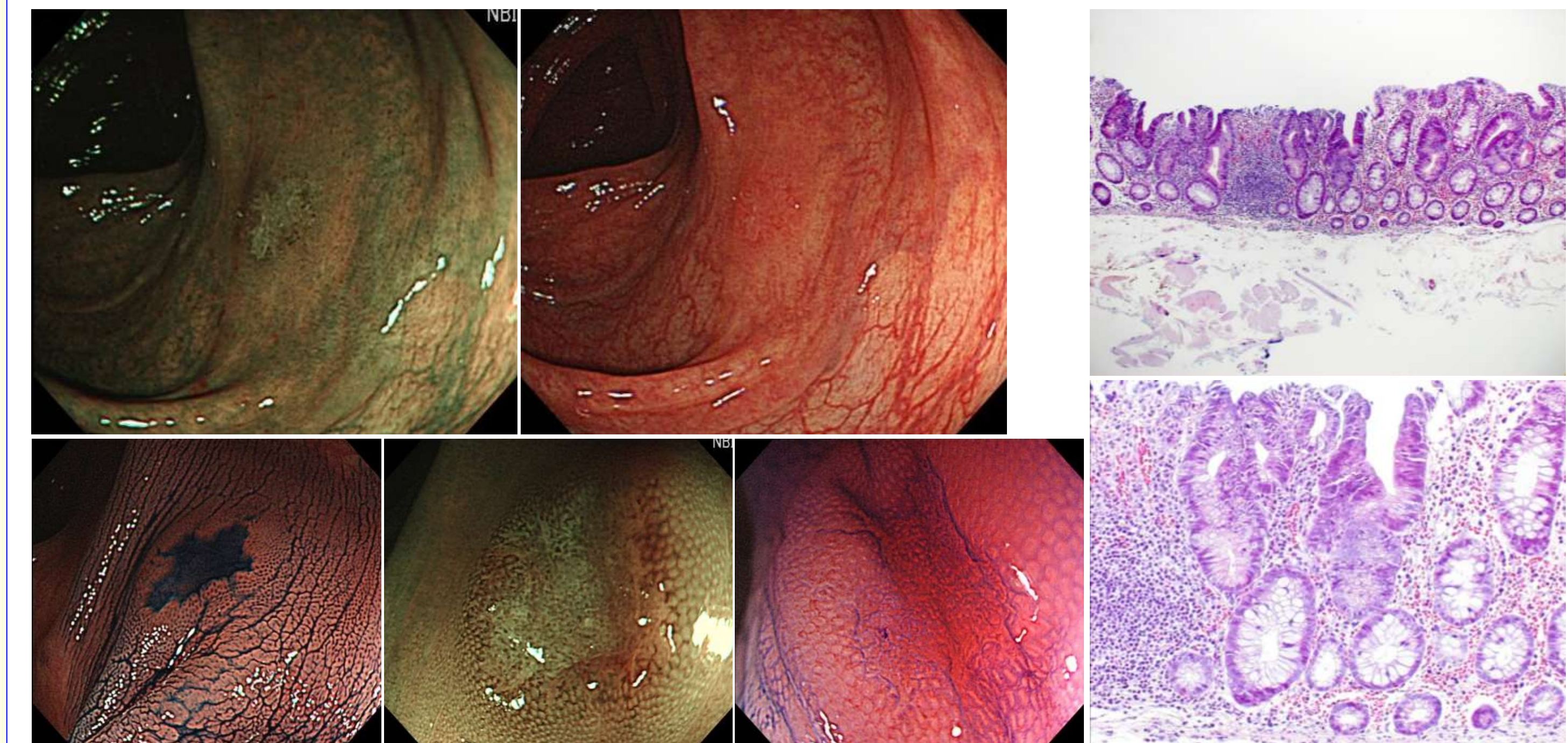|	Group A	Group B	Group C	Total
Total of polypoid lesion(Ip,Is,IIa,LST-G)	4837 (70.3%)	515 (66.3%)	601 (49.8%)	5953 (67.2%)
Total of Non-polypoid lesions	297 (4.3%)	56 (7.2%)	44 (3.6%)	397 (4.5%)
IIa+IIc	99 (1.4%)	14 (1.8%)	18 (1.5%)	131 (1.5%)
IIb	4 (0.05%)	4 (0.5%)	1 (0.08%)	9 (0.1%)
IIc	28 (0.4%)	8 (1.0%)	6 (0.5%)	42 (0.5%)
LST-NG (Non-granular type of laterally spreading tumor)	166 (2.4%)	30 (3.9%)	19 (1.6%)	215 (2.4%)

Total of polypoid lesion: NS, $p<0.001$
Total of Non-polypoid lesions: $p<0.001$, $p<0.001$
IIa+IIc: NS, NS
IIb: $p<0.001$, NS
IIc: $P<0.05$, NS
LST-NG: $P<0.01$, $P<0.01$

Fisher's exact test

40 yrs, Male, Sigmoid colon, IIc, 6mm.

Pathological diagnosis; Tubular adenoma with moderate atypia

NBI colonoscopy pointed out this depressed lesion (Type IIc).

47yrs , Male, Transverse colon, IIc, 5mm

Pathological diagnosis; Tubular adenoma with severe atypia.

This depressed lesion (Type IIc) was detected by colonoscopy with NBI system.