WEO
World Endoscopy Organization

Welcome To Syrian

WEO« ADEC »

SSGE2018


علينا أن نولي التأهيل والتدريب اهتماماً خاصاً في كل المجالات وعلى كل المستويات.
وذلك بالإعتماد على الكوادر الوطنية في سوريا وخارجها...إضافة إلى الاحتكاك بالكوادر العربية والأجنبية
والإفادة من خبرات الدول التي لها تجارب ناجحة في مجالات محددة...
من أقوال السيد الرئيس بشار الأسد


KC

Part I
17-10-2018

I. Introduction:

1. **Welcome Video:**

   Dr. J. F. Rey
   (WEO President)

2. **Enhanced Endoscopy Imaging (EEI)**
   Imaging Enhanced Endoscopy (IEE)
   and Endoscope Techenology

   Dr. M. Azzam Kayasseh
   (WEO Regional Counselor, ME+Africa)

Part I
17-10-2018 cont.,

II. Clinical Application on Upper Gastrointestinal Endoscopy:

Barrett's Esophagus

IV. Endoscopic Classifications:

Barrett's Esophagus

Dr. M. Azzam Kayasseh

(WEO Regional Counselor, ME+Africa)

Part II
19-10-2018

II. Clinical Application on Upper Gastrointestinal Endoscopy:

- **Early Esophageal carcinomas**

  Dr. Samer Haffar

- **Eso-Gastric Junction Carcinomas**

  Dr. Numaan Zaydan

- **Early Gastric Cancer and Gastritis**

  Dr. Khales Sheha

Part II

19-10-2018 cont.,

III. Clinical Application on Lower Gastrointestinal Endoscopy

- **Inflammatory Bowel Disease(IBD)**

  Dr. Raed Abo Hareb

- **Colorectal Polyps**

  Dr. Fayez Sundoc

- **Colorectal Cancer (CRC)**

  Dr. Naser Addi

Part II
19-10-2018 cont.,

IV. Endoscopic Classifications:

- **NICE Classification**

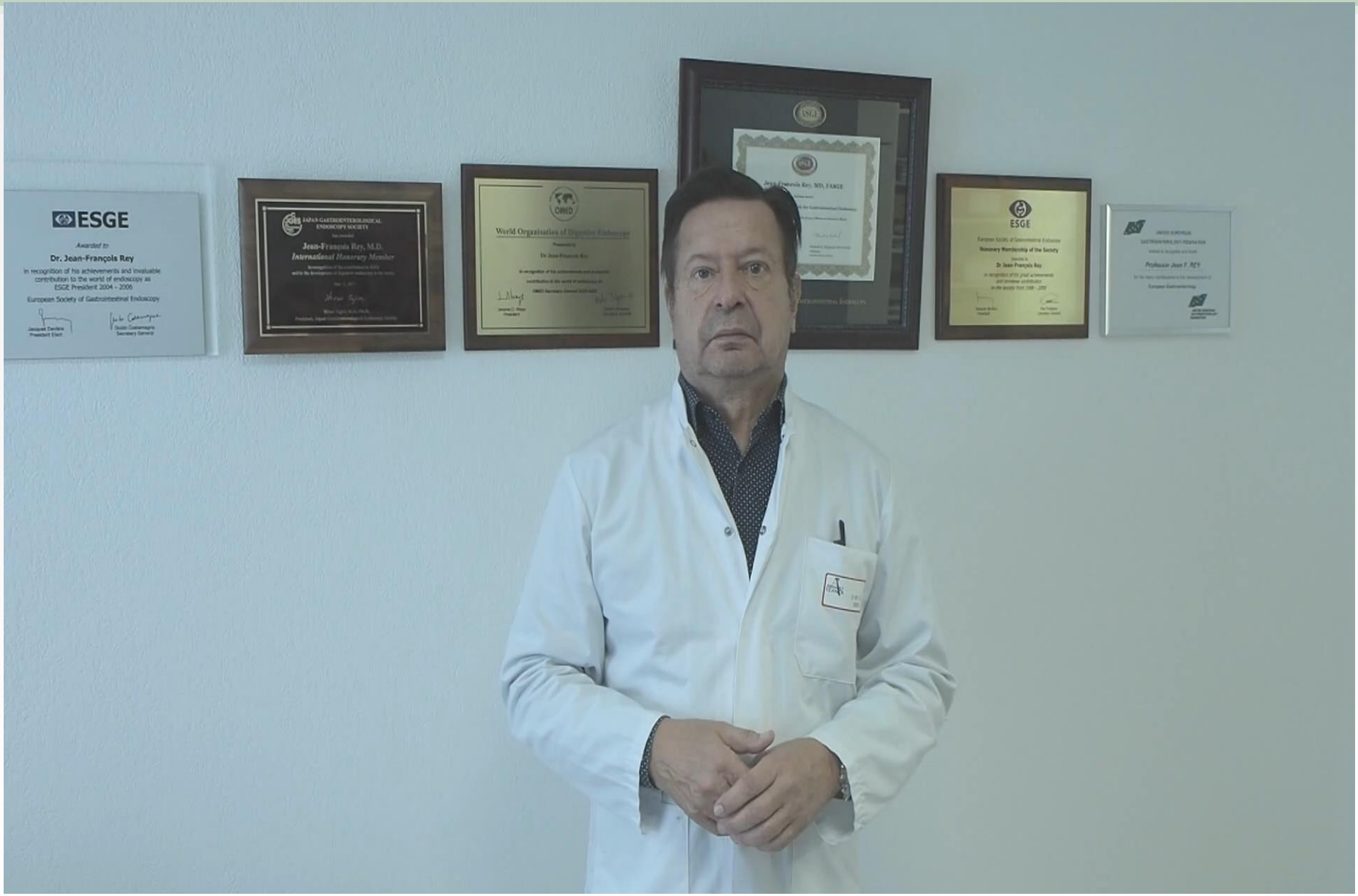
  Dr. Maher Maddi

- **JNET Classification**

  Dr. Saleem S. Aldin

- **Paris Classification**

  Dr. Mansour N. Aldin


ESGE
Awarded to
Dr. Jean-François Rey
In recognition of his achievements and invaluable contribution to the world of endoscopy as ESGE President 2004 – 2006
European Society of Gastrointestinal Endoscopy
JAPAN GASTROENTEROLOGICAL ENDOSCOPY SOCIETY
Jean-François Rey, M.D.
International Honorary Member
World Organisation of Digestive Endoscopy
ESGE
Honorary Membership of the Society
Dr Jean-François Rey

Enhanced Endoscopic Imaging Endoscope Technology

Dr. M. Azzam Kayasseh

WEO Regional Counselor (ME+Africa)

ENDO2020

Dubai Endoscopy Forum (DEF)

Dr. Moh'd Azzam Kayasseh
Founding President
Dubai, UAE

Dubai Endoscopic Forum (DEF)

Target

Cooperation with all Health Care Professionals (Multi-Disciplenary Appraoch Medicine) in Digestive Diseases

Dubai Endoscopic Forum (DEF)

Mission

Recognize the potential pitfalls.

Evaluate the benefits, applications, and limitations.

Integrate the latest scientific advances.

Apply advanced digestive endoscopic skills and techniques into daily EBM practice .

Dubai Endoscopic Forum (DEF)

Vision

Standardization of Digestive Endoscopic Tech.
Cooperation with International Key Opinion Leaders

1st DEF

WEO World Endoscopy Organization

KC Kayyassih Medical Clinic

1st DEF Young Clinicians

WEO World Endoscopy Organization

KC Kayyassih Medical Clinic

WEO World Endoscopy Organization

KC Kayyassih Medical Clinic

Improvements of Endoscopic Imaging: Why?

Detection :

(High Resolution Endoscopes)
Minimal Color Changes

Minimal Relief Changes

Characterization :

Analysis of Superficial Vascular Network(VP)
Assessment of Mucosal pattern (MP)

Improvements of Endoscopic Imaging: Why?

- **Characterization**
  - Benign without Malignant potential
    => No treatment
  - Benign with Malignant potential
    => Endoscopic Treatment
  - Malignant with Invasion limited to mucosa(M1M2M3) and/or Submucosal (SM1)
    => Endoscopic Treatment or Surgery
  - Malignant with deep invasion into digestive wall
    => Surgery

State of art in Endoscopy Imaging

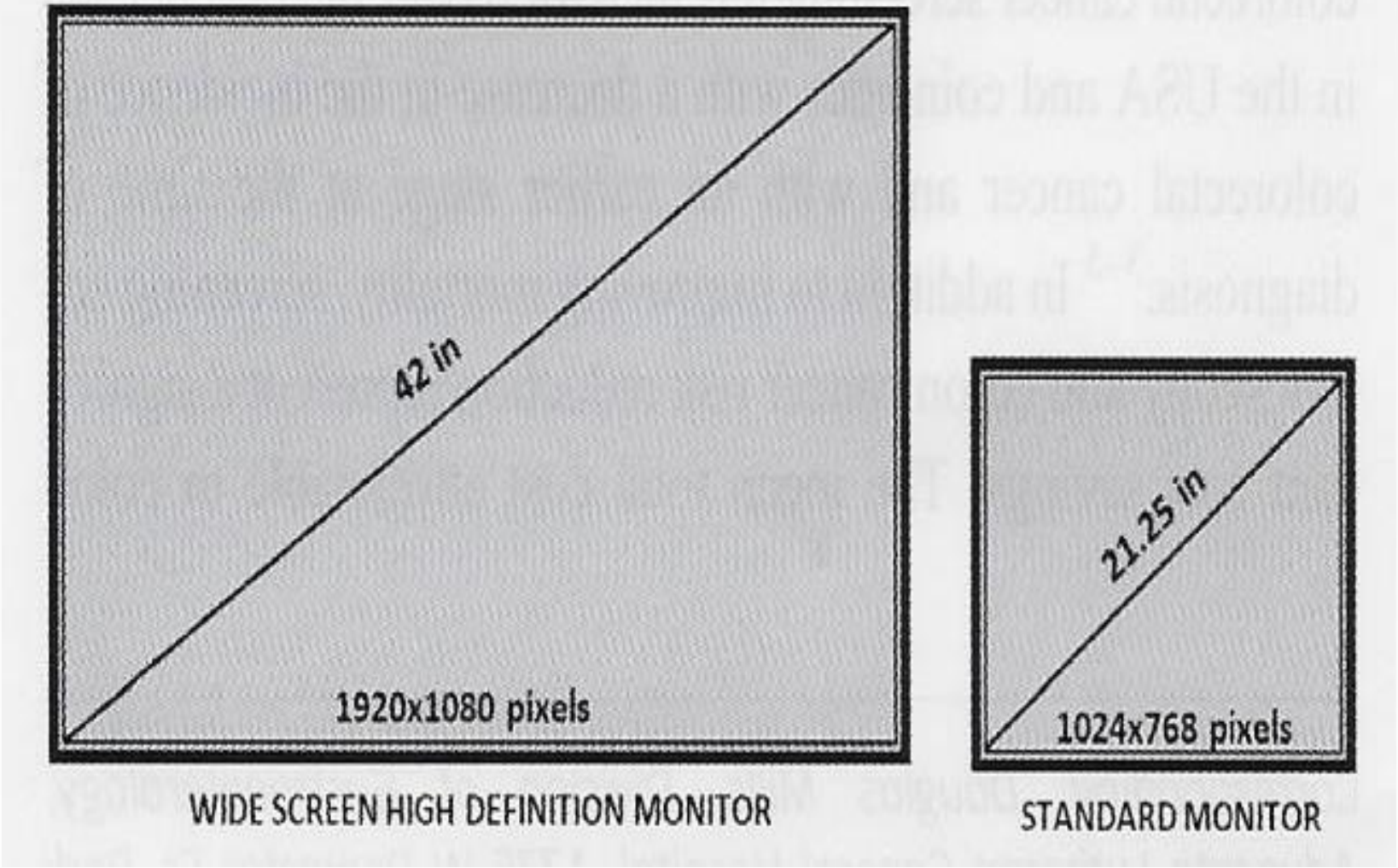
- High Resolution Endoscopes
  Improved Detection
- Imaging Enhanced Endoscopy
  Endoscopic Classifications
  (characterisation and treatment)

Enhanced Endoscopic Imaging

- High-Resolution (HR)Videoendoscopes
- Sequential or Color CCD
- HDTV
- NBI , BLI , LCI, OE …..
- Structure Enhancement ,FICE,I-Scan…
- Optical Magnification or Closed Focus Lens
- Wide Field Of View…

Factors influencing image quality

1. Resolution
2. Magnification Power
3. Contrast
4. Angle of View
5. Depth of Field
6. Evenness of Illumination
7. Automatic Brightness Control
8. Signal Noise
9. Color Accuracy & Color Tone
10. Dynamic Range


42 in
1920x1080 pixels
WIDE SCREEN HIGH DEFINITION MONITOR
21.25 in
1024x768 pixels
STANDARD MONITOR

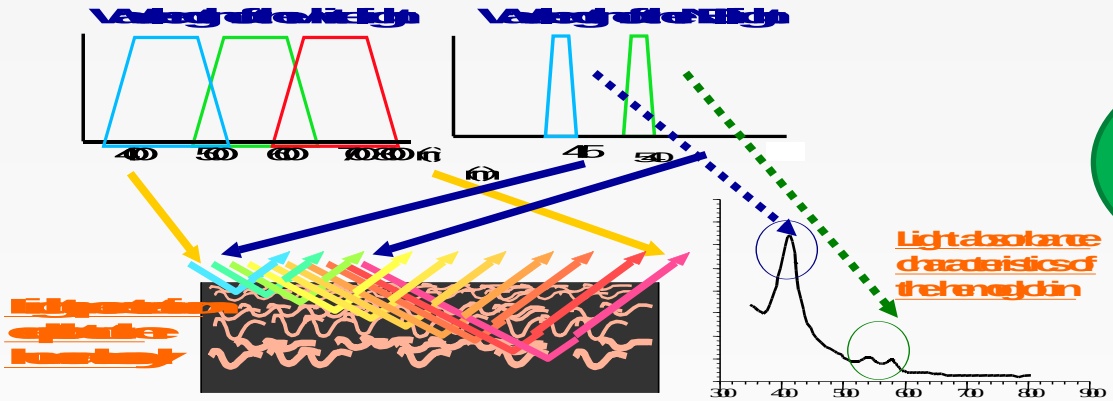
Basic principle of NBI

How the image is created

Because of the 2 wavelengths in narrow band light, the contrast in the surface is enhanced, and customers can observe the surface and vascular pattern clearly.

Mucosal Pattern

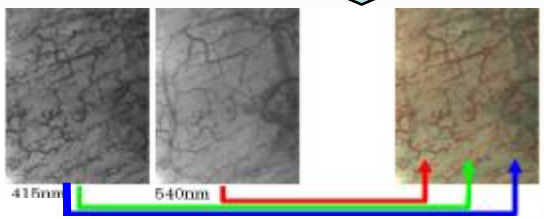
Vascular Pattern



NBI light reaches only the surface of the mucosa

Hemoglobin (blood vessels) absorbs the NBI light and blood vessels are reproduced darkly.

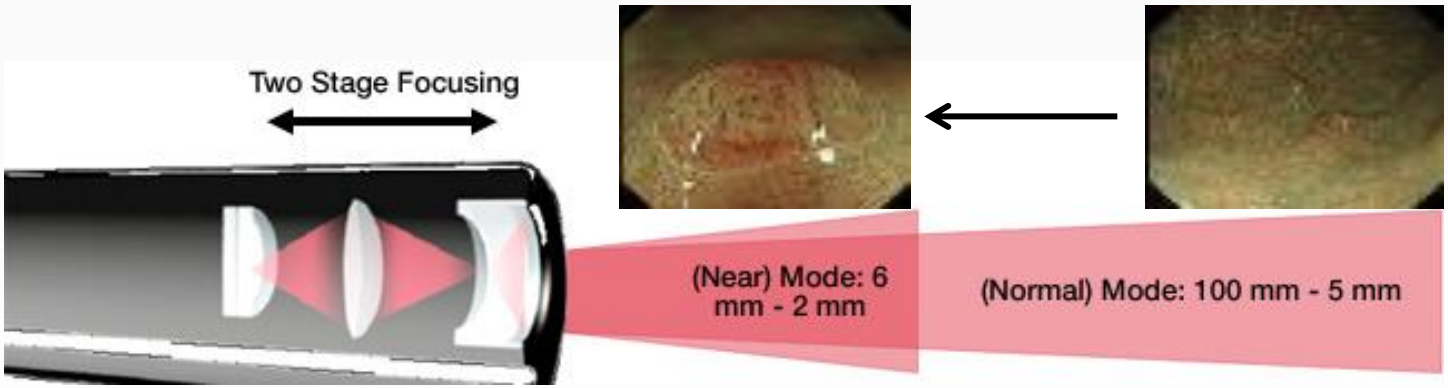
Only blood vessels in the su are reproduced darkly, thus enhancing the contrast to th mucosa.



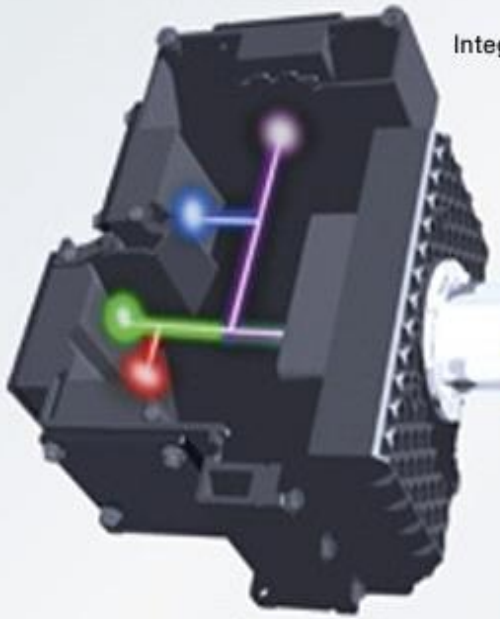
WEO World Endoscopy Organization

Next Magnifying Endoscopy

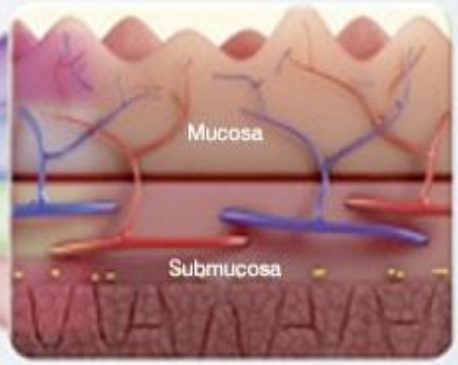
Dual Focus, a unique Olympus innovation based upon an innovative two-stage optical system enables the user to switch between two focus settings. With the simple push of a button, the desired observation mode can be selected: “near mode” featuring ground-breaking resolving power for close mucosal observation or “normal mode” for normal observation. Even in “normal mode”, EVIS EXERA III endoscopes feature an advanced level of resolving power compared to previous generations. With Dual Focus, Olympus is helping to revolutionise routine endoscopy.

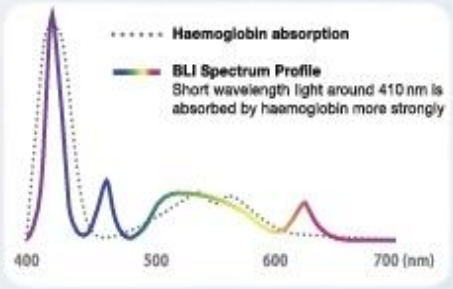


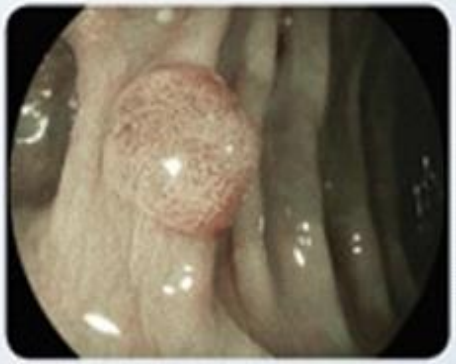
BLI



Integrated Light Source







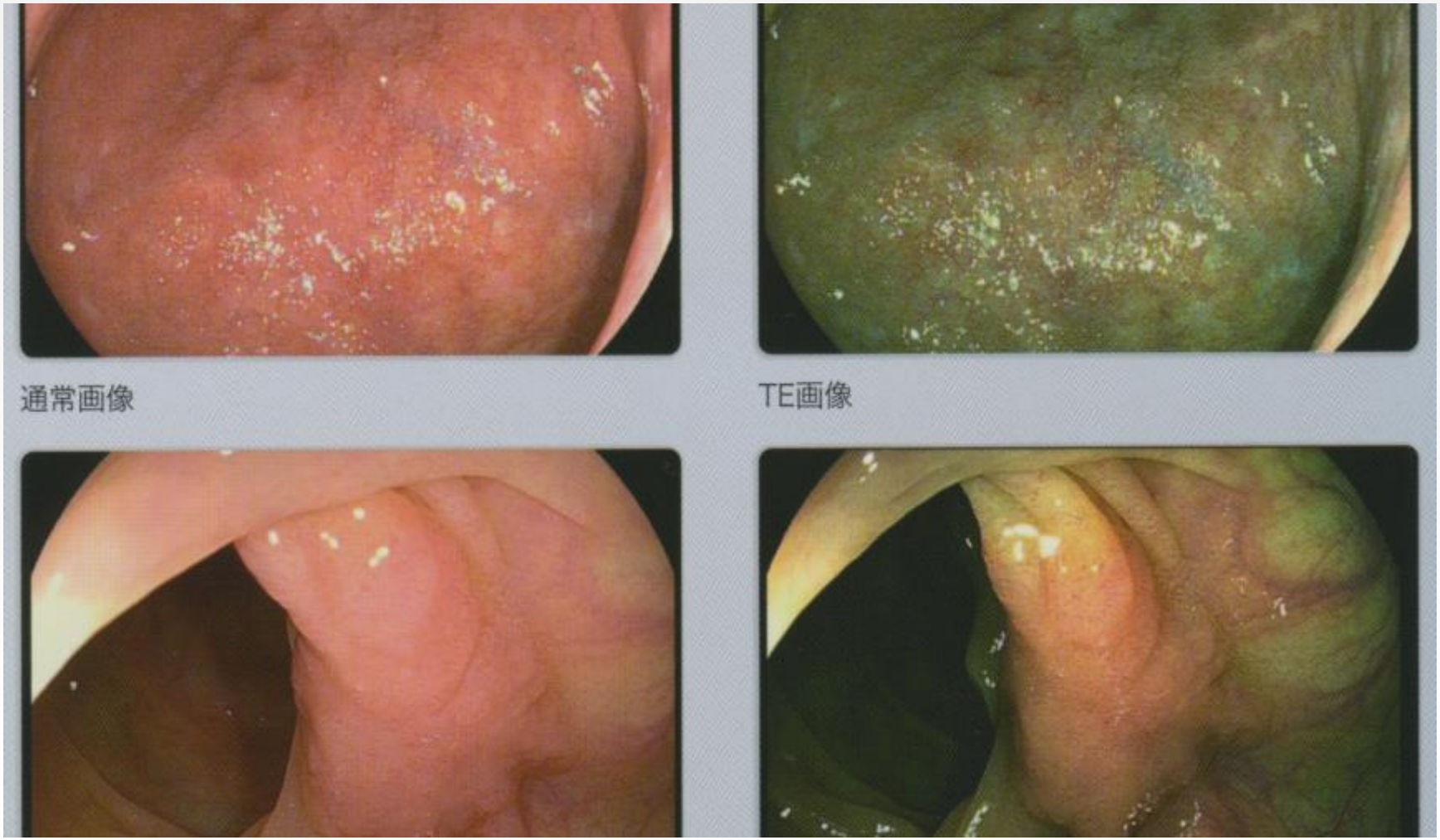
BLI (Blue Light Imaging)

White Light

- A high performance spectrum of light is generated from a powerful light source with four individual LED light bulbs.

- Enhanced visualisation of haemoglobin, and thus blood vessels, is generated by the high peak intensity of short-wavelength light (blue-violet and blue).
- Specific light spectrum settings targeting the mucosal layers result in improved contrast and higher definition of imaging.

Optical Enhancement



BLI , BLI-bright ,FICE

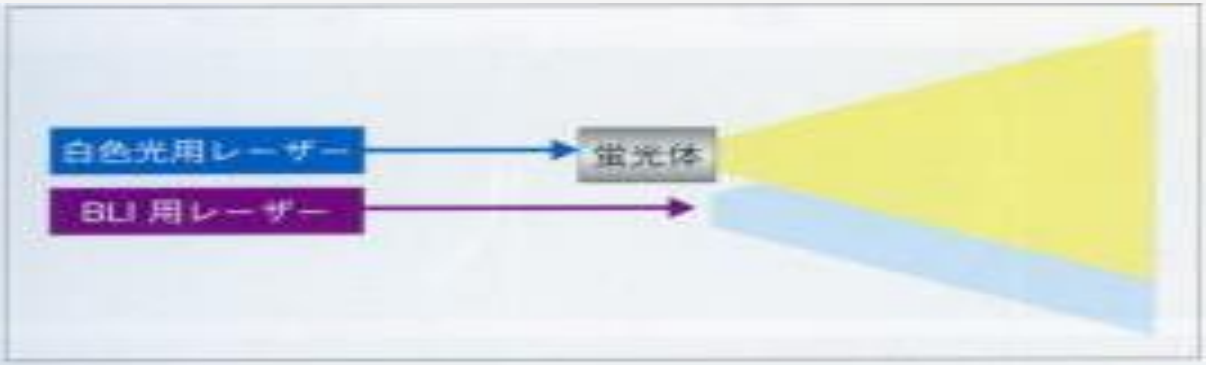


図1　レーザー照明の概念図

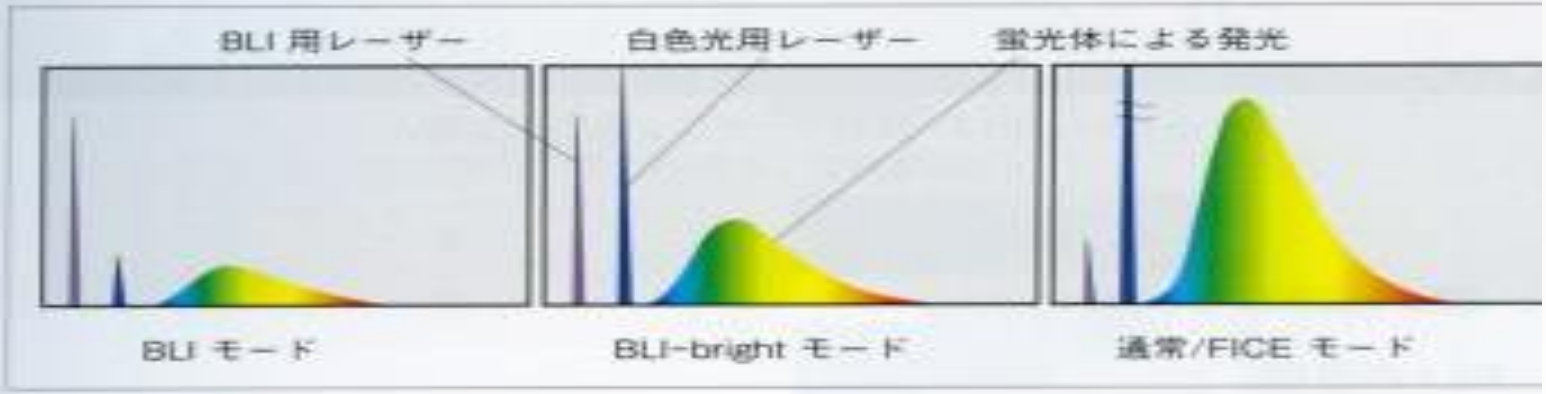
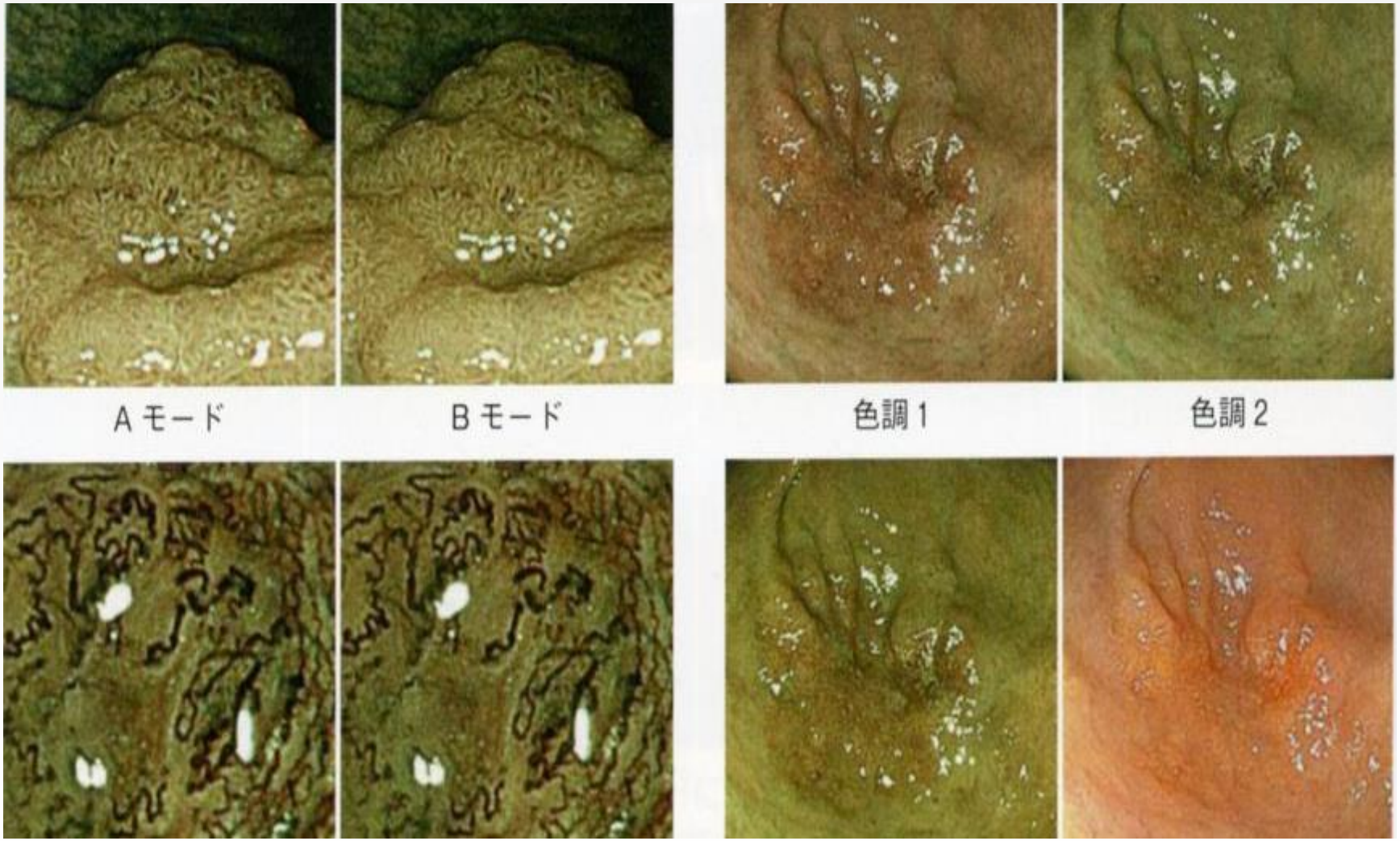


図2　観察モードごとの照明スペクトル

Whit light BLI BLI bright FICE

BLI with Optical Magnification



Optical Enhance (OE - Pentax)

- **Different from I-Scan**

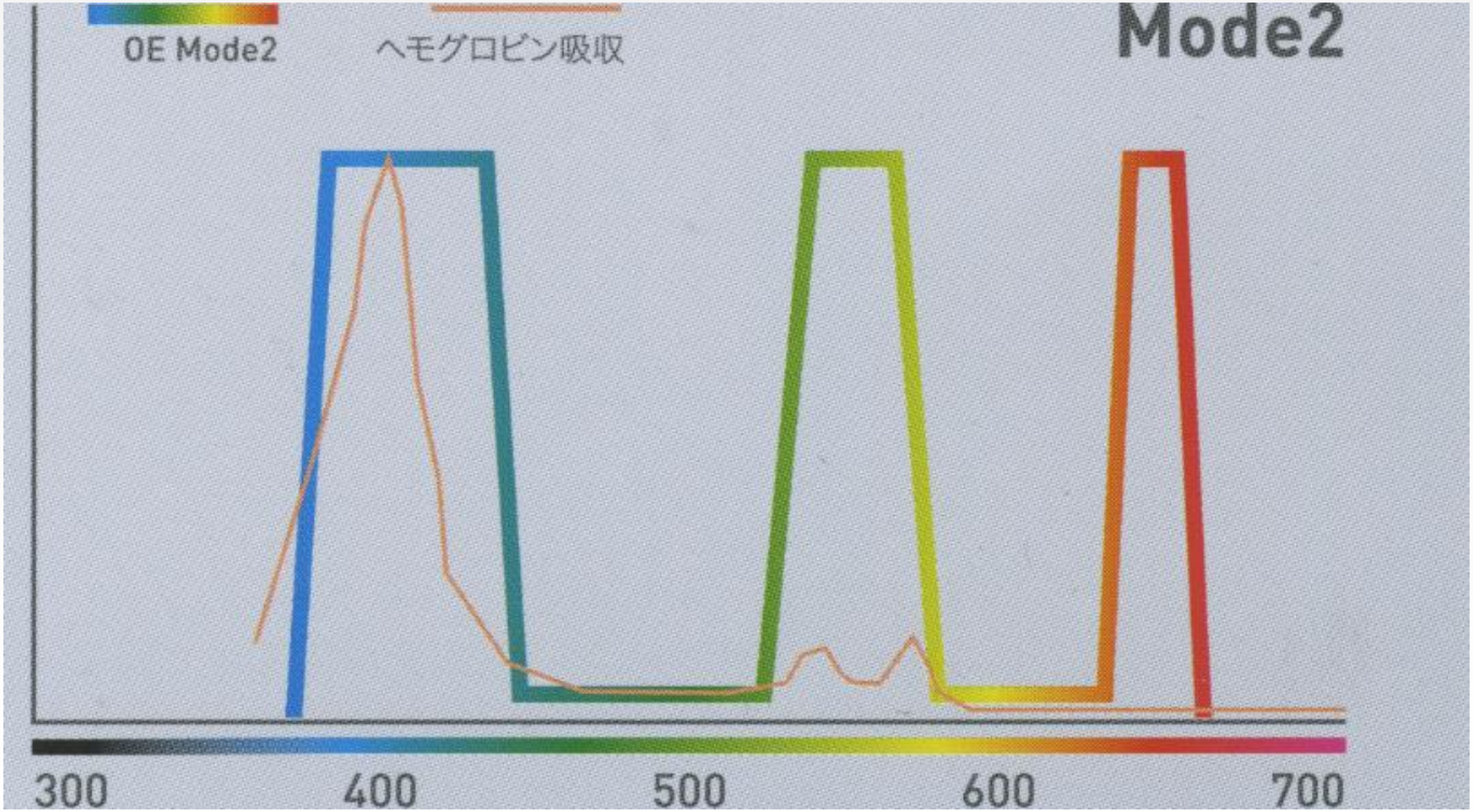
- **OPTICAL TECHNOLOGY**

  very similar from **NBI** or **BLI**

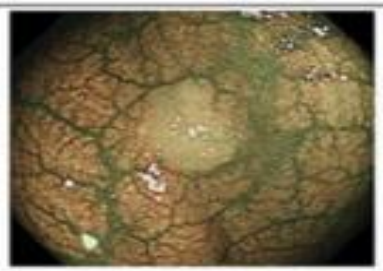
- Mode 1 : blue and green filters (as NBI and BLI)

- Mode 2 : enhanced white light for improved detection

Optical Enhance Mode 2



Narrow Band Image CRC (NICE) Classification

	Type 1	Type 2	Type 3
Color	Same or lighter than background	Browner relative to background (verify color arises from vessels)	Brown to dark brown relative to background; sometimes patchy whiter areas
Vessels	None, or isolated lacy vessels may be present coursing across the lesion	Brown vessels surrounding white structures**	Has area(s) of disrupted or missing vessels
Surface pattern	Dark or white spots of uniform size, or homogeneous absence of pattern	Oval, tubular or branched white structures** surrounded by brown vessels	Amorphous or absent surface pattern
Most likely pathology	**Hyperplastic & sessile serrated polyp (SSP) *** **	**Adenoma**** **	**Deep submucosal invasive cancer**
Endoscopic image			

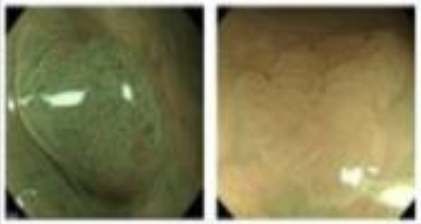
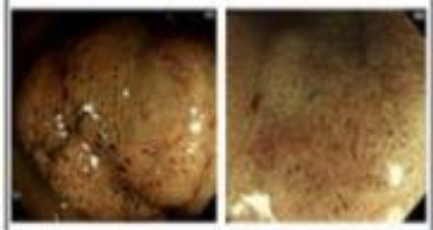
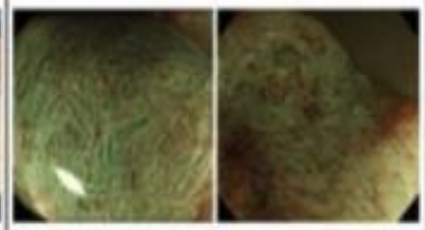
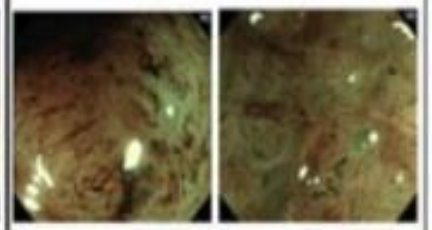
* Can be applied using colonoscopes with/ without optical (zoom) magnification

** These structures (regular or irregular) may represent the pits and the epithelium of the crypt opening.

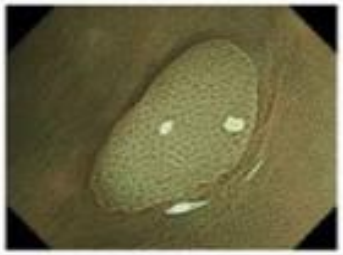
*** In the WHO classification, sessile serrated polyp and sessile serrated adenoma are synonymous.

**** Type 2 consists of Vienna classification types 3, 4 and superficial5 (all adenomas with either low or high grade dysplasia, or with superficial submucosal carcinoma). The presence of high grade dysplasia or superficial submucosal carcinoma may be suggested by an irregular vessel or surface pattern, and is often associated with atypical morphology (e.g., depressed area).

Magnifying NBI scale

Normal/ Hyperplasia Type 1	Low grade adenoma Type 2A	High grade adenoma Type 2B	Deep submucosal invasive carcinoma Type 3
			
Dark or white spots of uniform size, or homogeneous absence of pattern	Regular	Irregular	Amorphous
•Regular dark or white spots •Uniformly obscure structure	•Tubular or dendritic or papillary •Regular surface pattern •Corresponding to type III or IV pit pattern	•Visible surface pattern with irregularity •Corresponding to the type Vi pit pattern	•Invisible surface pattern •Corresponding to the type Vn pit pattern

Japan NBI Expert Team (JNET) Classification

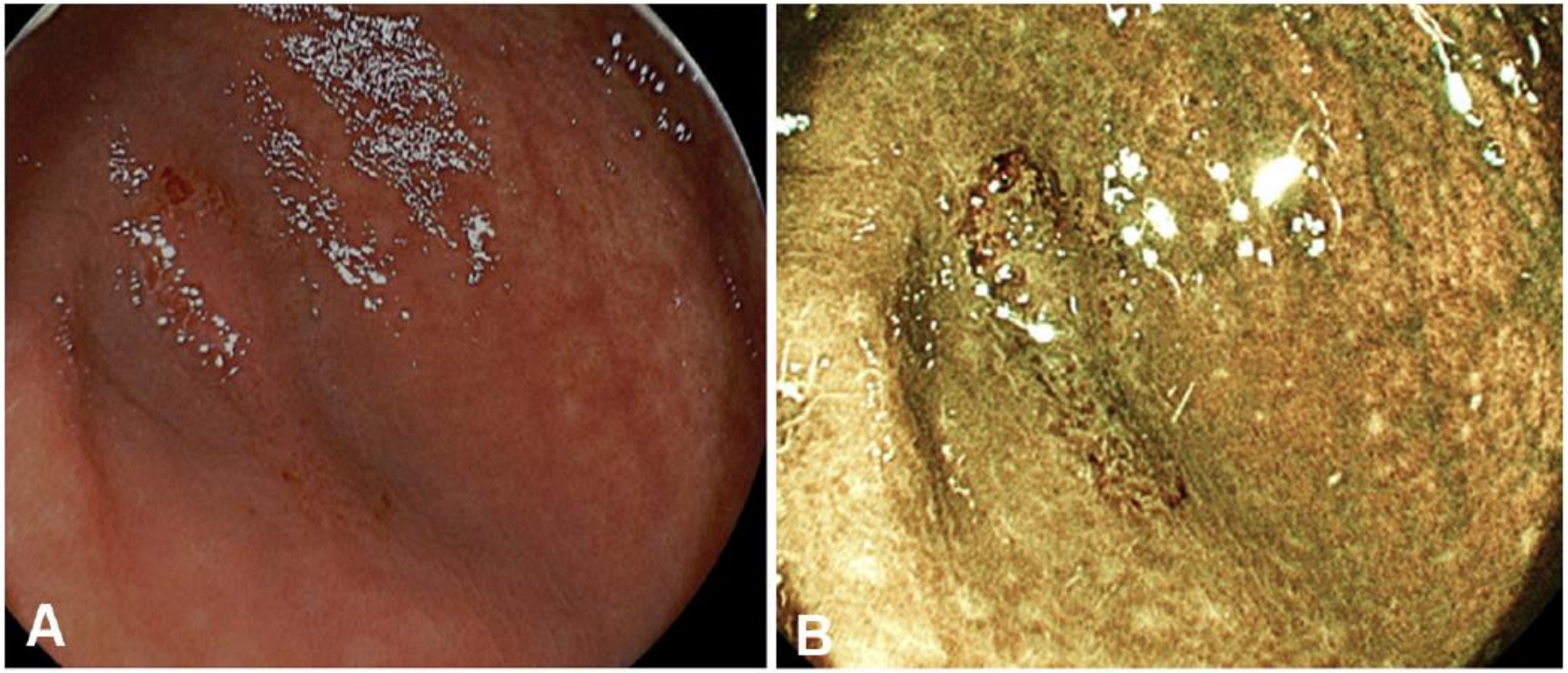
	Type 1	Type 2A	Type 2B	Type 3
Vessel pattern	· Invisible*1	· Regular caliber · Regular distribution (meshed/spiral pattern) *2	· Variable caliber · Irregular distribution	· Loose vessel areas · Interruption of thick vessels
Surface pattern	· Regular dark or white spots · Similar to surrounding normal mucosa	· Regular (tubular/branched/papillary)	· Irregular or obscure	· Amorphous areas
Most likely histology	Hyperplastic polyp/ Sessile serrated polyp	Low grade intramucosal neoplasia	High grade intramucosal neoplasia/ Shallow submucosal invasive cancer *3	Deep submucosal invasive cancer
Endoscopic image				

*1. If visible, the caliber in the lesion is similar to surrounding normal mucosa.
*2. Micro-vessels are often distributed in a punctate pattern and well-ordered reticular or spiral vessels may not be observed in depressed lesions.
*3. Deep submucosal invasive cancer may be included.

Blue Laser Imaging for ADR

Improvement in the visibility of colorectal polyps by using blue laser imaging (with video)

Naohisa Yoshida, MD, PhD,[1] Takashi Hisabe, MD, PhD,[2] Ryohei Hirose, MD,[1] Kiyoshi Ogiso, MD,[1] Yutaka Inada, MD, PhD,[1] Hideyuki Konishi, MD, PhD,[1] Nobuaki Yagi, MD, PhD,[1] Yuji Naito, MD, PhD,[1] Yoshiaki Aomi, MD,[2] Kazeo Ninomiya, MD,[2] Go Ikezono, MD,[2] Masaaki Terasawa, MD,[2] Kenshi Yao, MD, PhD,[2] Toshiyuki Matsui, MD, PhD,[2] Akio Yanagisawa, MD, PhD,[3] Yoshito Itoh, MD, PhD[1]



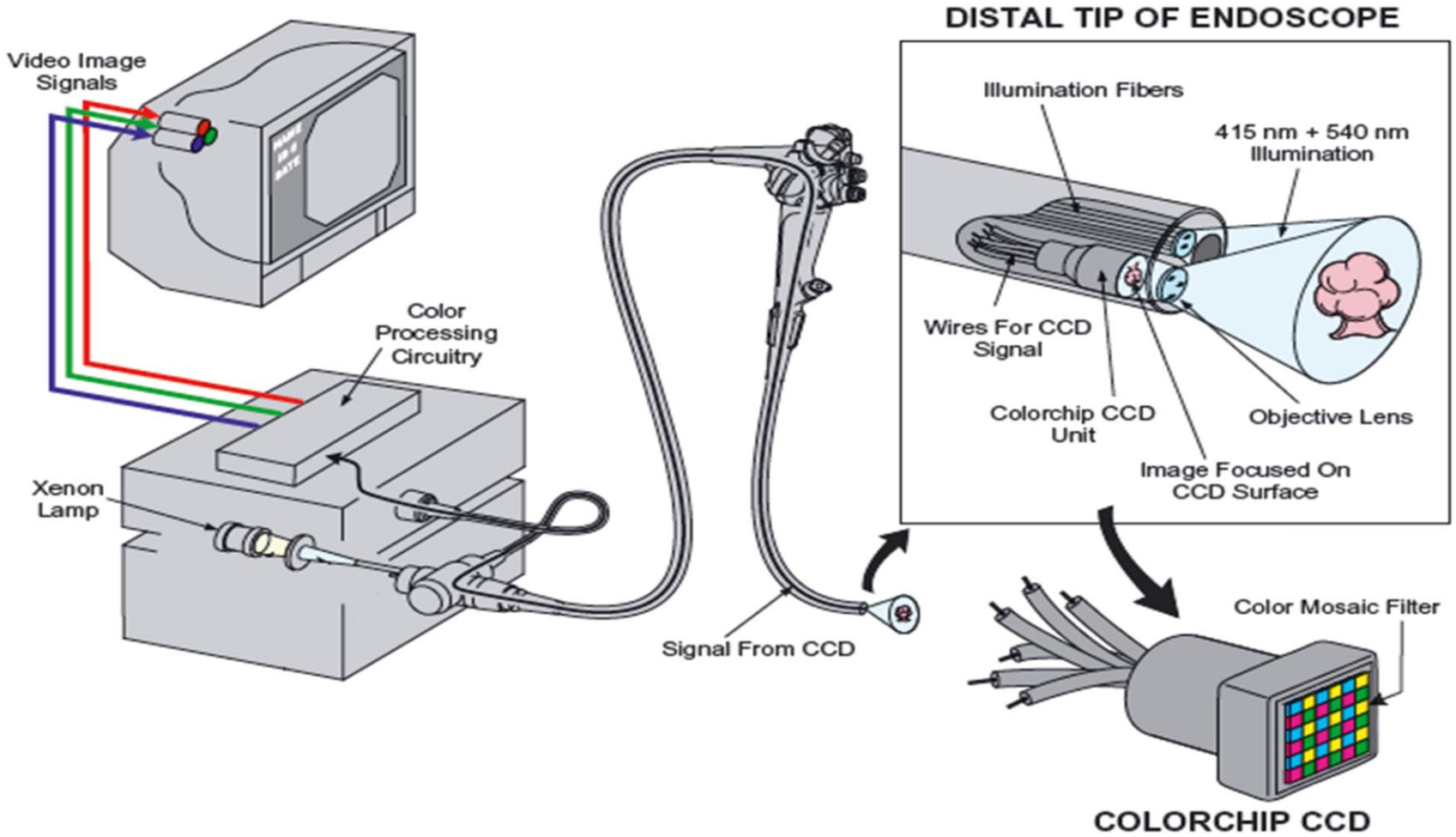
State of art in Endoscopy Imaging Present

- Importance of High Resolution Endoscopes and IEE in daily practice
- Teach and use Classifications

  NICE,JNET,Paris,Vienna,Prague,(Dubai?)
- New imaging technology available with all major manufacturers

Clinical benefits of imaging parts

Video Imaging Component



Important Factors

Factor for Image Quality

Video Imaging Component

Measurement factors / Function for imaging	Optical specification	Tone reproduction	Color reproduction
Illumination	✓	✓	✓
Image Detection	✓	✓	✓
Reprocessing	✓	✓	✓
Display	✓	✓	✓

- Field of View
- Depth of Field
- Magnification
- Resolution

- Brightness
- Dynamic range
- Gamma value
- Contrast

- Hue
- Chroma
- Value

Important factors

Factor for Image Quality

Video Imaging Component

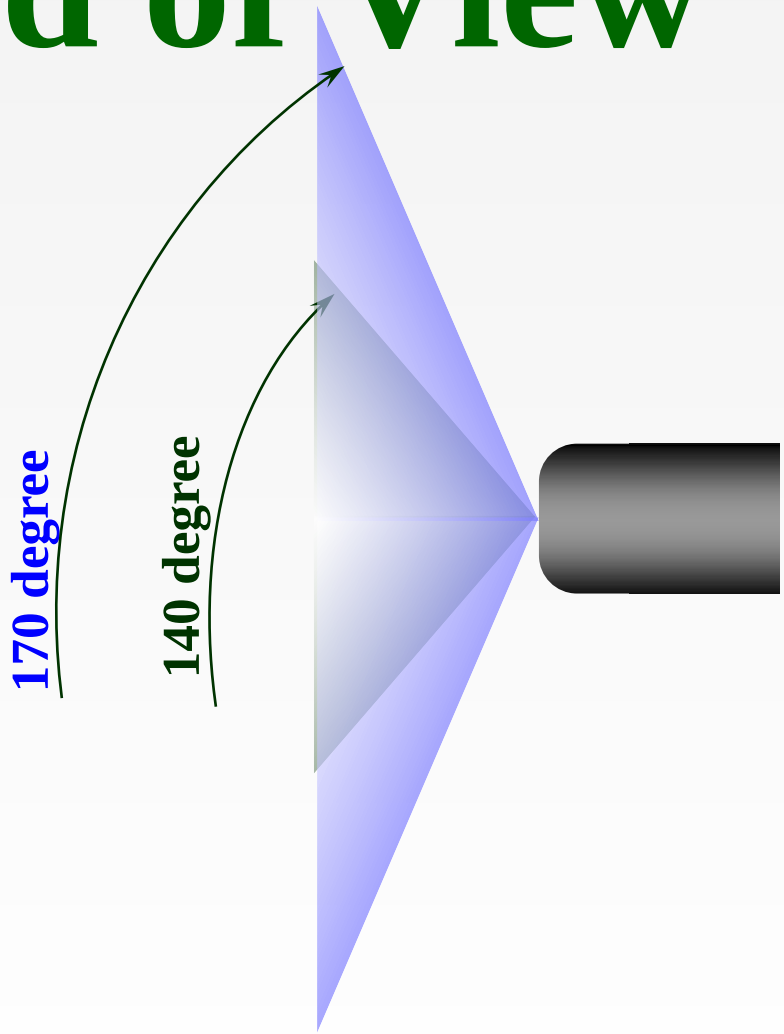
Measurement factors / Function for imaging	Optical specification	Tone reproduction	Color reproduction
Illumination	**Important factors:**		
Image Detection	• Field of View		
Reprocessing	• Resolution		
Display	• Contrast (+ color reproduction)		

- Field of View
- Depth of Field
- Magnification
- Resolution

- Brightness
- Dynamic range
- Gamma value
- Contrast

- Hue
- Chroma
- Value

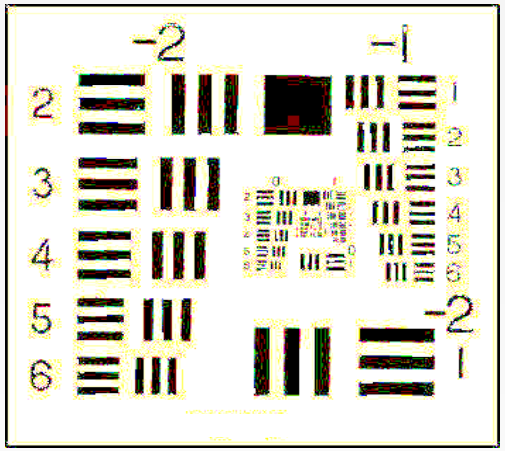
Field of View



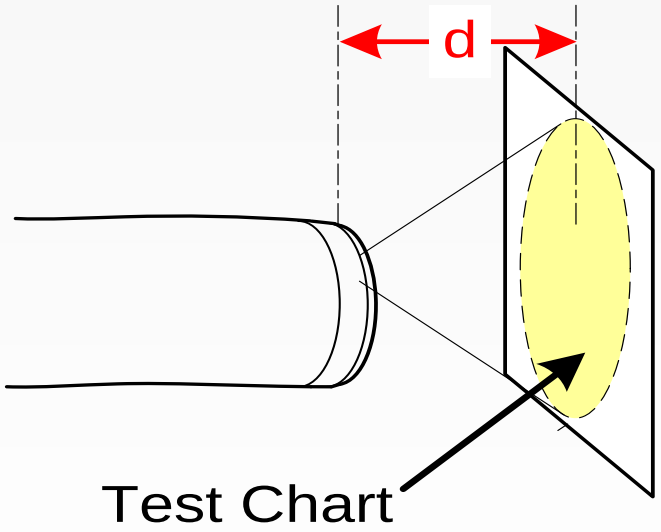
Resolution

Benchtop Test to Quantify Resolving Power

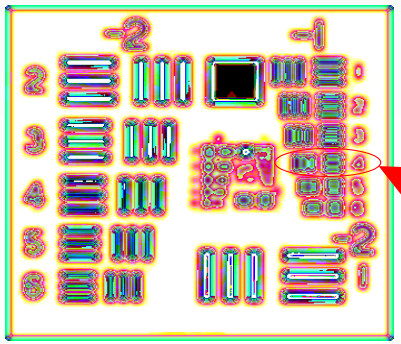
Test Chart



Test Setup



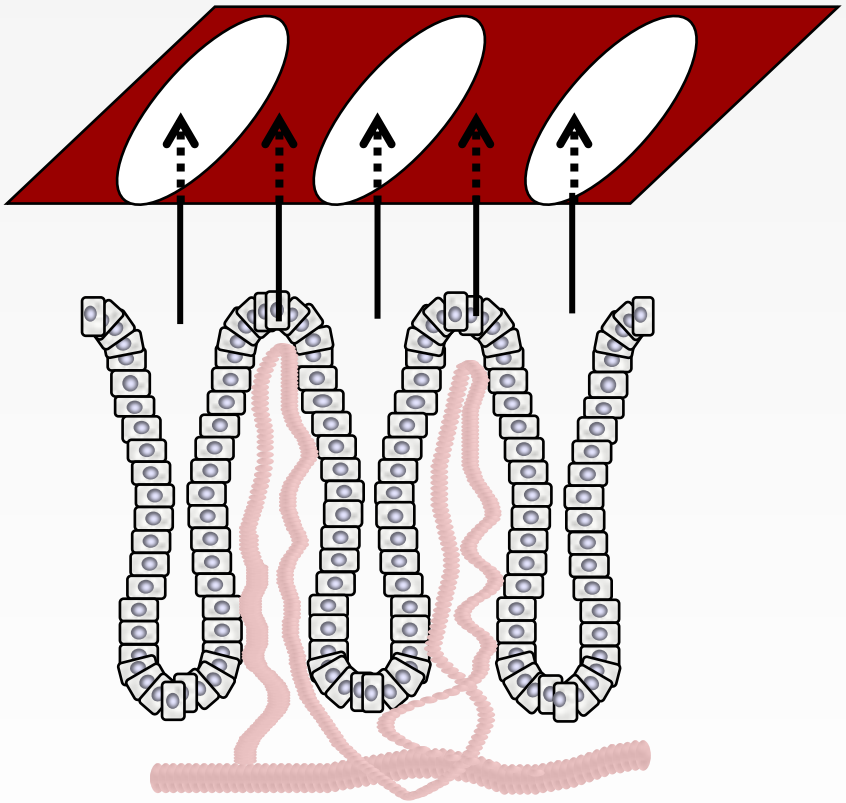
Results



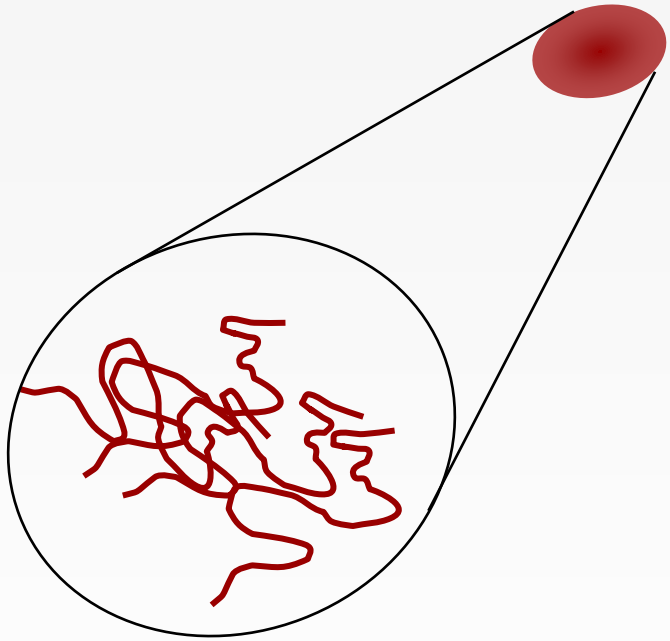
Limit of Resolution

Resolution

Pit Pattern Observation



Capillary Observation

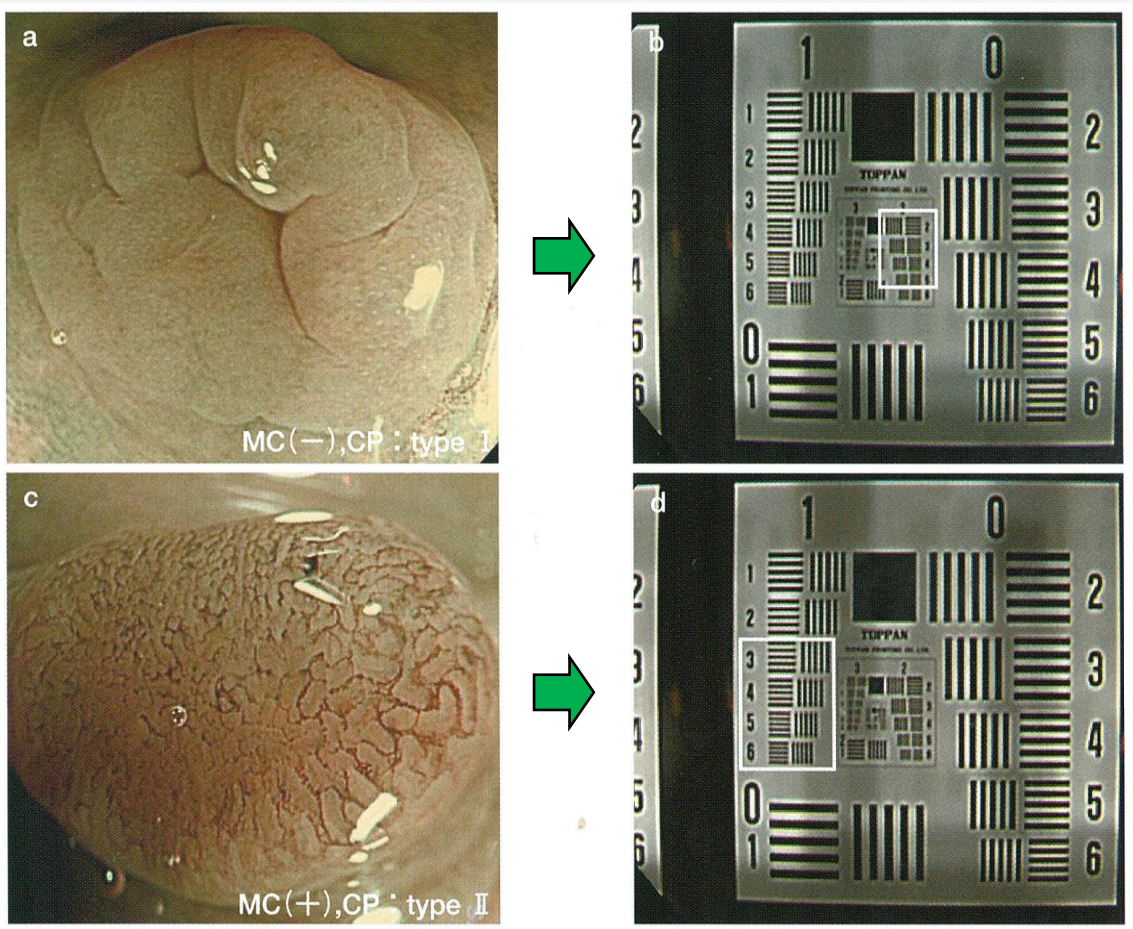


Resolution

Capillary Observation

Hyperplastic polyp: outer diameter of superficial vessel is about 10 μm .

Adenoma: outer diameter of superficial vessel is about 13 μm. (cancer is about 19 μm)



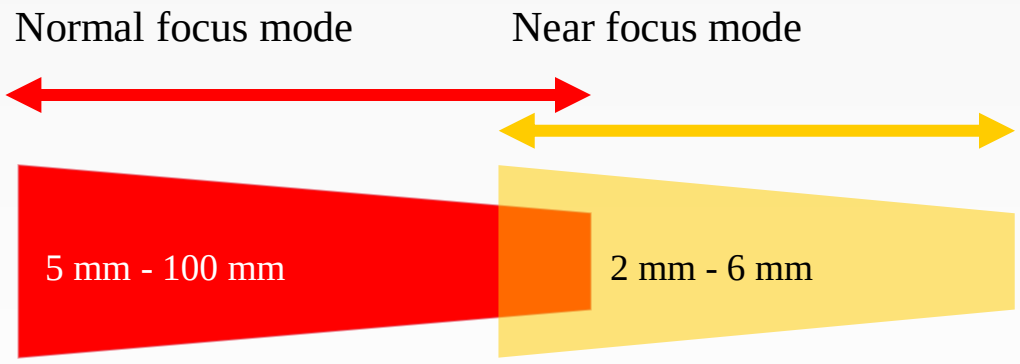
Sano Y et al (Effectiveness of NBI for screening colonoscopy).（Atlas for Spectram endoscopy）124-139

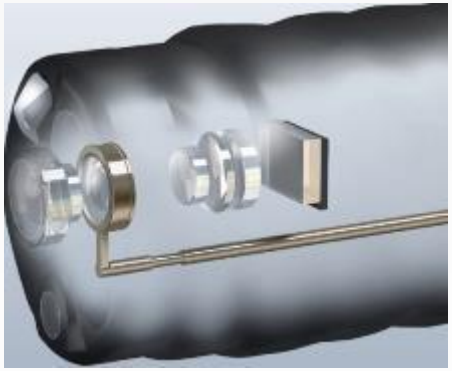
Technical Aspects

Endoscopes with Dual Focus have two ranges of depth of field.

Near focus: 2-6 mm
Normal focus: 5-100 mm

Depending on the distance of the object, focus modes have to be switched.

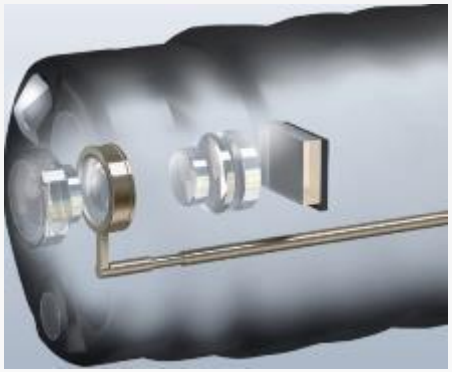




Technical Aspects

Routine procedure is done in Normal focus mode.

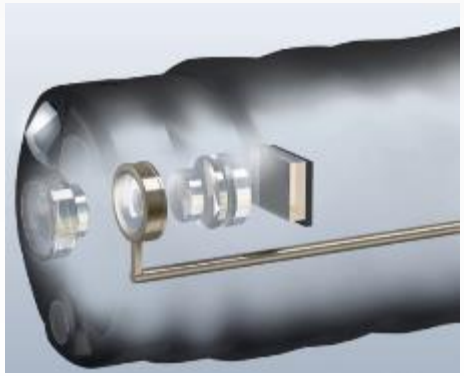
Normal focus mode



If an area of interest is found, it may be observed in detail.

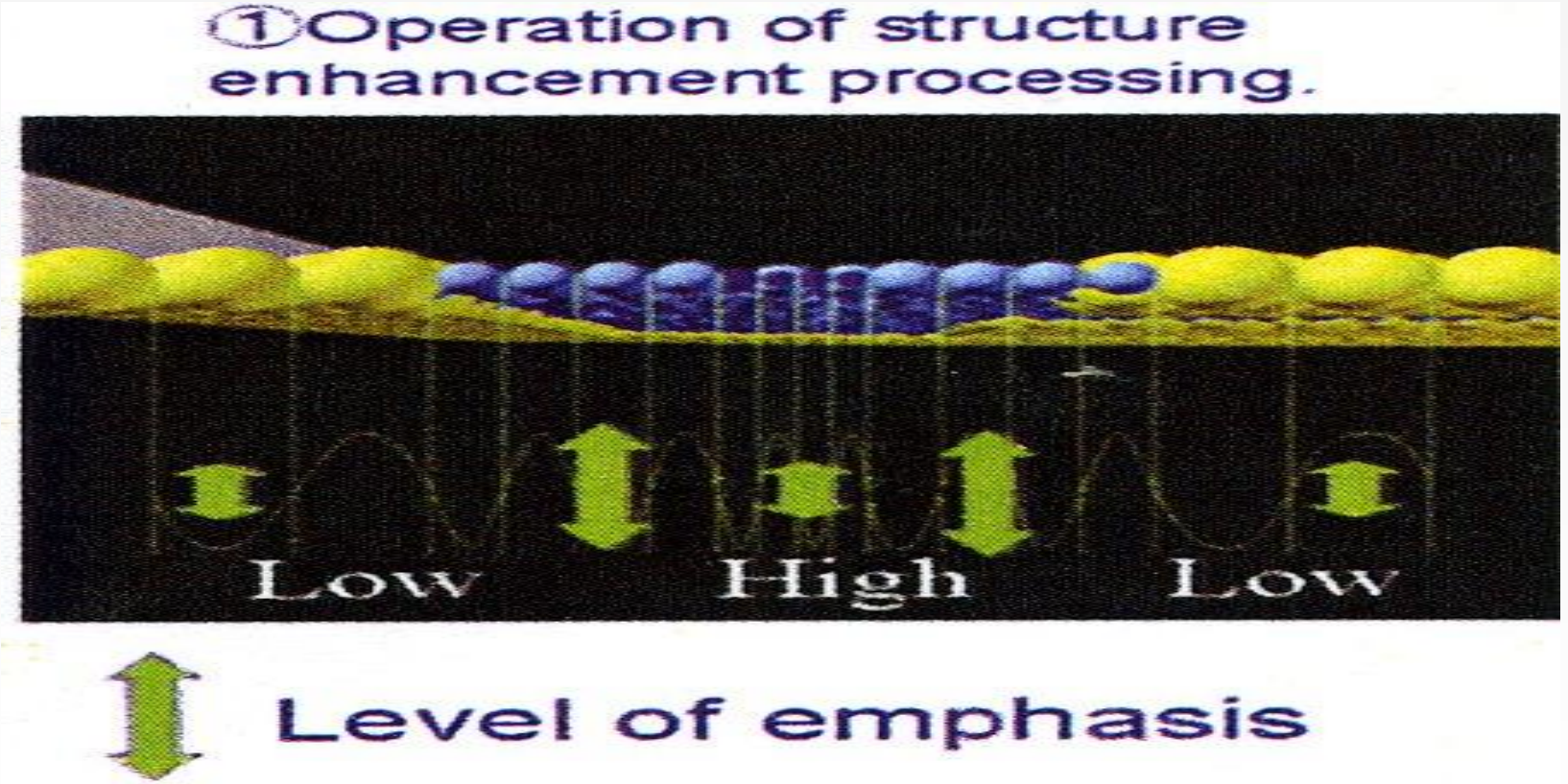
To adjust the focus, push the 5th scope button to switch to Near focus mode or back to Normal.

Near focus mode



Contrast

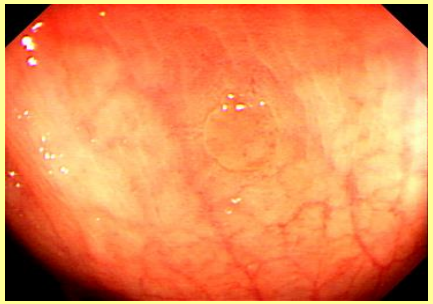
Operation of image processing



Nakamura K. In New Challenges in Gastrointestinal Endoscopy, Springer 2008

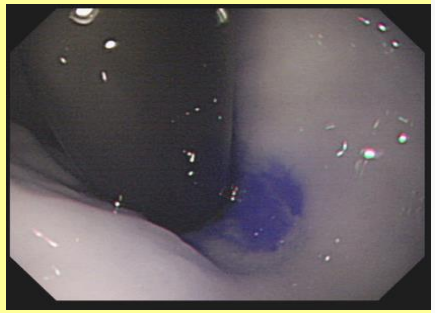
Contrast

NBI



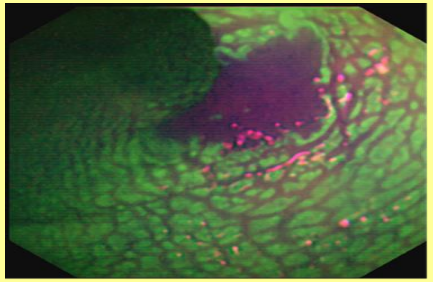
- 180/26
  0 Series

IRI



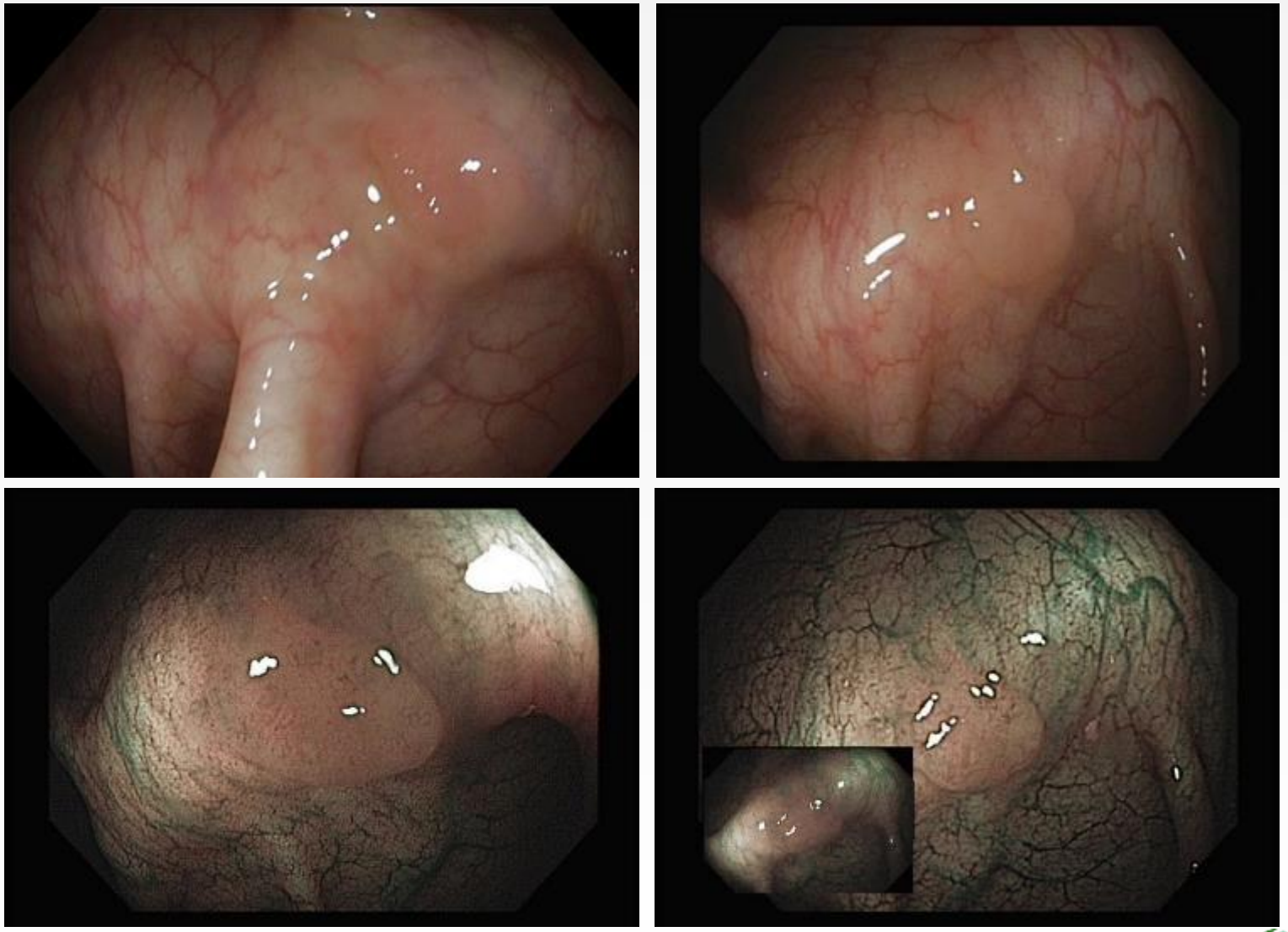
- 260 Series

AFI



- 260 Series

Structure Enhancement



Clinical benefits of variable stiffness

Feature

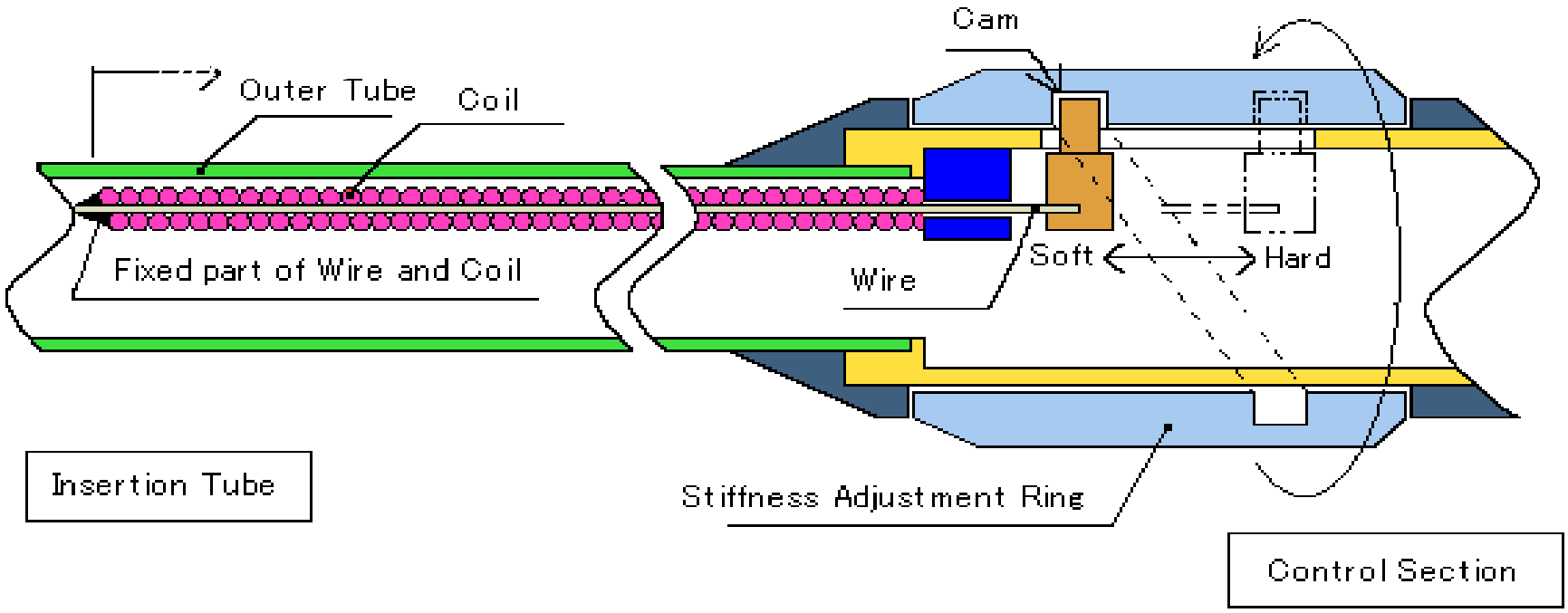
Variable Stiffness Function

- Change the stiffness when necessary and according to doctors preference

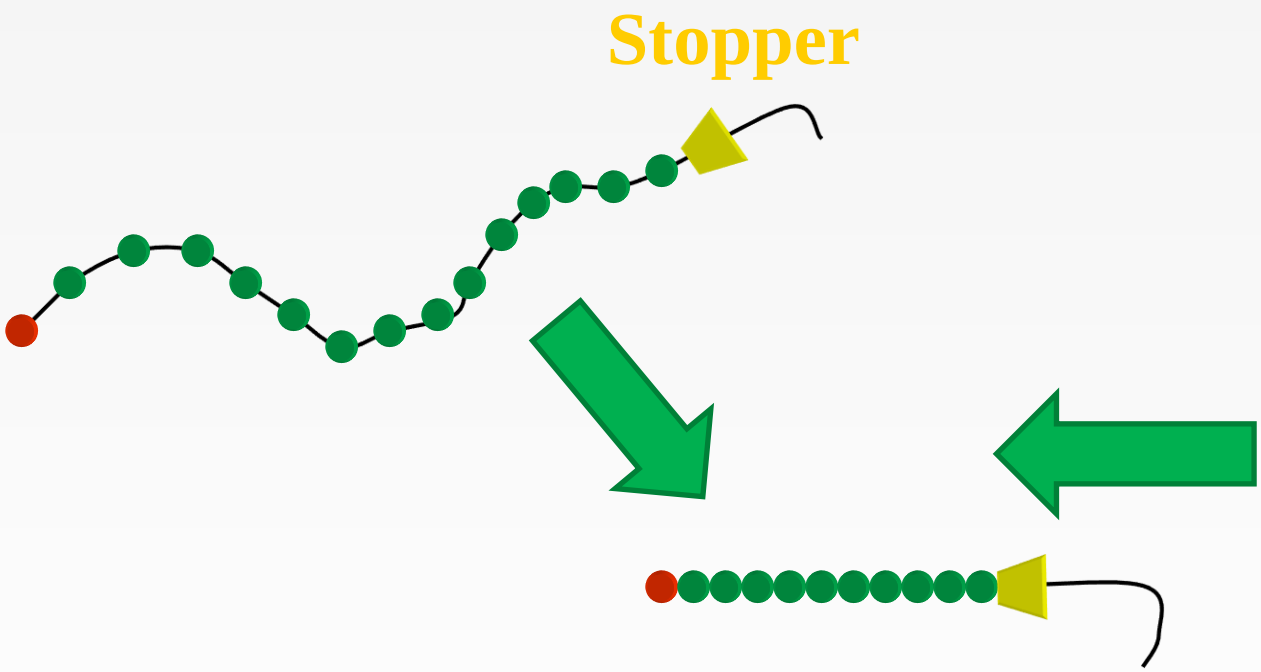
Clinical benefits:

1. Reduce looping,
2. Reduce patient discomfort,
3. Reduce external compression.

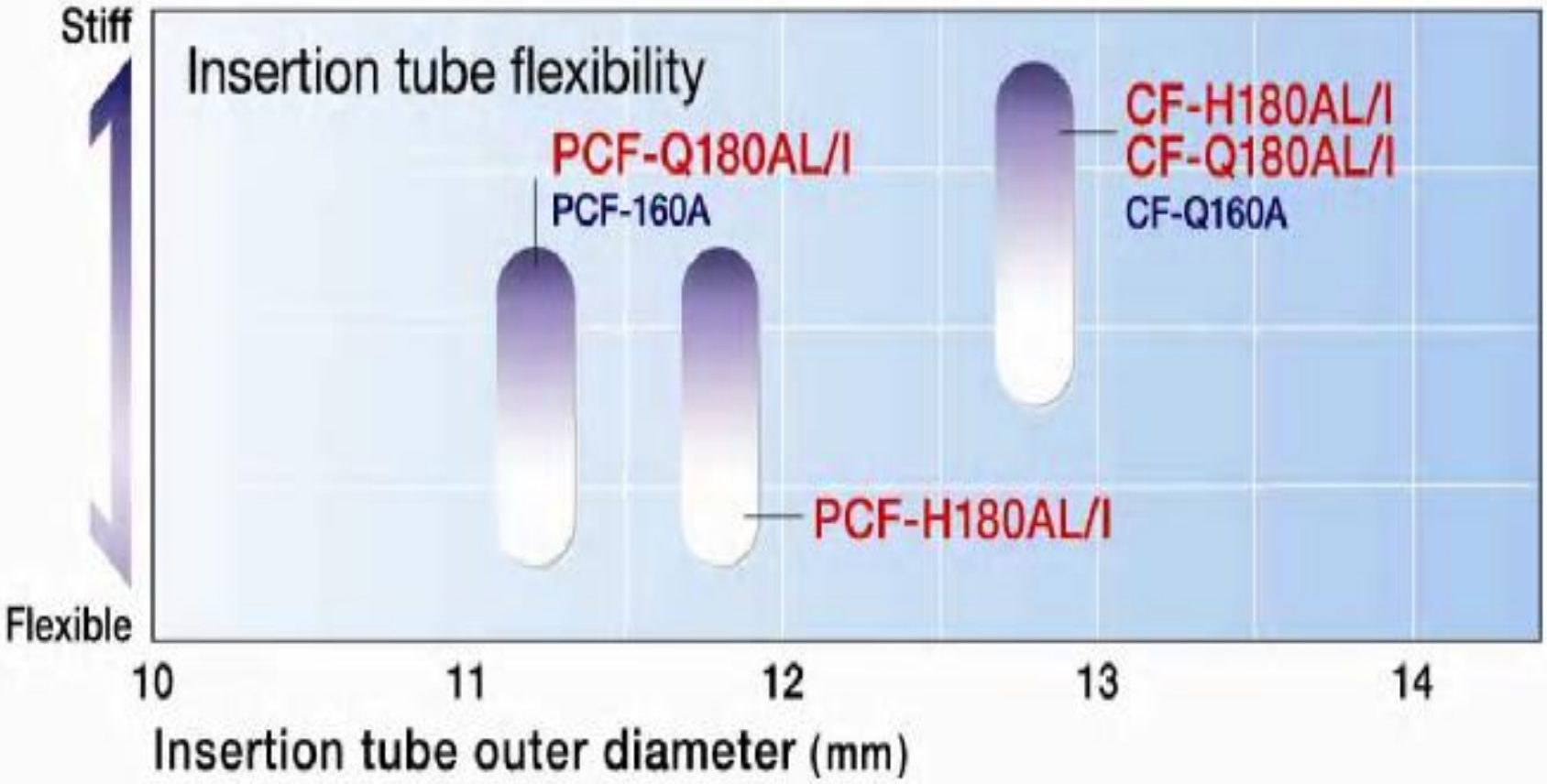
Mechanism of Stiffness Adjustment



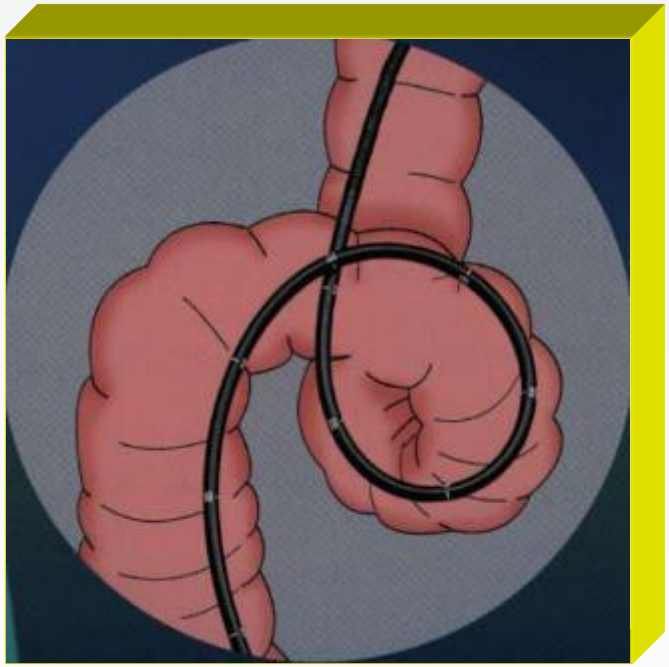
Or like a chain of Beads...



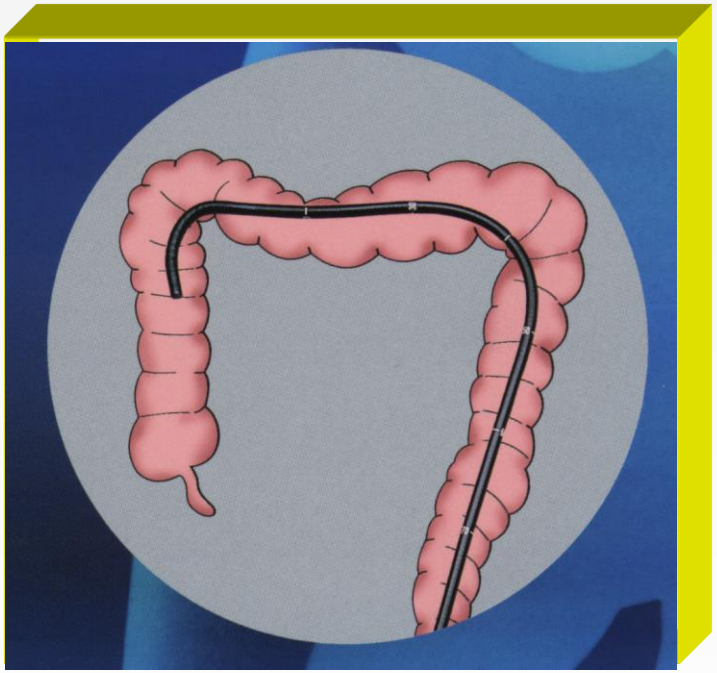
Variable-Stiffness Colonoscopes



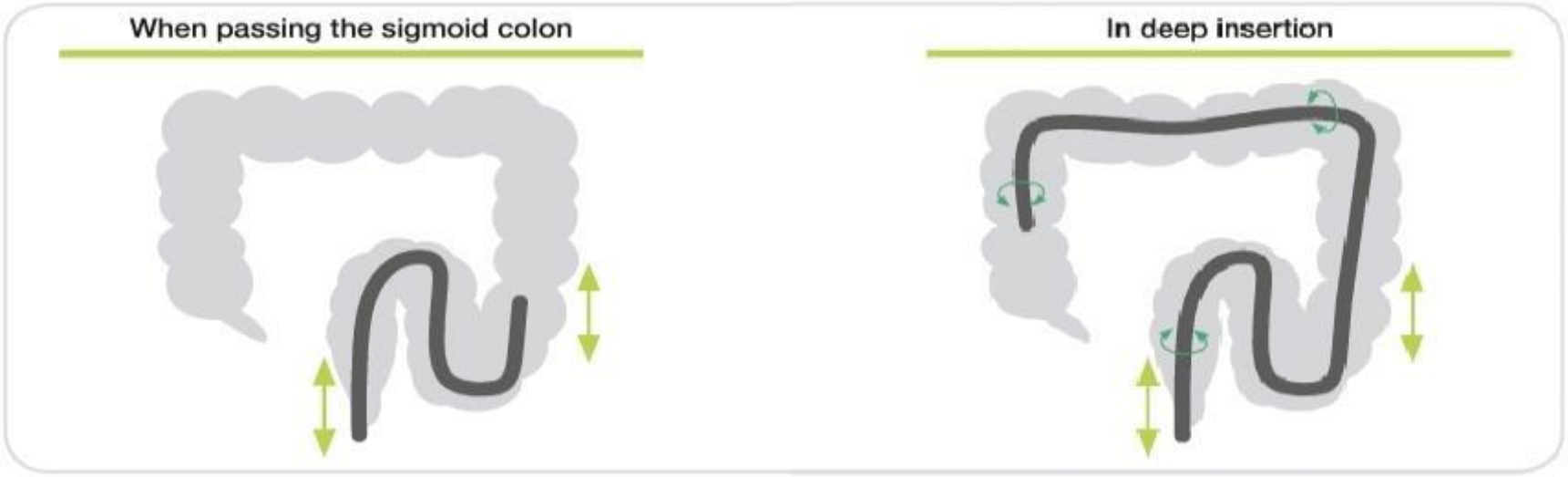
Variable Stiffness Scopes

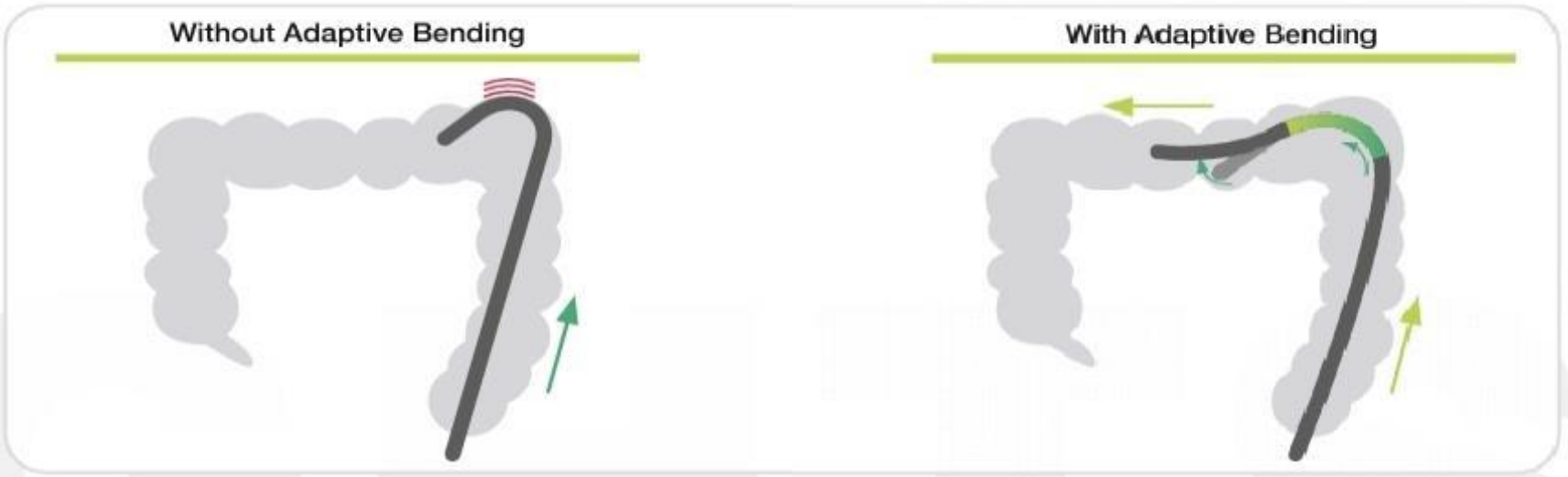


Loop in Sigmoid Colon



Straighten the scope


When passing the sigmoid colon
In deep insertion


Without Adaptive Bending
With Adaptive Bending

Experience Suggestion

Use **level 1** from Rectum to Descending colon

Straight the scope

Move to variable stiffness **level 3**

Relieve if necessary at the hepatic feature(back together) **level 1**

Colonoscopic Withdrawal Examination from Cecum to Anus: **level 1**

Is there an Advanced Novel Bio-Imaging Program for Training HCPs in SAR ?

1. Yes
2. No

In your opinion, what is the best method to obtain further Education and Training in Advanced Novel Bio-Imaging ?

1. Meeting/seminars (WEO ADEC)
2. Online resource (Library)
3. Hands on Training (one to one sessions)
4. Dedicated period of time in Training (3-6 month)
5. All of the above

WEO
World Endoscopy Organization

ADEC
SSGE 2018

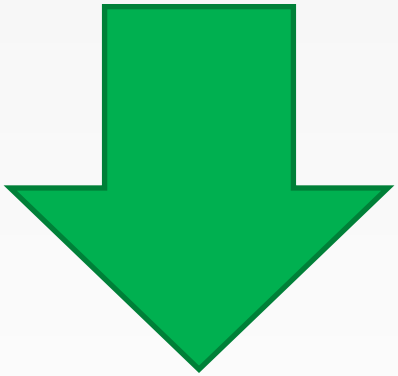
Advanced Novel Bio-Imaging Center

Dr. M. Azzam Kayasseh

WEO Regional Counselor (ME+Africa)

ENDO2020

Activity and Current Status of SSGE2018 Syrian WEO ADEC



ANBIC

Syrian ANBIC : Mission

Promote Education Training activities in SAR

Syrain ANBIC

Organization and its Nature

It is an academic program by Regional-Class HCP.

Promoting ANBI Education and Training in SAR.

To Be Established in Damascus (?):

"The Syrian ANBIC"

Moderator : M. Azzam Kayasseh (?)

Treasurer

Secretary

Endoscopic Technology,

Phamaceutical Companies

ANBIC should be affiliated with SSGE.

It is Education and Training Program *"of the HCPs, by the HCPs, for the HCP"*
(HCP : HealthCare Professional)

Syrian ANBIC On-going Developments

Standardized Training Material

Training Module

Social Media

Formation of Syrian ANBIC Sub-Committee

Training Material Sub-committee

Develop and Standardize the teaching materials for trainings.

Training Module Sub-committee

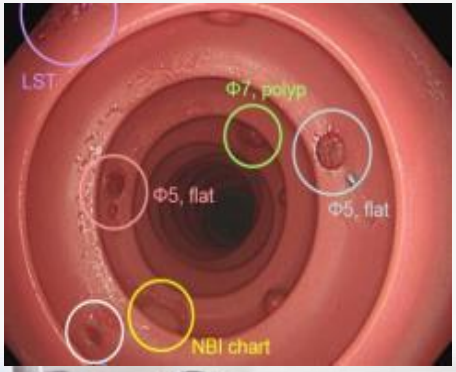
Develop appropriate teaching tools for practicing early diagnosis, early treatment and final diagnosis.

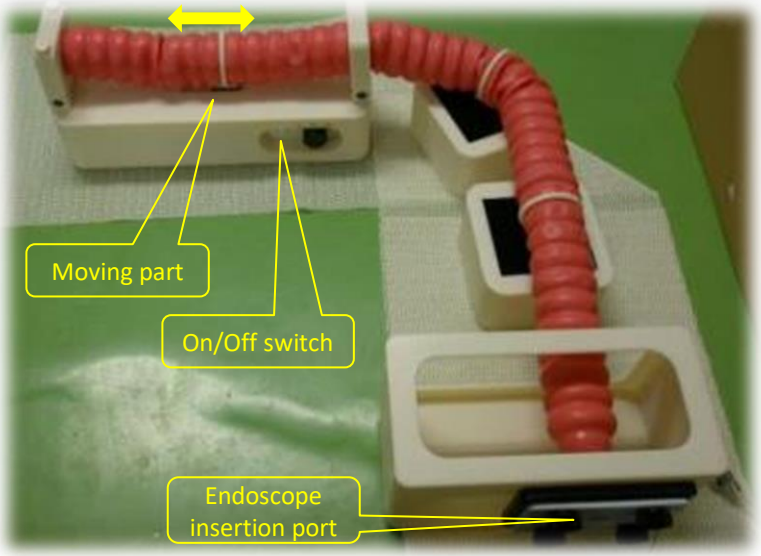
Website Development Sub-committee

Develop the official website for Syrian EEIC and the online platform for archiving clinical images and videos.

Training Module Sub-committee

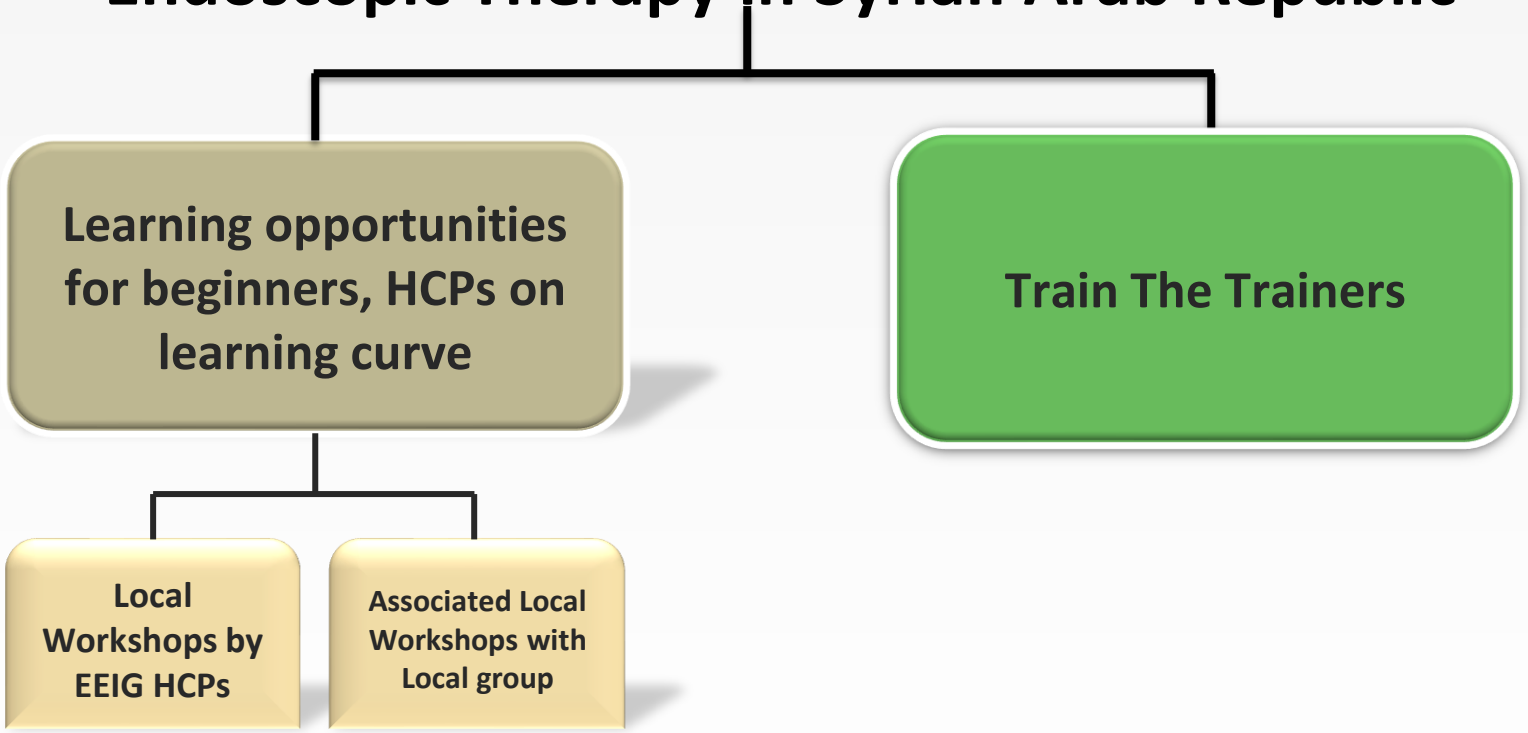
Jenny colonoscopy model





Syrian ANBIC Activities

Promote Education and Training of Endoscopic Early Diagnosis (EEI) and Endoscopic Therapy in Syrian Arab Republic



Syrian ANBIC

National Training Activities

Joint / Collaborative Training Workshop

WEO

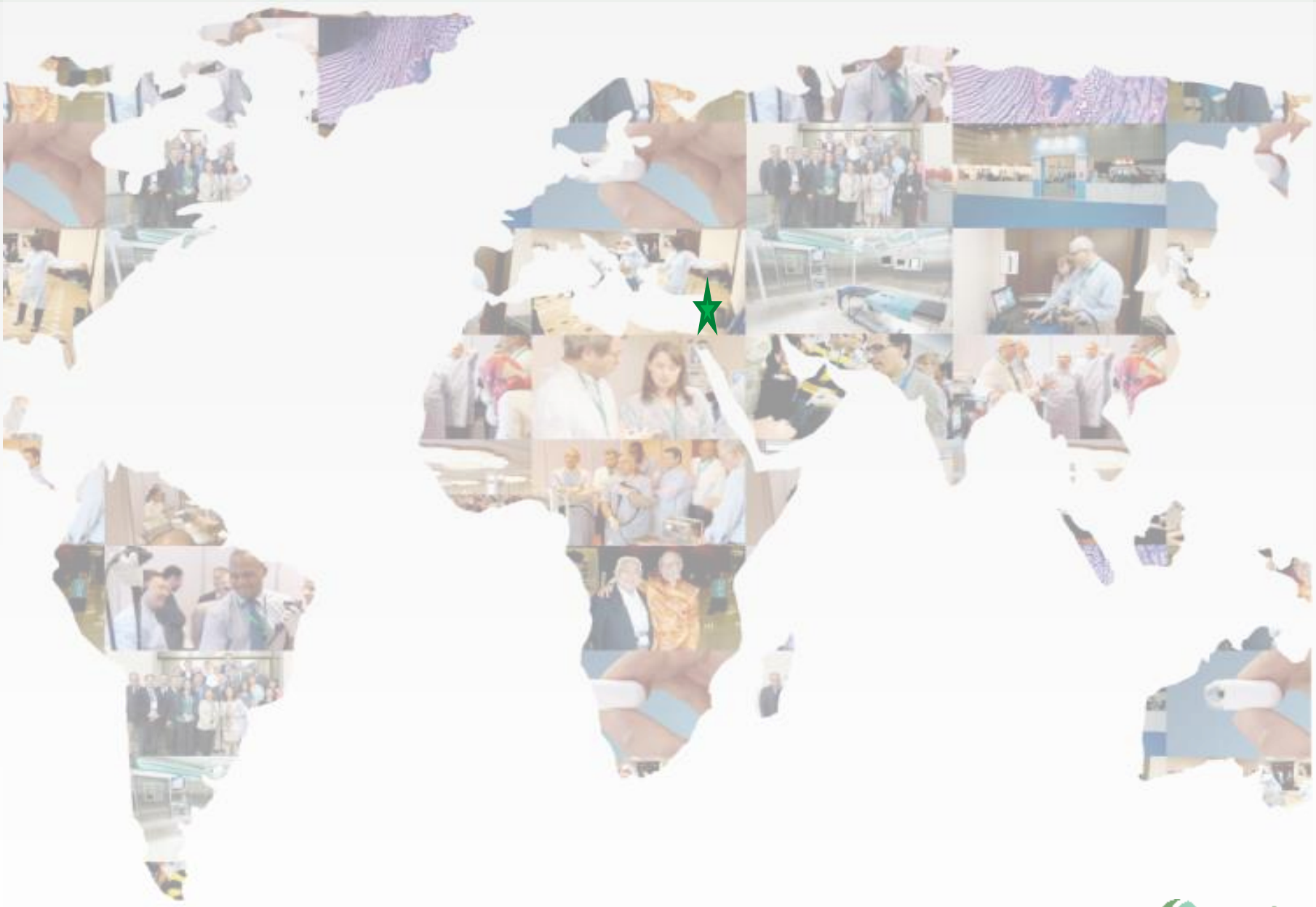
ENDO2020

WEO
World Endoscopy Organization

Syrian ANBIC Workshop Certification

Dr. M. Azzam Kayasseh @dubaiendoscopyforum

WEO
World Endoscopy Organization



WEO
World Endoscopy
Organization