OMED COLORECTAL CANCER SCREENING COMMITTEE MEETING
Saturday, May 19, DDW Washington, 2007
Presenter: Takahisa Matsuda

OMED Colorectal Cancer Screening Meeting
DDW Washington
19 May, 2007

Endoscopic Colorectal Cancer Screening
– Autofluorescence Imaging Videoendoscopy –
A Prospective Study

Takahisa Matsuda, M.D.
National Cancer Center Hospital, Tokyo, Japan

Background

Colonoscopy is considered as the gold standard for the detection of colorectal adenomas, however, overlooking of neoplastic lesions are well documented.

Autofluorescence imaging (AFI) system is an emerging technique for neoplasia detection, including the gastrointestinal tract.

Aim

The aim of this randomized prospective study is to value whether an AFI videoendoscopy system can improve the colorectal adenoma detection rate, as compared to conventional white light (WL) colonoscopy.

OMED COLORECTAL CANCER SCREENING COMMITTEE MEETING
Saturday, May 19, DDW Washington, 2007
Presenter: Takahisa Matsuda

Methods

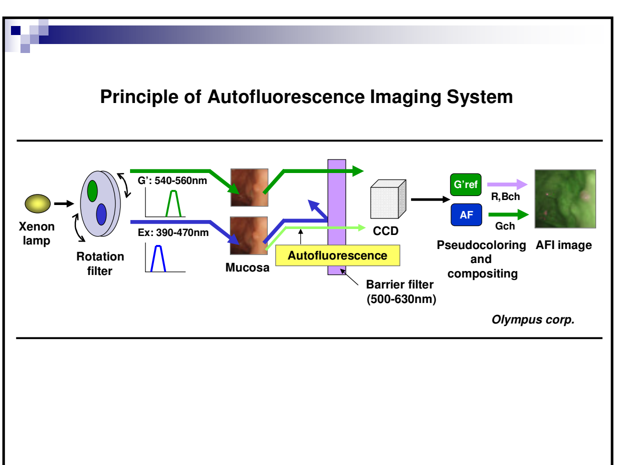
Between June and October 2006, a total of 167 consecutive patients were enrolled in this study, and underwent modified back-to-back colonoscopy using AFI system (XCF-H240FZI video colonoscope, Olympus Corp., Tokyo, Japan) by a single experienced colonoscopist.

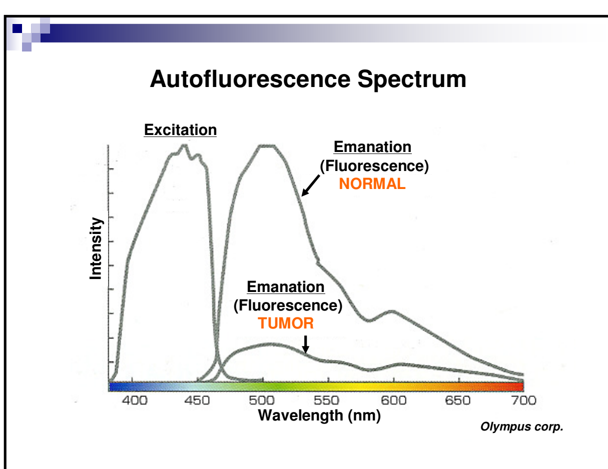
Each patient was randomized in one of two groups;

Group A: examination from the cecum to the splenic flexure with AFI, and then with WL after having reinserted the scope to the cecum.

Group B: examination in an inverse order than in Group A (first WL and then AFI examination).

The time consumption and the number of detected lesions were recorded for both the first and second examinations.
In both groups, all visualized lesions diagnosed as neoplasia were removed and sent individually for histopathological examination.





OMED COLORECTAL CANCER SCREENING COMMITTEE MEETING
Saturday, May 19, DDW Washington, 2007
Presenter: Takahisa Matsuda

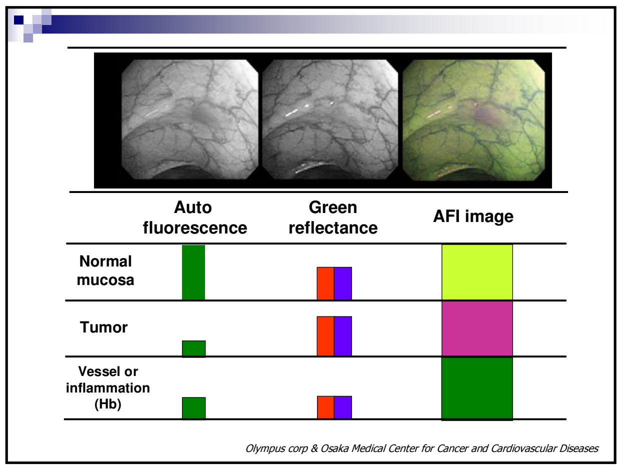


Table 1.

Specifications of AFI and Standard Magnifying Colonoscope (MC)

	AFI (XCF-H240FZI)	MC (CF-H260AZI)
View angle	AFI: 140° (WL: 80-140°)	80-140°
Observation range	5-100mm	7-100mm (x75: 2-3mm)
Diameter		
Distal tip	14.8mm	13.6mm
Insertion tube	16.0mm	15.6mm
Angulation range		
Up, down	180°	180°
Right, left	160°	160°
Channel inner diameter	3.2mm	3.2mm
Magnification	Available* (up to x75)	Available (up to x75)

* Under white light (WL) observations only

Table 2.

Patients characteristics

	Group A (AFI-WL)	Group B (WL-AFI)
Randomization	83	84
Gender (Male)	58 (70%)	49 (58%)
Mean age* (yr)	62.2±10.2	62.2±9.5
Indication for Colonoscopy		
Polyps surveillance	42	36
Screening	35	41
Abdominal pain/constipation	2	5
FOBT** (+)	4	2

* Data presented with mean±SD

** Fecal occult blood test

OMED COLORECTAL CANCER SCREENING COMMITTEE MEETING
Saturday, May 19, DDW Washington, 2007
Presenter: Takahisa Matsuda

Table 3.

Mean Time of Withdrawal in Minutes and Bowel Preparation

	Group A (AFI-WL) (n=83)	Group B (WL-AFI) (n=84)	
Insertion time (min)*	5.6 (1.0-13.0)	5.4 (1.3-13.8)	
Withdrawal observation time (min)*			
AFI	2.8 (1.3-12)	2.6 (1.2-12)	NS**
WL	2.0 (1.2-13)	2.3 (1.2-18)	
Bowel preparation			
Excellent	18 (22%)	23 (27%)	
Good	49 (59%)	49 (58%)	NS
Fair	16 (19%)	12 (14%)	

* Data presented with median (range)
**NS : not significant

Table 4.

Clinicopathologic Characteristics of Lesions Detected by AFI or WL Colonoscopy

	AFI (100)	WL (73)
Location		
Cecum	9	8
Ascending	37	19
Transverse	54	46
Macroscopic type		
Polypoid	23	26
Flat elevated	77 (77%)	47 (64%)
Size 0-5mm	84 (84%)	53 (73%)
6-10mm	10	12
11mm-	6	8
Histopathology		
Neoplastic LGD	85	63
HGD	6	5
Inv.ca	1	1
Neoplastic total	92 (92%)	69 (95%)
Non-neoplastic	8 (8%)	4 (5%)

Table 5.

Detected Number of Neoplastic Lesions

	Group A (AFI-WL)	Group B (WL-AFI)	
Total number of lesions (Neoplastic Lesions)	66	95	
First exam	AFI 47 (71%)	WL 50 (53%)	p=0.018
Second exam	WL 19 (29%)	AFI 45 (47%)	

Table 6.

Characteristics of the Missed Lesions by WL Colonoscopy

Location	
Cecum	2
Ascending	19
Transverse	24
Macroscopic type	
Polypoid	6
Flat elevated	39 (87%)
Size	
0-5mm	41 (91%)
6-10mm	4
Histopathology	
Neoplastic	
LGD	45 (100%)

Results

- Eighty-three patients were randomized to Group A and 84 to B. Indications for colonoscopy were similar between both groups. There was no difference in the duration of withdrawal between the first and second examination in both groups. (Table 2,3)
- The total number of neoplastic lesions detected by AFI and WL colonoscopy was 92 and 69 respectively (p=0.055). (Table 4)
- Among the 66 neoplastic lesions in group A, 47 (71%) were detected by with the first withdrawal technique (AFI).
  On the other hand, among the 95 neoplastic lesions in group B, 50 (53%) were detected at the first withdrawal technique (WL), and 45 (47%) lesions were detected by second AFI examination (p=0.018). (Table 5)
- Characteristics of the missed lesions by WL colonoscopy in group B were as follows; flat lesion: 39 (87%), diminutive (≤5mm) polyp: 41 (91%), low-grade dysplasia (LGD):45 (100%). (Table 6)

Conclusions

AFI videoendoscopy system might be useful for the detection of colorectal adenomas compared to conventional (white light) colonoscopy, especially for flat and/or diminutive lesions.