UT Southwestern Medical Center

Modern Management of Colitis-Associated Dysplasia

Moheb Boktor, MD, FACG, AGAF, FACP
Associate Professor of Medicine
Associate Program Director Gastroenterology Fellowship
Director of Inflammatory Bowel Diseases Fellowship
Division of Digestive & Liver Diseases
University of Texas Southwestern medical center Dallas, TX

Objectives

- Epidemiology
- Risk factors for CRC in IBD patients
- Screening and Surveillance of dysplasia in patients with IBD
- AI in IBD surveillance

Disclosures

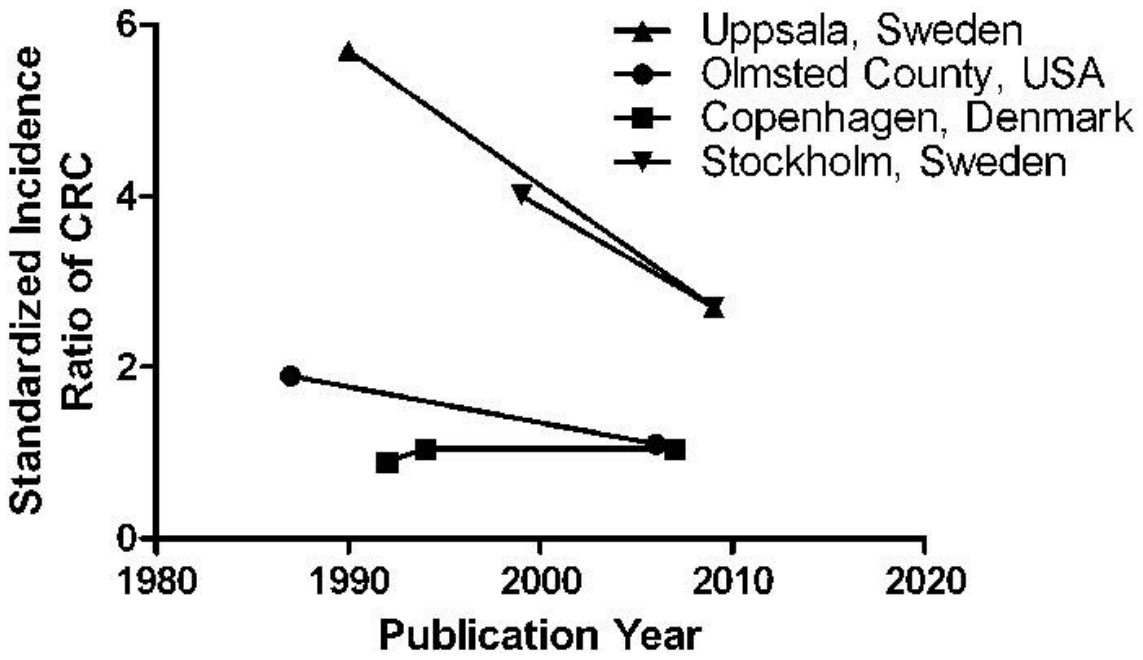
- I have no disclosures related to this topic

Epidemiology of CRC in IBD

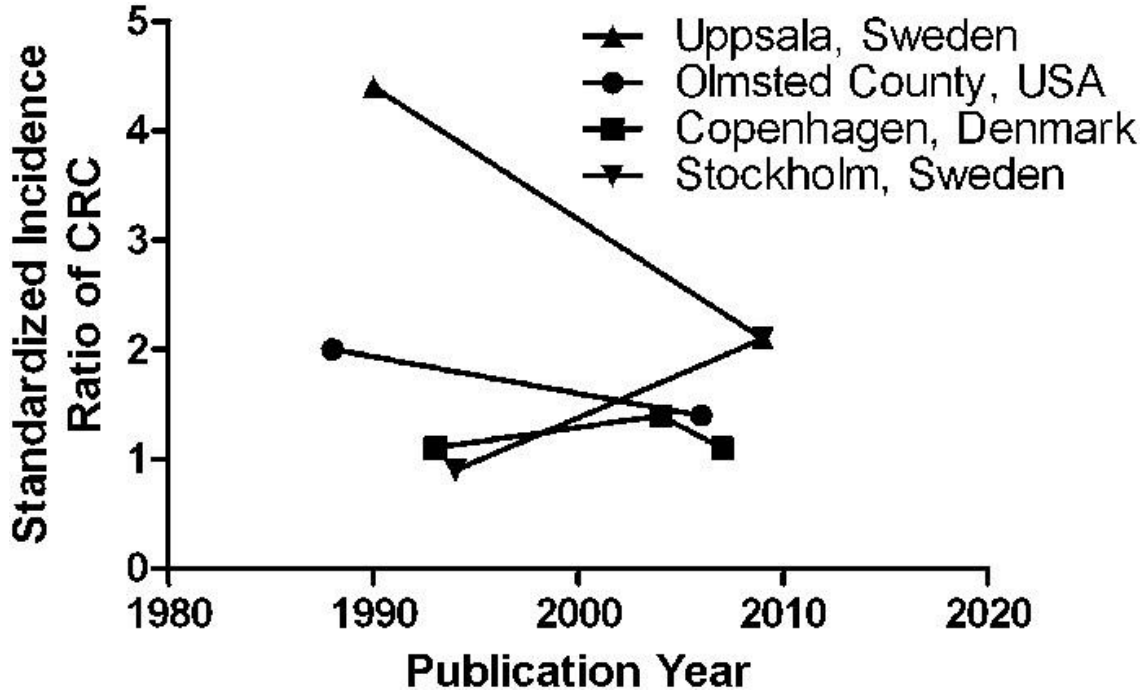
- CRC is the most common cancer in patients with IBD
- CRC incidence:
  - **Was**15% after 30 years of Chronic inflammation → pre-advanced therapy era
  - **Now** 1%, 2%, and 5% risk of CRC after 10, 20, and >20 years
  - IBD patients with long standing inflammation have 2-3 folds increased risk of CRC

Eden et al Gut 2001
Axelarad et al AGA clinical practice update 2024
Lutgens et al Inflammatory bowel disease journal 2013
Zhou et al Oncogenesis 2023
Itzkowitz etal, Gastro March 2022

Epidemiology of CRC in IBD



Decreasing SIRs in UC



Decreasing SIRs in CD

Lutgens et al Inflammatory bowel disease journal 2013

Risk Factors of CRC in IBD

- Chronic inflammation is the driving factor for CRC
- PSC
- Young age at diagnosis
- Longer duration of disease
- Extensive Disease
- FH: First degree relative with CRC
- Tubular colon

Eden et al Gut 2001
Axelarad et al AGA clinical practice update 2024
Lutgens et al Inflammatory bowel disease journal 2013
Zhou et al Oncogenesis 2023
Itzkowitz etal, Gastro March 2022

Risk Factors of CRC in IBD

- CRC risk is declining due to:

1. Advanced therapy
2. Achieving remission
3. Interval Colonoscopy with higher technology
4. Patient awareness

Eden et al Gut 2001
Axelarad et al AGA clinical practice update 2024
Lutgens et al Inflammatory bowel disease journal 2013
Zhou et al Oncogenesis 2023
Itzkowitz etal, Gastro March 2022

CRC surveillance in IBD

- Initial screening colonoscopy for dysplasia should start 8–10 years after disease diagnosis
- Patients with PSC & IBD, screening should start immediately
- Screening colonoscopy should be performed when patients are in remission
- High-definition colonoscopy is highly recommended
- Virtual Chromoendoscopy vs Dye spray Chromoendoscopy (DCE)

CRC surveillance in IBD

- DCE vs Virtual Chromoendoscopy NBI/ iscan
- AGA practice guidelines recommend DCE only if you are using a standard colonoscope or prior dysplasia.
- Virtual Chromoendoscopy is a reasonable alternative to DCE

Lin Q et al, Inflamm Bowel Dis 2020
Joseph JA et al, Gut 2018

Biopsies in IBD

Types of Biopsies

- Targeted: Biopsies of a suspicious area or mucosal abnormalities to exclude dysplasia
- Non-targeted: Random biopsies to exclude invisible dysplasia
- Staging: Biopsies of the colon to assess disease activity

Biopsies in IBD

Non-targeted vs targeted biopsies

- Non-targeted biopsies are no longer required in presence of virtual or DCE
- Non-targeted biopsies should be considered in prior history of dysplasia, PSC

Ananthakrishnan et al, Inflammatory bowel diseases June 2021
Driffa et al, Gut 2018

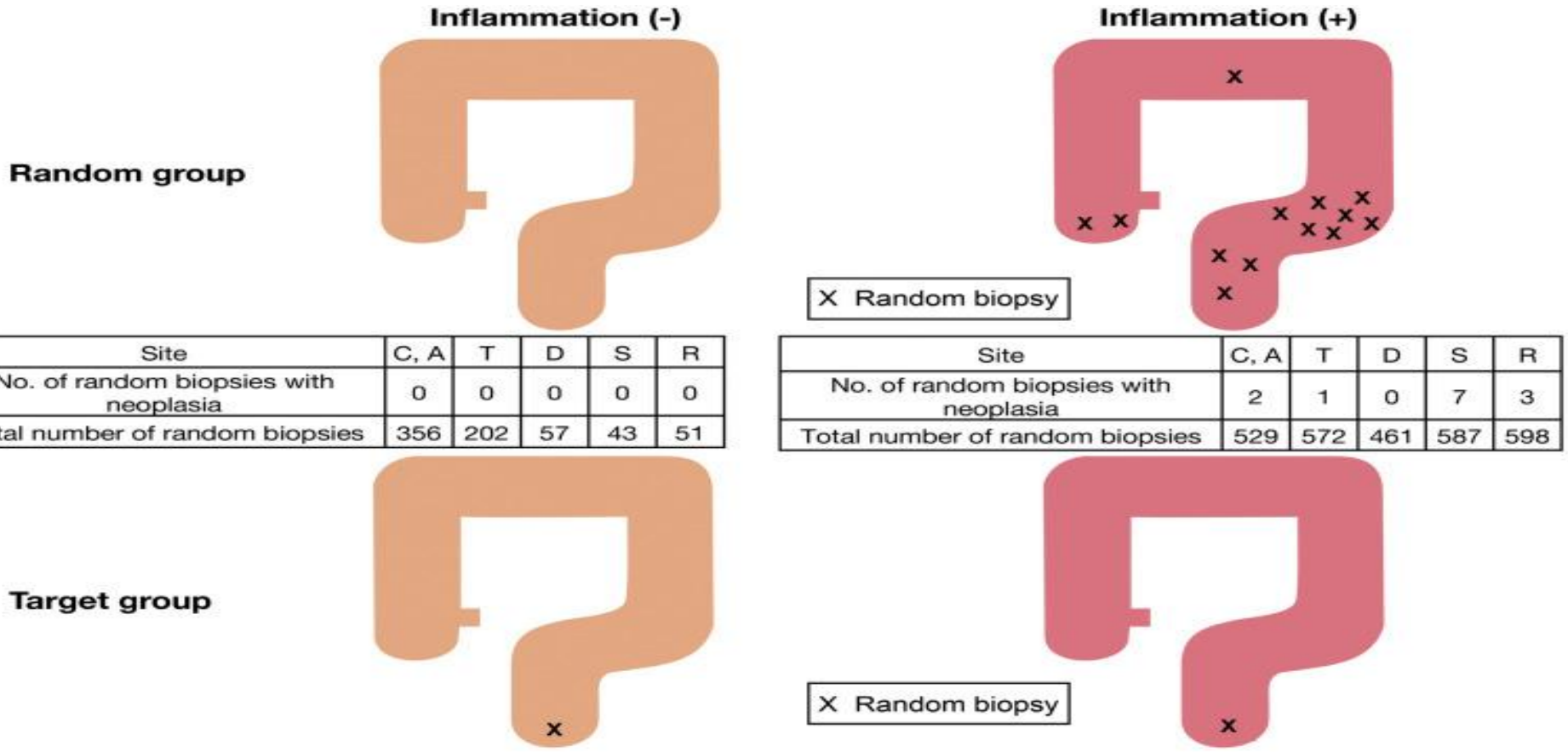
Biopsies in IBD

Non-targeted vs targeted biopsies

- 246 patients with UC for 7 years or more, seen at 52 institutions in Japan from October 1, 2008 through December 31, 2010
- Patients assigned to random biopsies group (4 bx every 10 cm), targeted group (Biopsies from suspected dysplasia)
- Random Biopsies of normal colon (No inflammation), had No dysplasia. While dysplasia found in biopsies in areas with colitis.

Wanatabe et al, Gastroenterology 2016

Biopsies in IBD



Site	C, A	T	D	S	R
No. of random biopsies with neoplasia	0	0	0	0	0
Total number of random biopsies	356	202	57	43	51

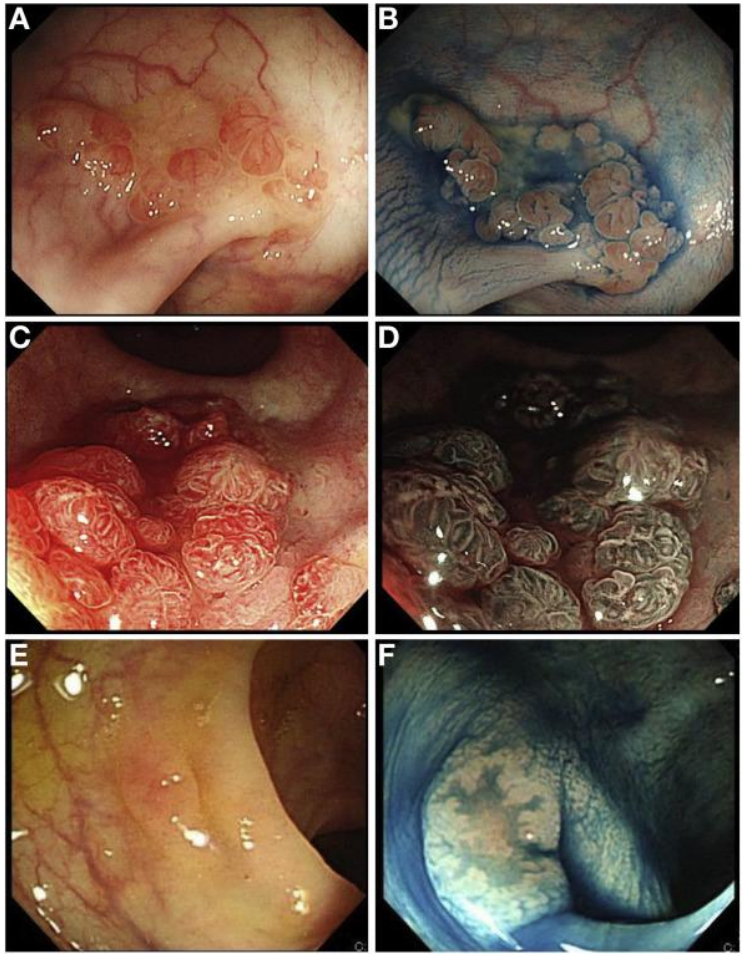
Site	C, A	T	D	S	R
No. of random biopsies with neoplasia	2	1	0	7	3
Total number of random biopsies	529	572	461	587	598

Site	C, A	T	D	S	R
No. of random biopsies with neoplasia	0	0	0	0	1
Total number of random biopsies	1	0	0	0	3

Site	C, A	T	D	S	R
No. of random biopsies with neoplasia	0	0	0	0	1
Total number of random biopsies	0	1	0	0	41

Wanatabe et al, Gastroenterology 2016

Dysplasia in IBD



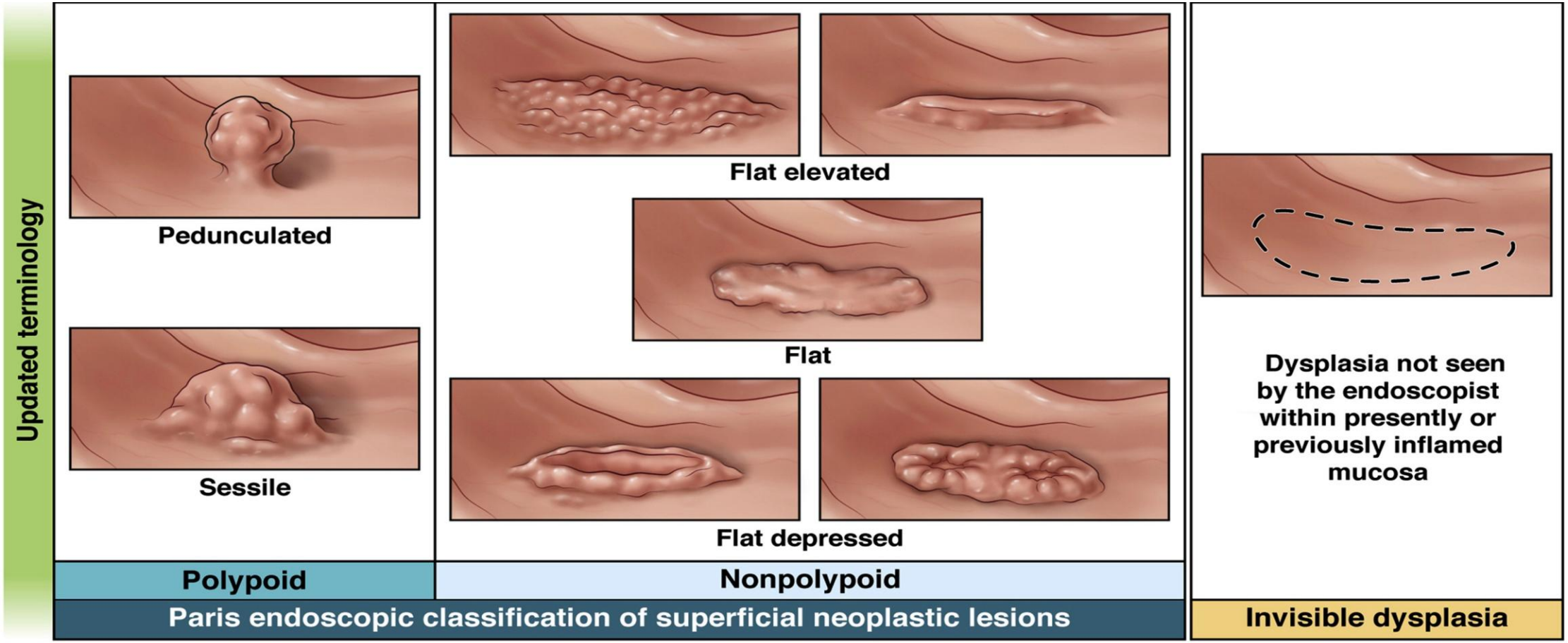
Wanatabe et al, Gastroenterology 2016

Dysplasia Terminology in IBD

- Endoscopy
    1. Polypoid (Polyp ≥ 2.5 mm tall)
    2. Non-polypoid (Polyp < 2.5 mm)
    3. Invisible (non-targeted biopsy)
- Histology
    1. Low grade dysplasia
    2. High grade dysplasia
    3. Sessile serrated polyp
    4. Indefinite for dysplasia

CRC surveillance in IBD

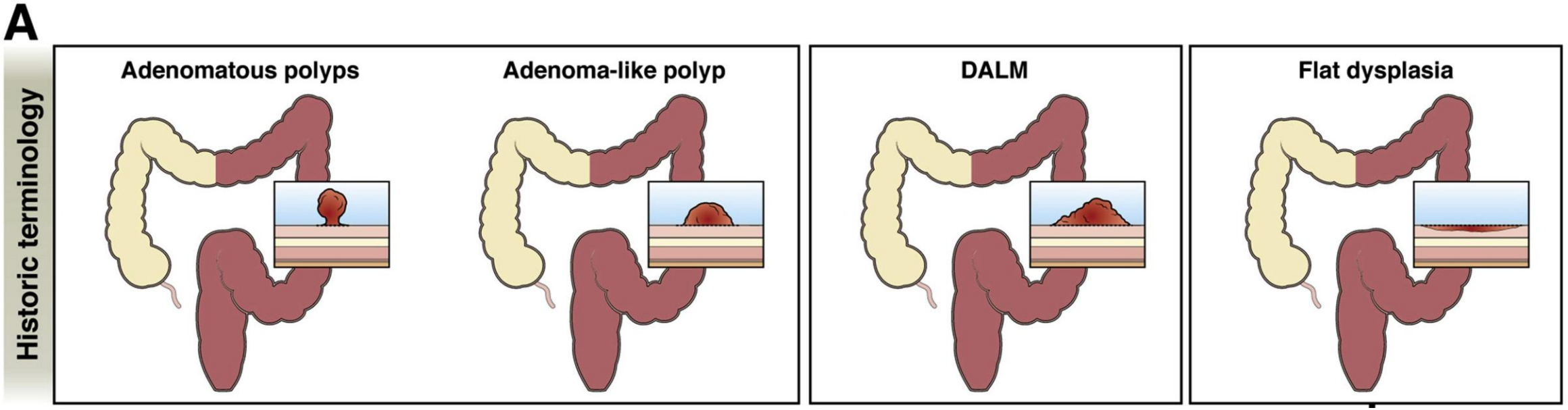
UT Southwestern Medical Center



In addition to Paris classification, report lesion size, morphology, border clarity, ulceration, location, if within area of colitis, completeness of resection, and any special techniques used to visualize.

AGA Practice Guidelines 2021

Dysplasia Terminology in IBD



OLD TERMINOLOGY

Eden et al, gastroenterology 2010
AGA practice guidelines 2021

Ileoanal Pouch Surveillance

- Annual pouchoscopy in High-risk patients
    1. Prior CRC or Colon dysplasia (!5 fold and 4.4 increased risk)
    2. PSC
    3. Persistent moderate to severe pouchitis
- Surveillance should be individualized in low-risk patients

Smits LJT et al, Clinical Gastroenterology Hepatology 2016

CRC surveillance in IBD

- Pseudopolyps
    - Acute or Chronic, usually benign in nature
    - Recommend target biopsies/polypectomy of suspicious polyps
    - Careful exam is very important

Mahmoud R et al, Gastroenterology 2019

PSC & IBD

- PSC: a chronic inflammatory condition of the bile ducts
- PSC is found in 10% of patients with IBD.
- IBD patients with PSC have a 5-9-fold increased risk of CRC compared to IBD patients without PSC

Dysplasia Management

- Endoscopic removal unless there concern of cancer, or significant mucosal fibrosis (central depression, lateral spreading lesion)
- EMR & ESD can be considered for advanced polyps

ESD in IBD

	Ngamruengphong 2022	Kinoshita 2017	Suzuki 2017
Patients Number	45	25	32
Median size	30 mm	34 mm	33 mm
En bloc resection	96%	100%	91%
Delayed bleeding	9%	0%	3%
Perforation	2.4%	4%	0%
Recurrence	2.6% (18 mo)	0%	3%
Metachronous lesion	31%	4%	9%

Ngamruengphong etal, Endo Int open 2022
Kinoshita S etal, GIE 2017
Suzuki N etal, Enodsocpy 2017

Management of visible and invisible dysplasia

Endoscopy	Management	Next colonoscopy
• < 2 cm	• Endoscopic resection	• 3-6 months: high grade dysplasia, Incomplete resection • 12 months: > 1 cm, low grade dysplasia • 24 months: < 1 cm, low grade dysplasia
• ≥ 2 cm • Complex polyp Local recurrence	• Endoscopic resection with intense surveillance vs surgery	• Every 3-6 months for first year
• Invasive cancer • Unresectable lesion	• Surgery	
• Invisible dysplasia	• Confirm path with second pathologist • Treat inflammation • Dye spray Chromoendoscopy (DCE)	• DCE to unmask subtle lesions • If no lesions, random biopsies every 10 cm

AGA practice guidelines 2021

Management of invisible dysplasia on DCE

Histologic assessment	Management	Next Colonosocpy
• Persistent high grade or Multifocal dysplasia	• Surgery	
• Persistent Unifocal low grade dysplasia • No histologic dysplasia	• Intense surveillance with DCE	• 3-6 months if prior high grade or multifocal dysplasia • 6-12 months if prior low-grade dysplasia • Continue intensive surveillance until 2 negative consecutive high quality DCE exam

AGA practice guidelines 2021

Dysplasia Surveillance in IBD

Timing of Next colonoscopy when <u>No Dysplasia</u> detected on current colonoscopy

1 year	2-3 years	5 years
• Moderate to severe inflammation • PSC • FH of first degree relative (FDR) with CRC <50 y/o • Dense pseudopolyposis • H/o invisible dysplasia or high-risk visible dysplasia < 5 years years ago	• Mild inflammation • Strong FH colon cancer, other than FDR < 50 years/old • H/O invisible dysplasia or high-risk visible dysplasia > 5 years years ago • H/O low-risk visible dysplasia < 5 years years ago	Continuous disease remission since last colonoscopy with mucosal healing on current exam, PLUS • ≥ 2 consecutive exams with no dysplasia • Limited disease, ulcerative proctitis or < 1/3 of colon in CD

AGA practice guidelines 2021

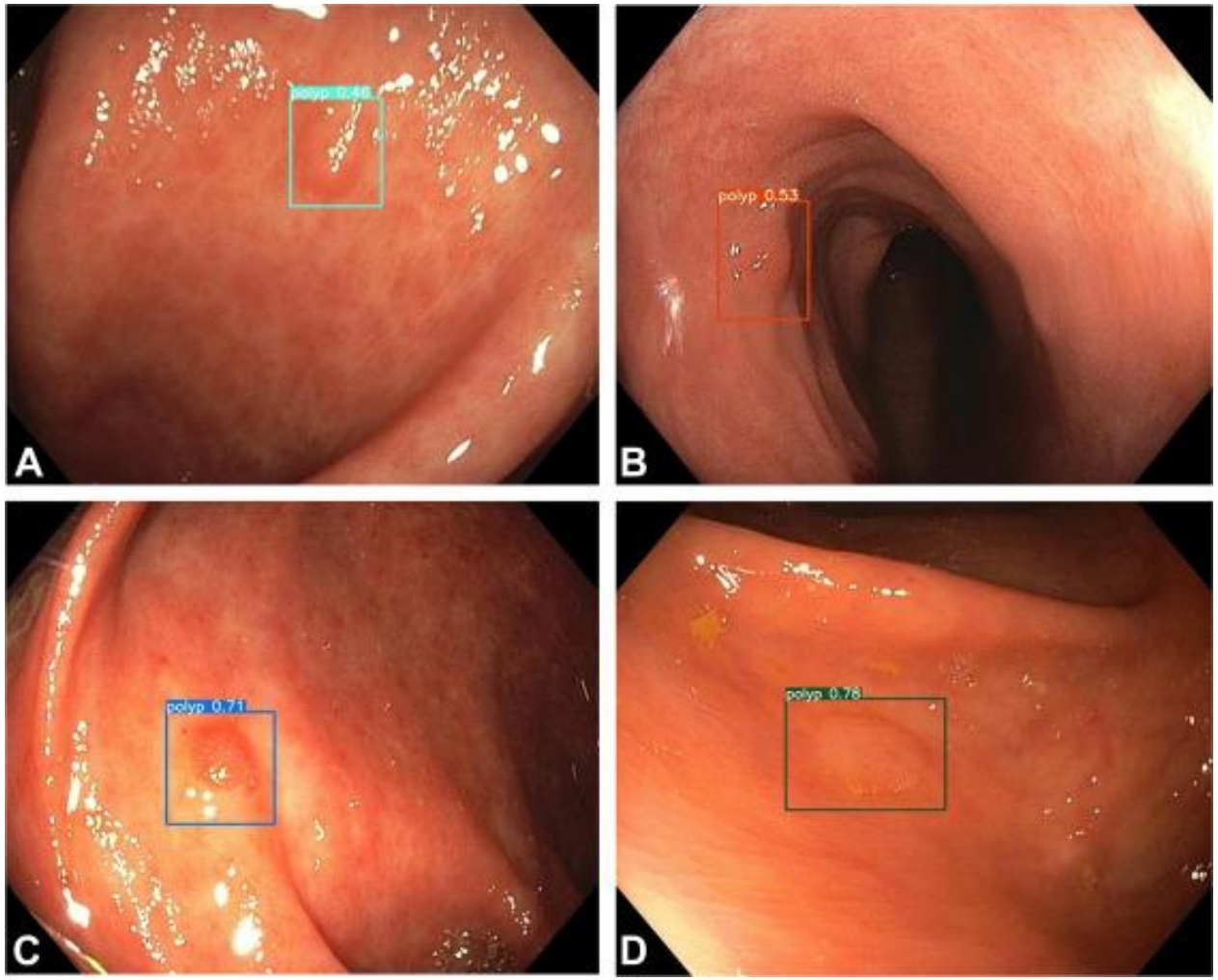
AI in Dysplasia Surveillance in IBD

- Original CADe model used for CRC in general population had 50% sensitivity and 64% accuracy
- Retrained IBD-CADe model using HDWLE and Chromo images from IBD patients

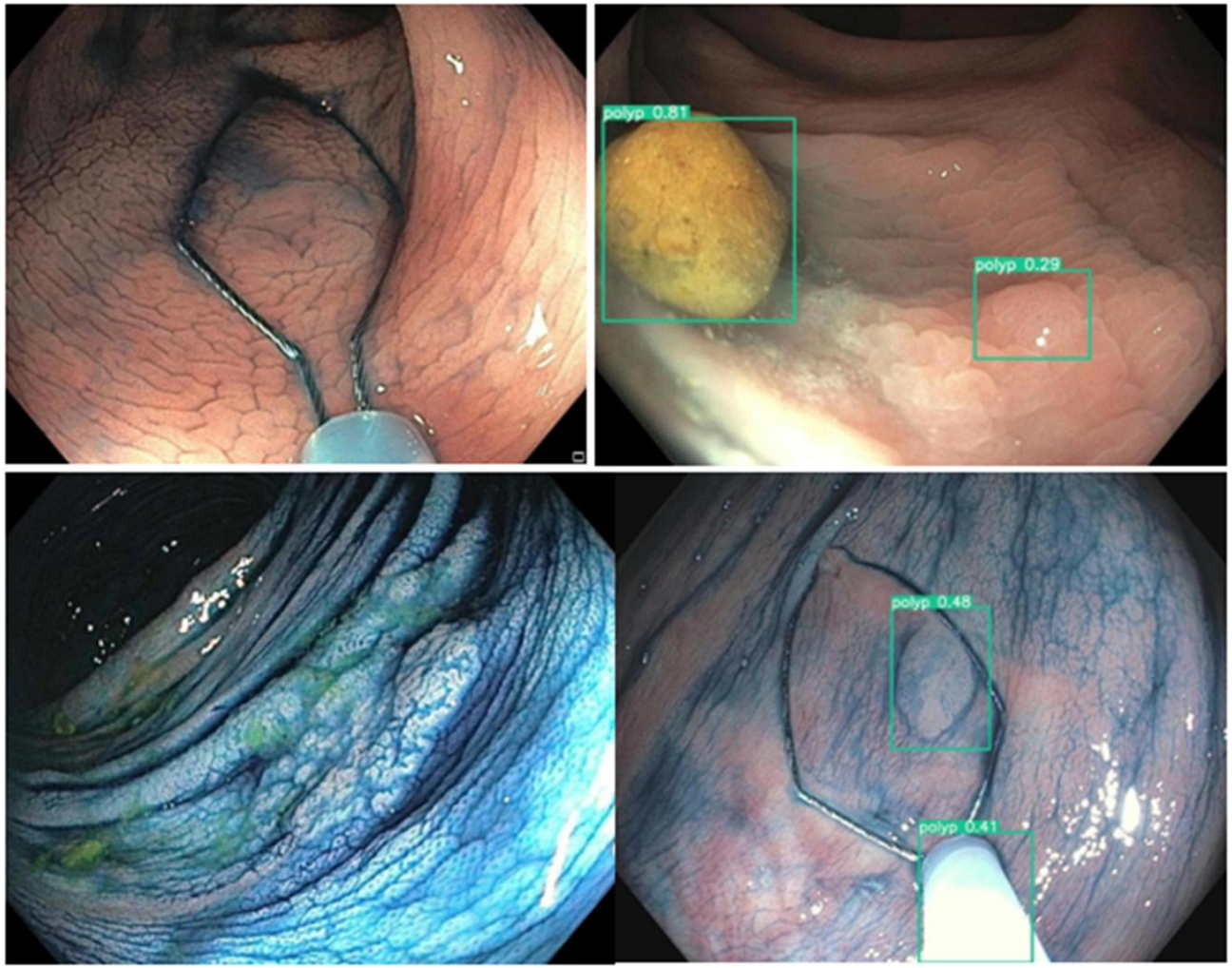
	HDWLE	Chromo
Sensitivity	95%	67%
Specificity	98%	88%
Accuracy	97%	78%
PPV	99%	74%

AI in Dysplasia Surveillance in IBD

A. Pseudopolyp
B. TA
C. SSA
D. Serrated epithelial change



AI in Dysplasia Surveillance in IBD



Take Home points

- IBD patients at high risk of dysplasia & CRC
- Chronic inflammation and PSC among other risk factors
- IBD + PSC, should start CRC screening at time of PSC diagnosis
- Detailed colonoscopy using HD-WLE, Virtual Chromoendoscopy, Careful exam, excellent prep and targeted biopsies
- Polypectomy, EMR and ESD should be considered first.
- Consider referral to advanced IBD center for a Multidisciplinary approach (IBDologist, pathologist, advanced endoscopist and IBD colorectal surgeon)