

Linked color imaging reduces the miss rate of neoplastic lesions in the right colon

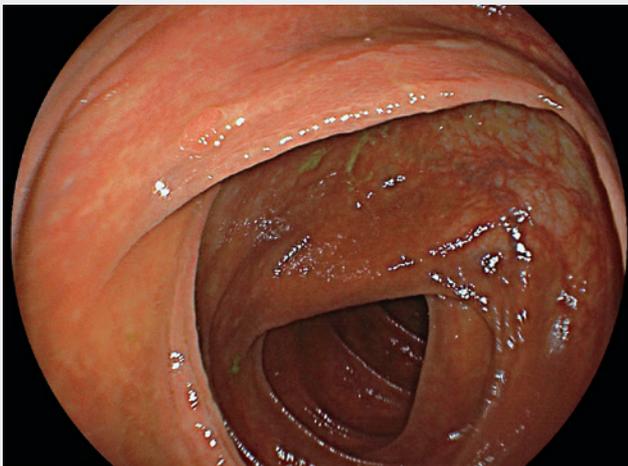
Editorial Supervisor: **Silvia Paggi MD**

Franco Radaelli MD

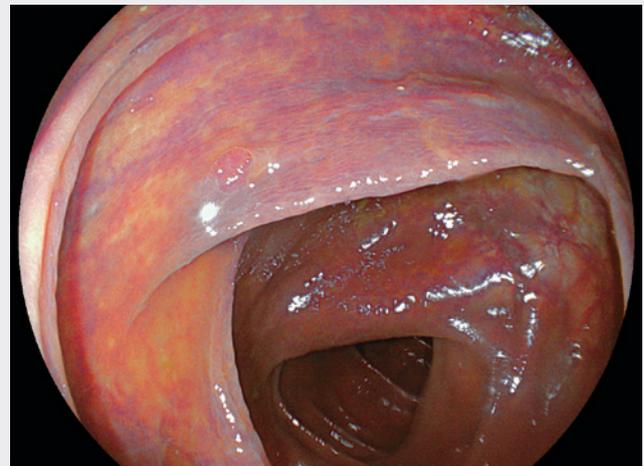
Valduce Hospital Como, Italy

New clinical evidence

Linked color imaging (LCI) could reduce the miss rate of neoplastic lesions in the right colon⁽¹⁾.



White Light Image



LCI

Study Center

Valduce Hospital, Como, Italy

Background and aim

Background

The right colon may harbor a greater prevalence of neoplastic lesions that are macroscopically more difficult to distinguish from normal mucosa, such as flat or non-polypoid lesions, that may more likely contain invasive carcinoma. Similarly, sessile serrated adenomas/polyps (SSA/P), with subtle appearance and unremarkable color, are usually located in the right colon⁽²⁾. The folds are quite deep in the right colon, and polyps are frequently located on the back of folds and on the inner curvatures of flexures, eluding the view during scope withdrawal⁽³⁾. In view of these challenges, great efforts are currently being made to develop techniques or technologies that could potentially improve polyp detection in the right colon.

Aim

To investigate whether LCI improves the detection of neoplastic lesions in the right colon when compared with high definition white-light imaging (WLI).

Study Design

Design: A single center, prospective, RCT of tandem colonoscopy

Study type: Independent, no profit study

Study period: July, 2017 - December, 2017

Equipment: Light Source (BL-7000), Processor (VP-7000), Colonoscope (EC-760R-V/M, EC-760ZP-V/M)

Eligibility Criteria:

All consecutive outpatients referred for elective colonoscopy for routine indications were considered eligible for study enrollment.

Procedures:

Consecutive patients undergoing colonoscopy were randomized (1:1) after cecal intubation into right colon inspection at 1st pass by LCI or by WLI. At the hepatic flexure, the scope was reintroduced to the cecum under LCI and a 2nd right colon inspection was performed under WLI in previously LCI-scoped patients (LCI-WLI group) and vice versa (WLI-LCI group).

Outcome measures:

The primary outcome measure was the adenoma miss rate in LCI-WLI and WLI-LCI groups. Secondary outcomes were advanced adenoma and SSA/P miss rates, and incremental right colon ADR.

Results

<Adenoma miss rate>

Adenoma miss rate was significantly lower in LCI-WLI group compared with WLI-LCI group. The miss rates were 11.8% in LCI-WLI group and 30.6% in WLI-LCI group ($P < 0.001$).

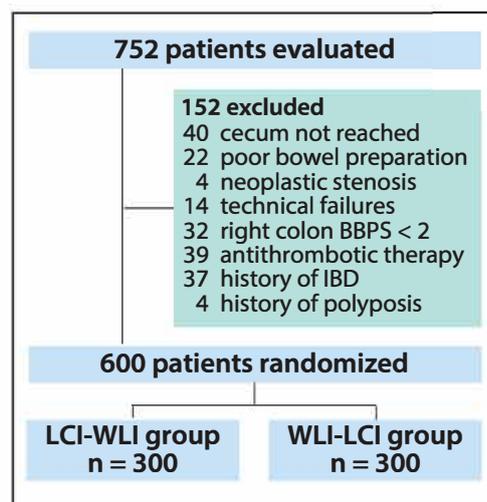
<Advanced adenoma and SSA/P miss rate>

Advanced adenoma and SSA/P miss rate were lower in LCI-WLI group compared with WLI-LCI group. The miss rates were 40.0% in LCI-WLI group and 45.4% in WLI-LCI group for advanced adenoma, and 33.3% in LCI-WLI group 50% in WLI-LCI group for SSA/Ps (No significant difference).

<Incremental r-ADR* > *At least one adenoma was identified in the 2nd pass only

Incremental r-ADR was significantly higher in WLI-LCI group compare with LCI-WLI group. The incremental r-ADRs were 0.7% in LCI-WLI group 4.3% in WLI-LCI group ($P = 0.01$).

Type of adenoma	Endoscopic arm	Adenomas Detected at 1 st pass	Adenomas Detected at 2 nd pass	Adenoma miss rate with LCI	Adenoma miss rate with WLI
All	LCI-WLI	97	13	13 / 110 11.8 %	
	WLI-LCI	77	34		34 / 111 30.6 %
Advanced	LCI-WLI	6	4	4 / 10 40.0 %	
	WLI-LCI	6	5		5 / 11 45.4 %
SSA/Ps	LCI-WLI	4	2	2 / 6 33.3%	
	WLI-LCI	6	6		6 / 12 50.0%



Conclusion

This is the first study performed in a Western country to suggest that LCI could reduce the adenoma miss rate in the right colon.

Reference

- (1) : Silvia Paggi, Giuseppe Mogavero, Arnaldo Amato, Emanuele Rondonotti, Alida Andrealli, Gianni Imperiali, Nicoletta Lenoci, Giovanna Mandelli, Natalia Terreni, Francesco Simone Conforti, Dario Conte, Giancarlo Spinzi, Franco Radaelli. Linked color imaging reduces the miss rate of neoplastic lesions in the right colon: a randomized tandem colonoscopy study. Endoscopy 2018; 50: 1-7
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- (3) : Kushnir VM, Oh YS, Hollander T. Impact of retroflexion vs. second forward view examination of the right colon on adenoma detection: a comparison study. Am J Gastroenterol 2015; 110: 415-422