# Gastroenterologists are from Mars and Pathologists are from Venus:
## Reporting IBD Pathologic Findings

## *(and "Kurt's Notes")*

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# Disclosures

- None

# Overview

- Some IBD basics
- Histology as a treatment endpoint in IBD
- Pathology report comprehension
- Comprehension of IBD reports

- Kurt’s Notes


Middlebury
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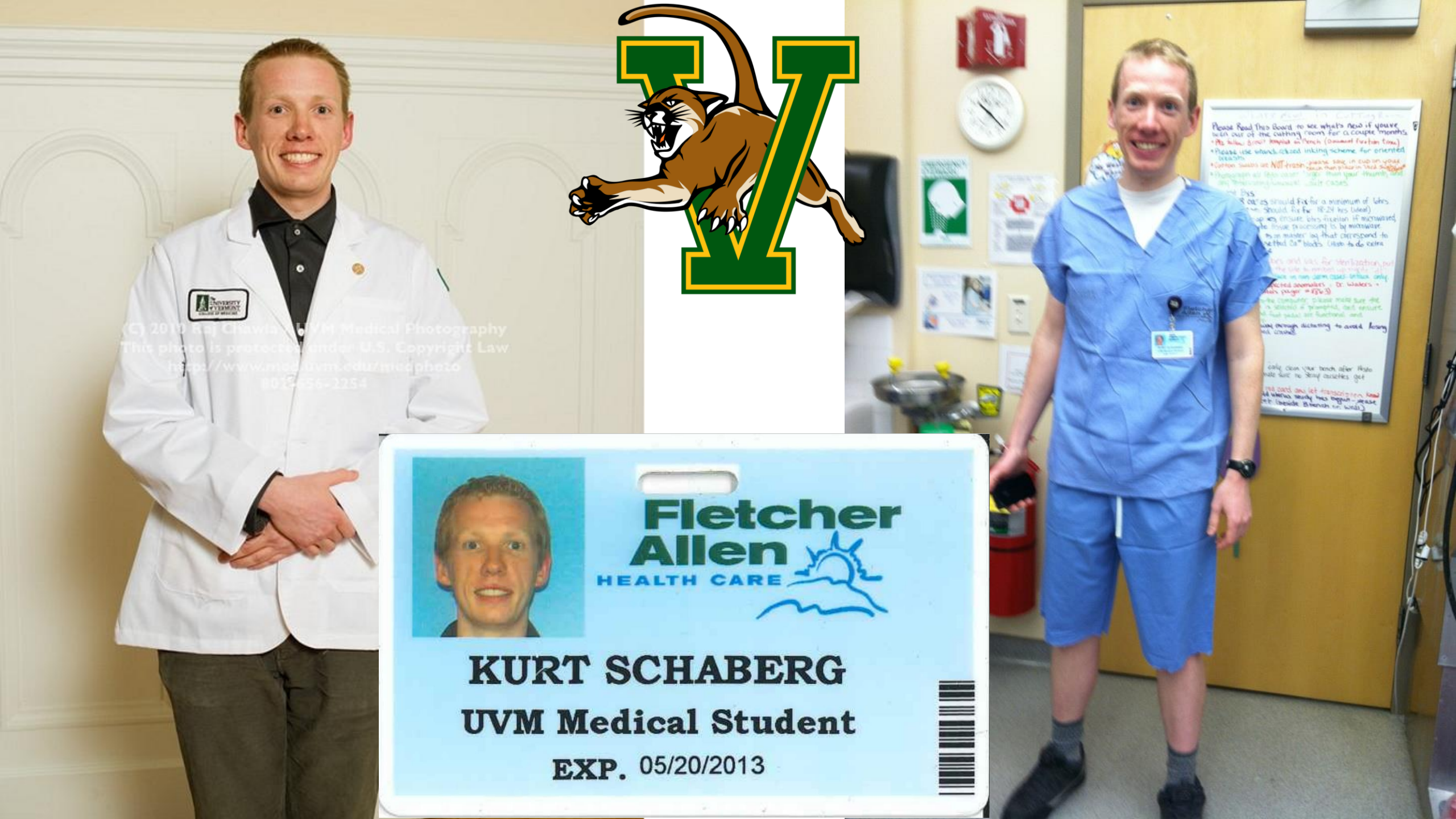
STUDENT
Issued: 08/09/05
Kurt Barret Schaberg
Date of Birth: 100385


Fletcher
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KURT SCHABERG
UVM Medical Student
EXP. 05/20/2013


STANFORD
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PATHOLOGY
RESIDENT
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KURT SCHABERG,
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LET THERE BE LIGHT
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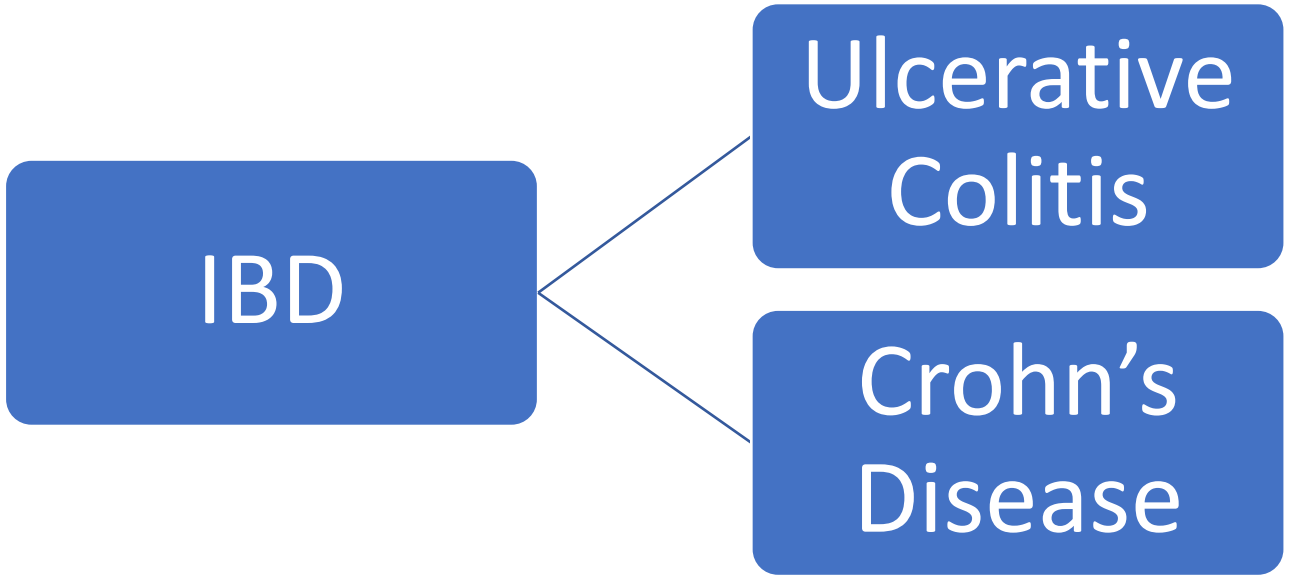
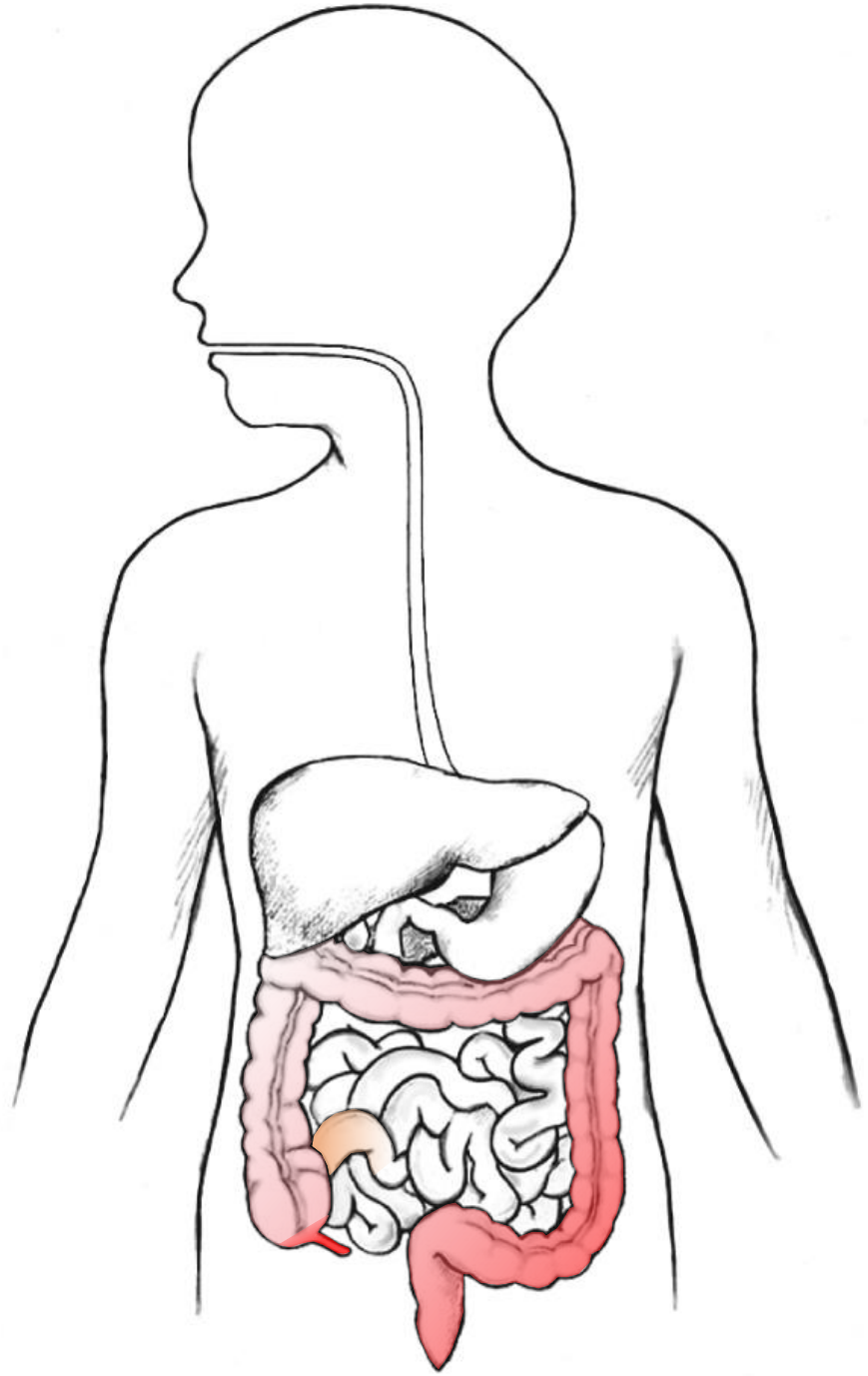
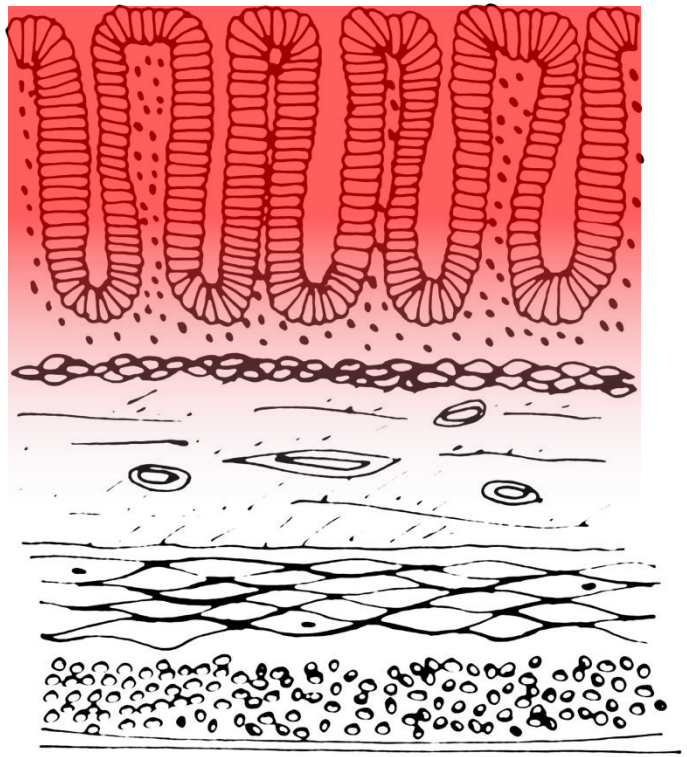
# Inflammatory Bowel Disease (IBD)

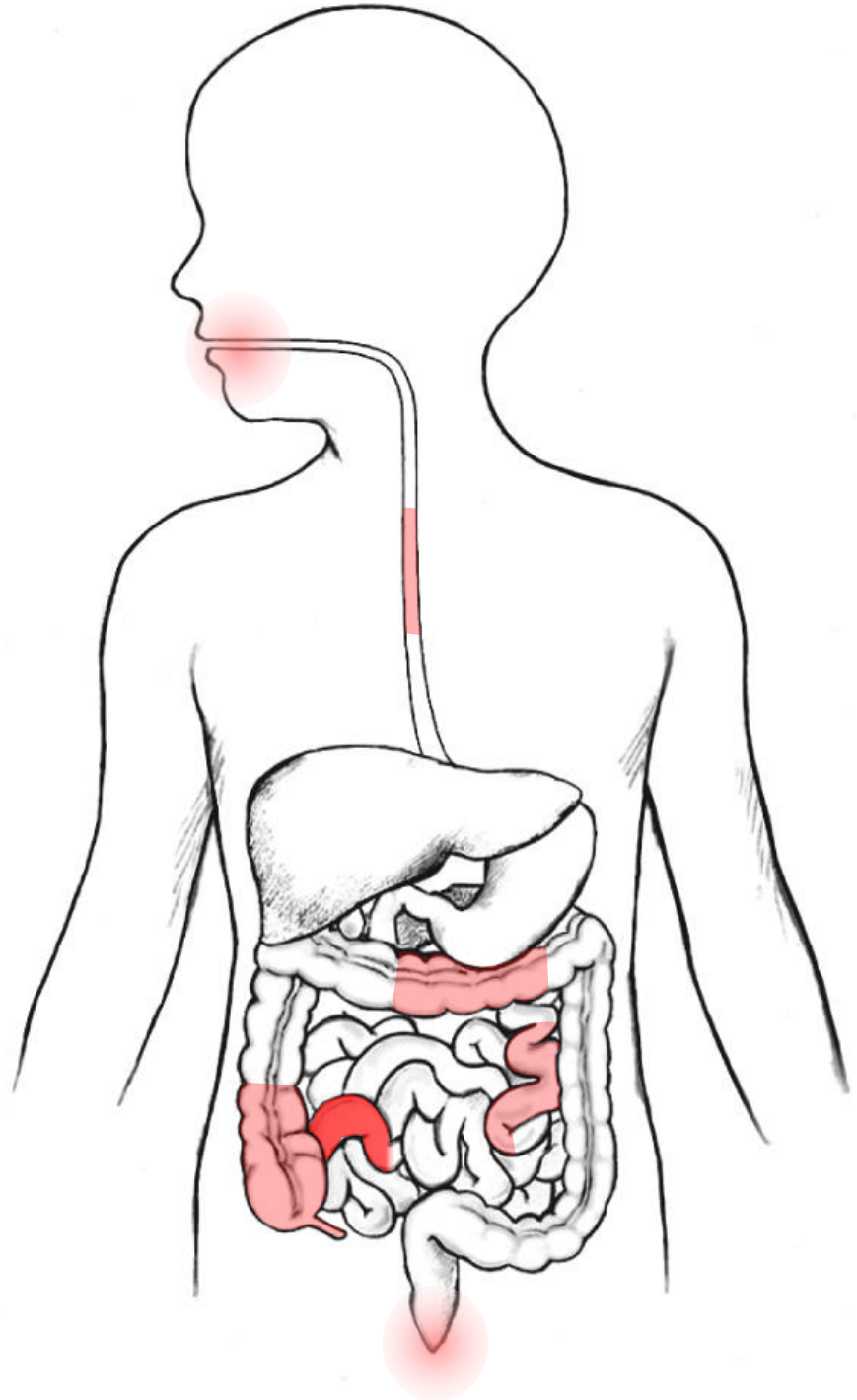
- A chronic, idiopathic, relapsing and remitting inflammatory disease of the gastrointestinal tract resulting from inappropriate mucosal immune activation



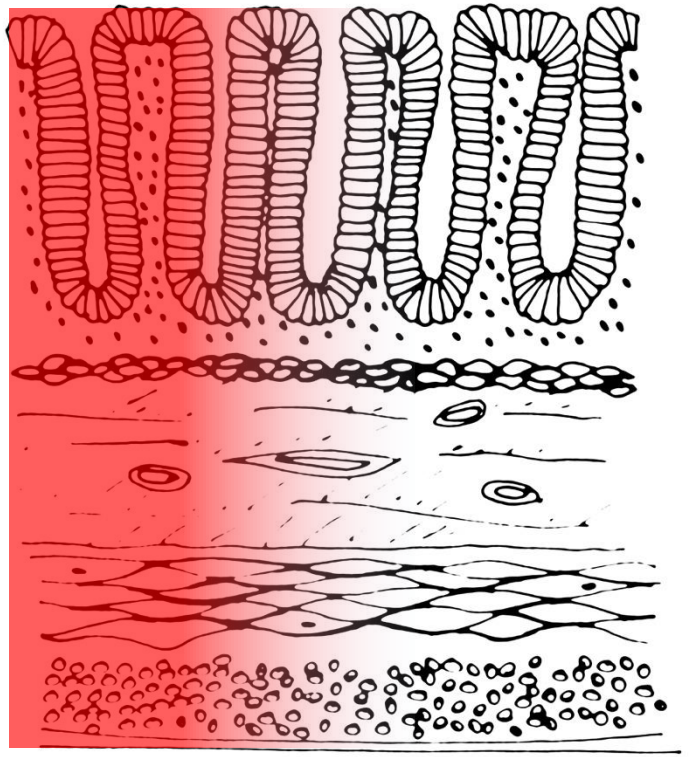


# Ulcerative Colitis



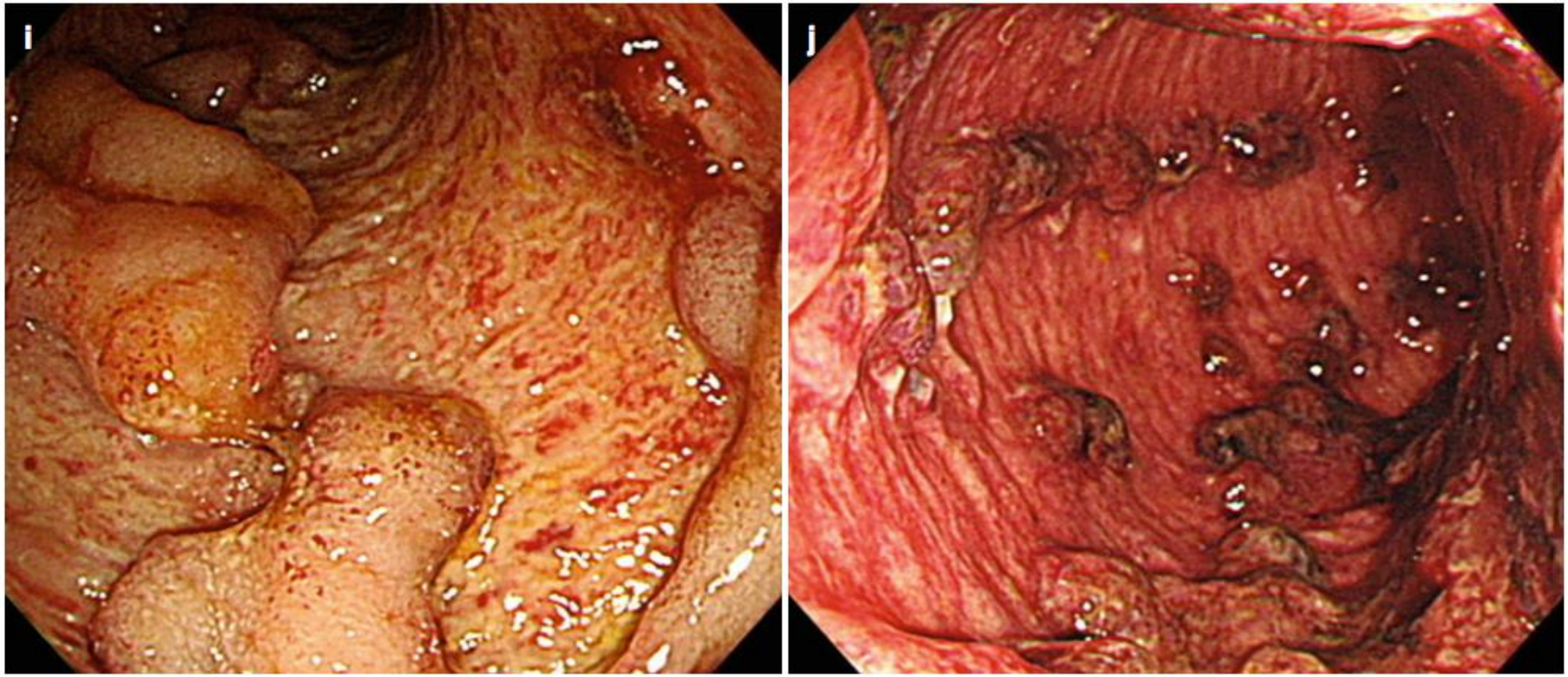


# Crohn‘s Disease



# New IBD Patient

# Colonoscopy




Chun et al. Clinical Gastrointestinal Endoscopy: A Comprehensive Atlas, 2014

# *Pathology Report:*

UCDAVIS HEALTH | Department of Pathology and Laboratory Medicine

- Rectum, Biopsy:
  - Chronic active proctitis

- Rectum, Biopsy:
  - Active colitis with prominent basal lymphoplasmacytosis and architectural distortion

*Electronically signed out by Kurt Schaberg M.D.*

# New IBD Patient

## Ulcerative Colitis

# New IBD Patient

# What is our endpoint for IBD treatment?

- Symptoms?
- Endoscopic findings?
- Radiographic findings?
- Lab values (e.g., fecal calprotectin or CRP)?
- **Histologic findings?**

# *Pathology Report:*

UCDAVIS HEALTH | Department of Pathology and Laboratory Medicine

- Rectum, Biopsy:
  - Chronic active proctitis

- Rectum, Biopsy:
  - Active colitis with prominent basal lymphoplasmacytosis and architectural distortion

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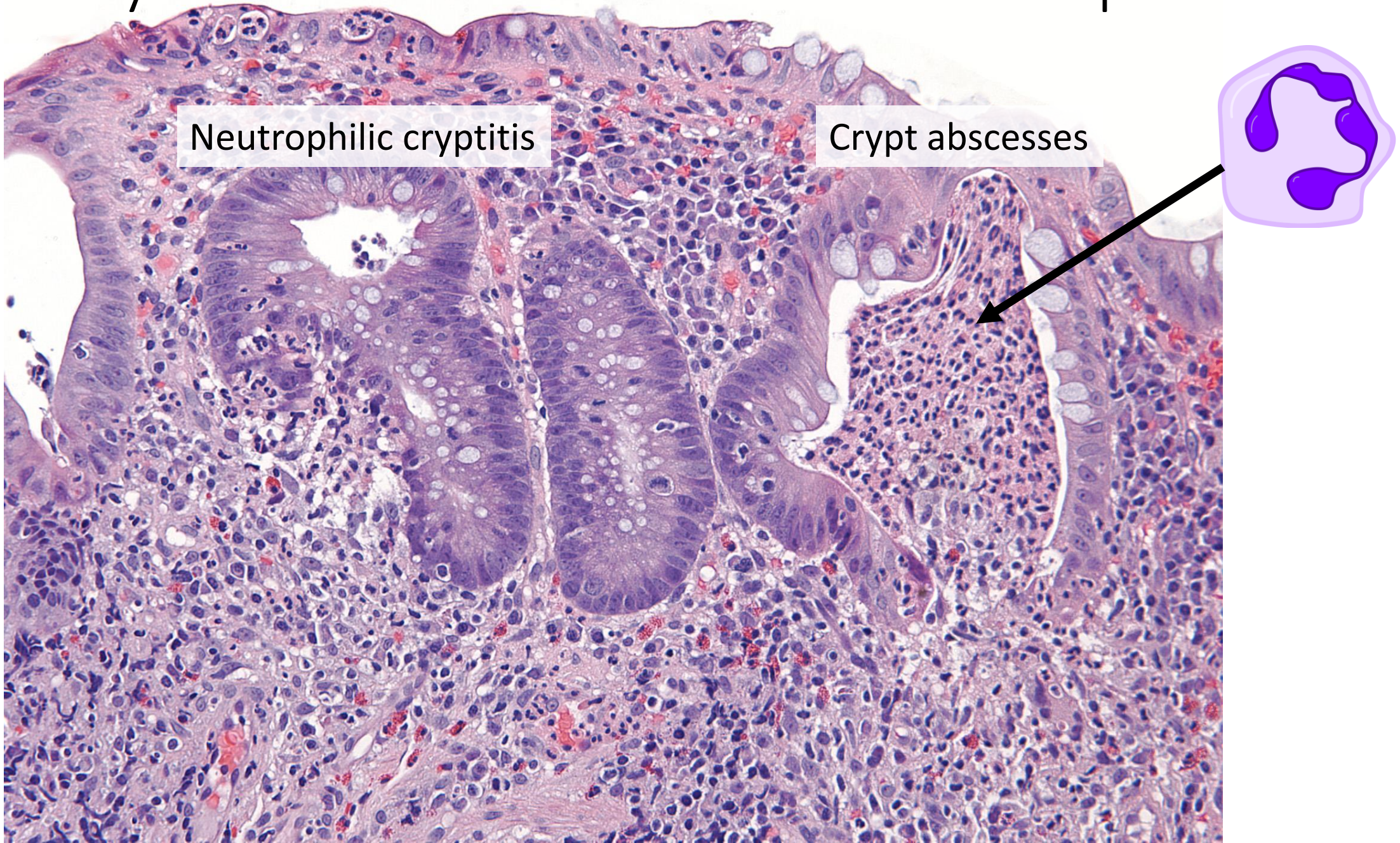
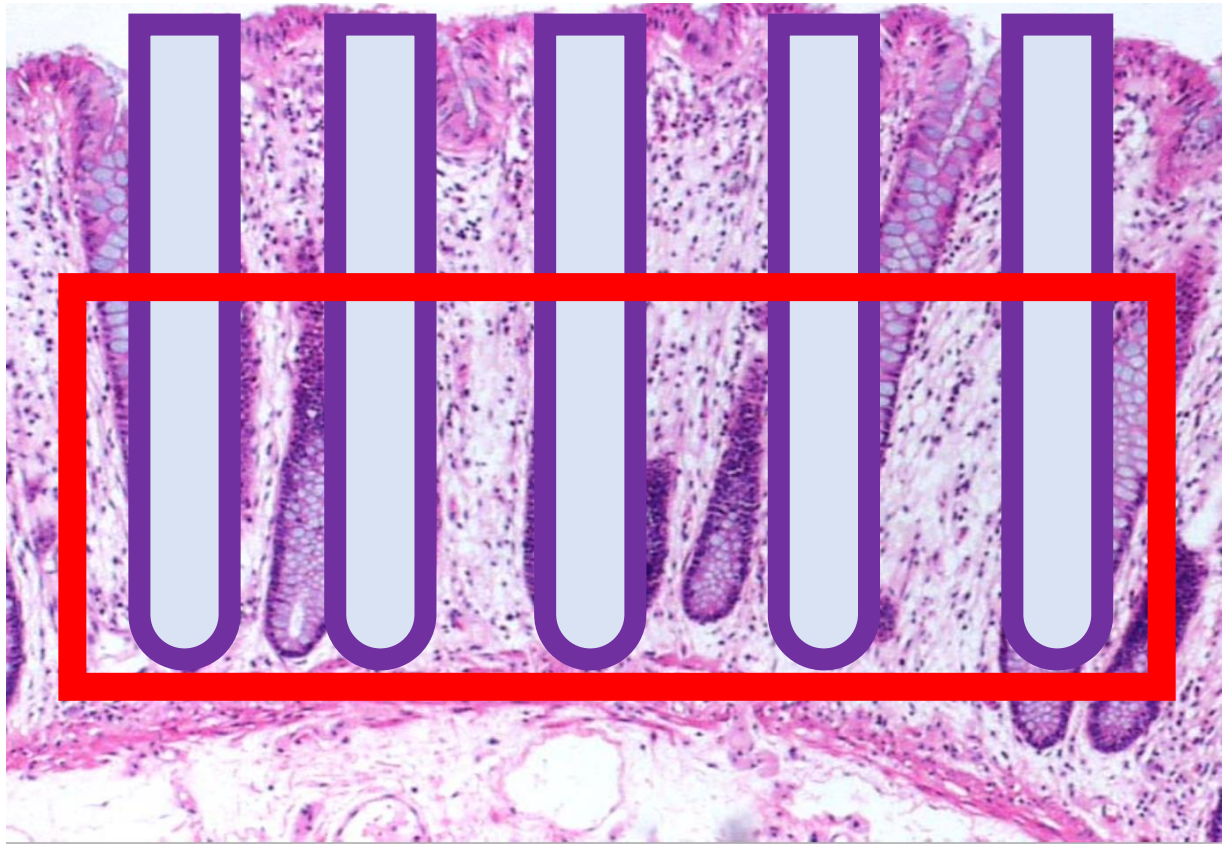
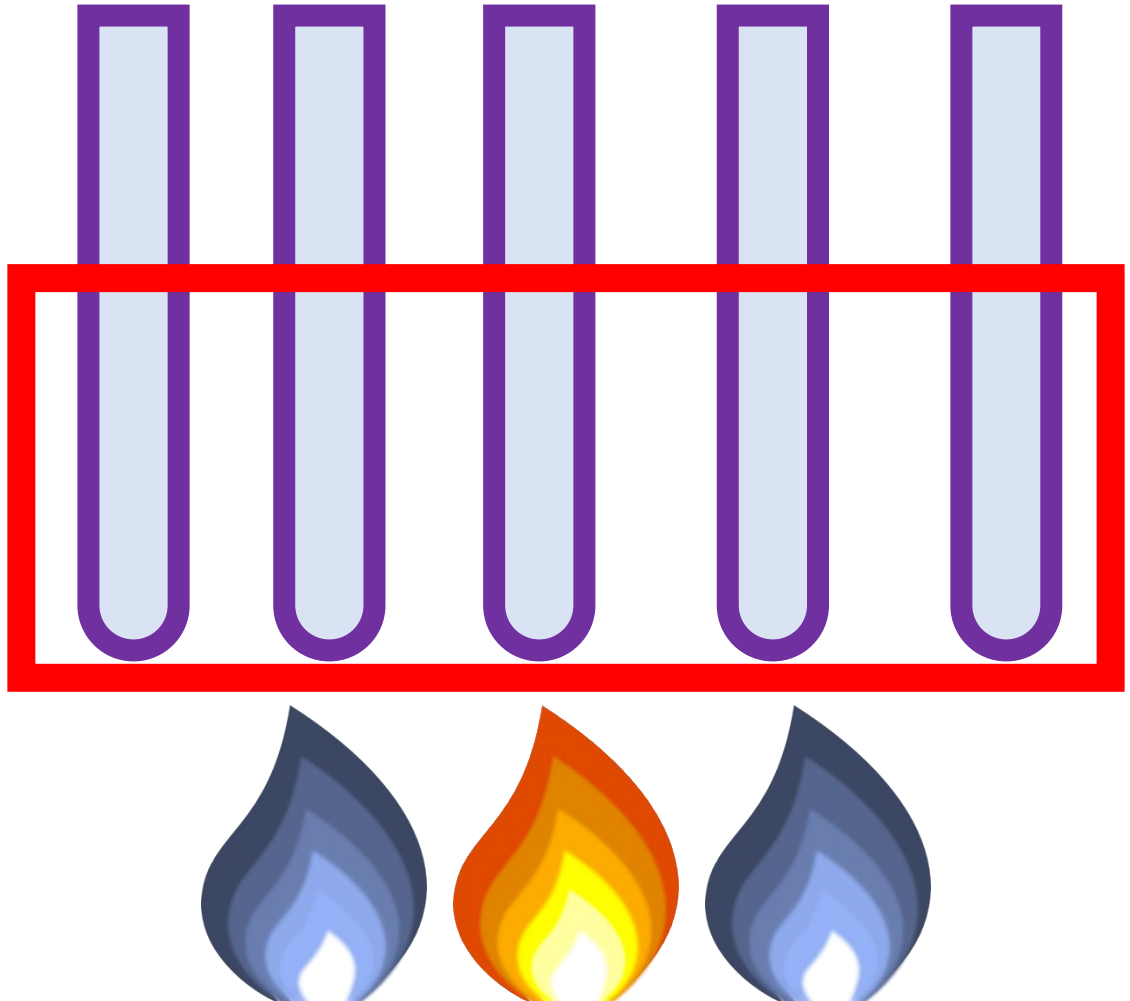
# Activity = Acute Inflammation = Neutrophils



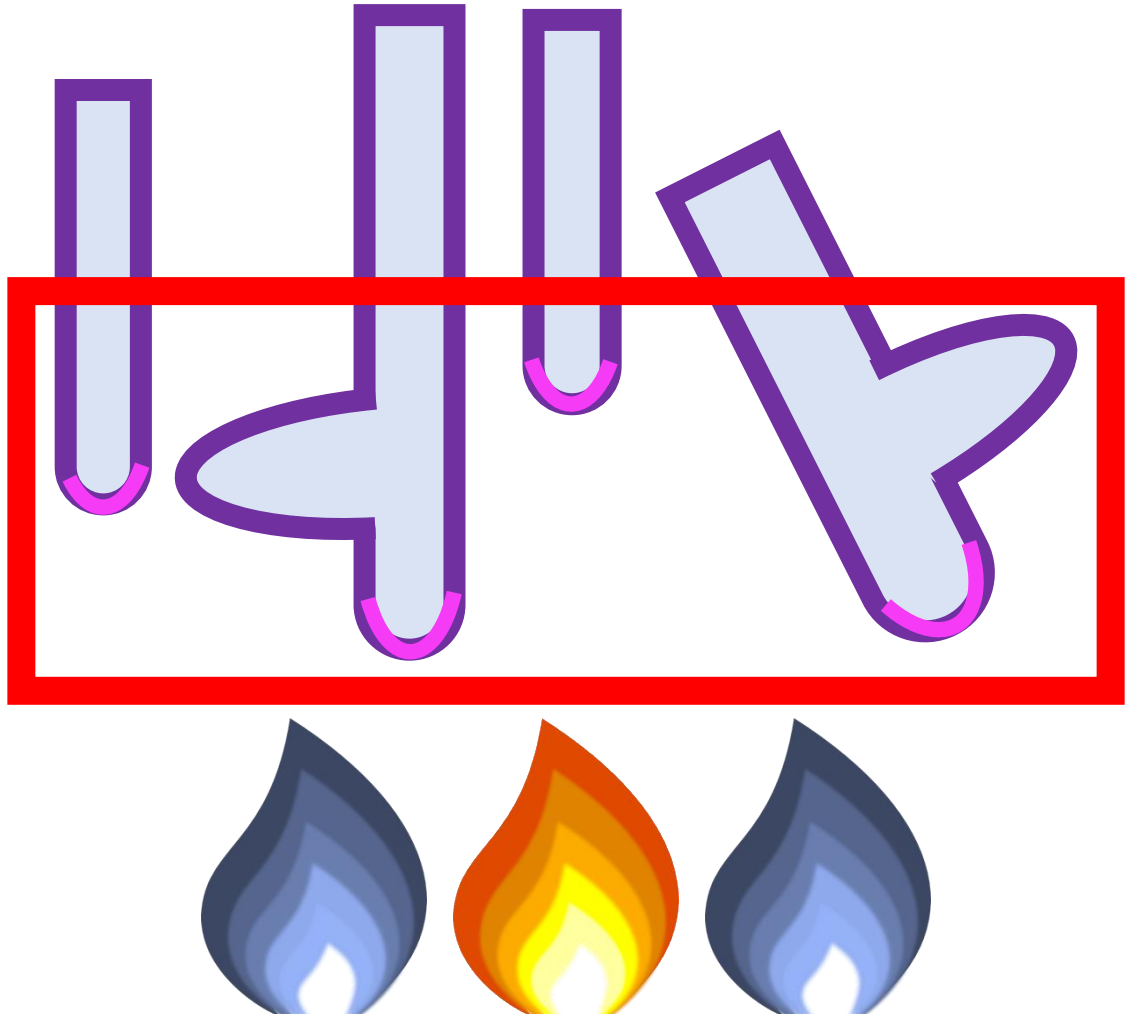
# Chronicity



# Chronicity



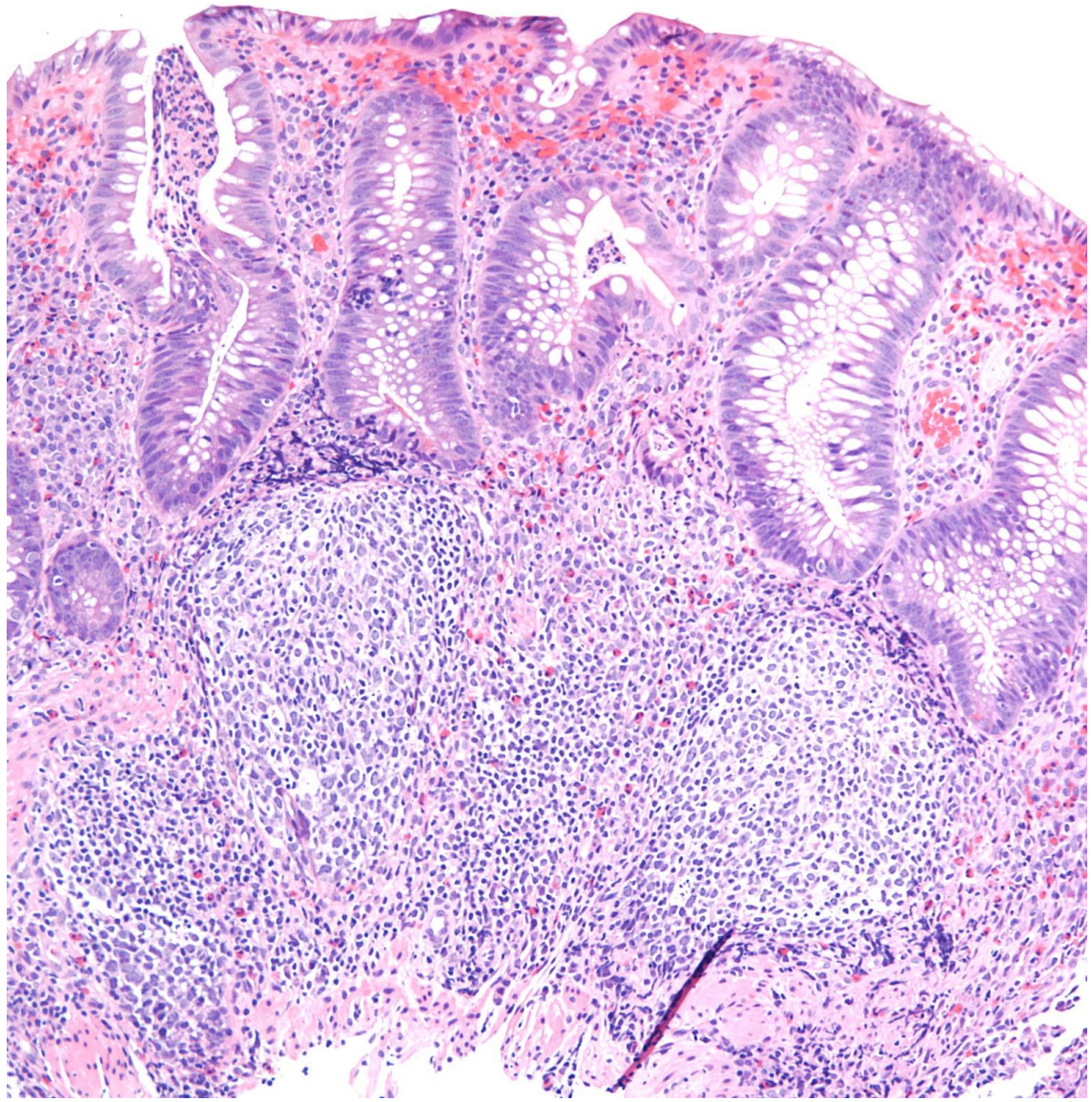
# Chronicity

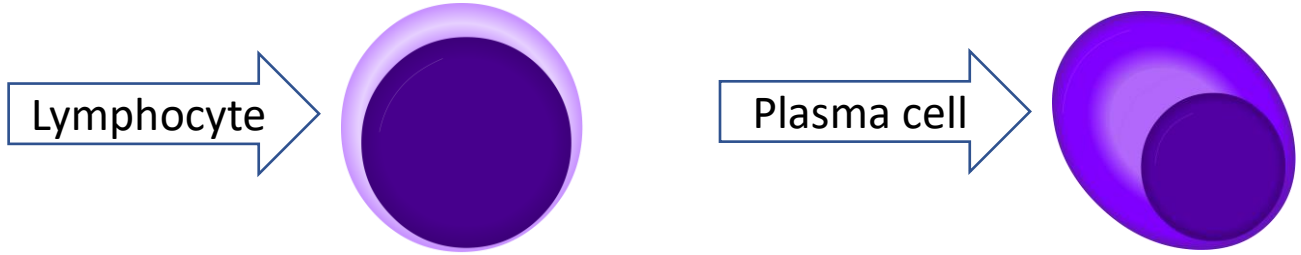


# Chronicity

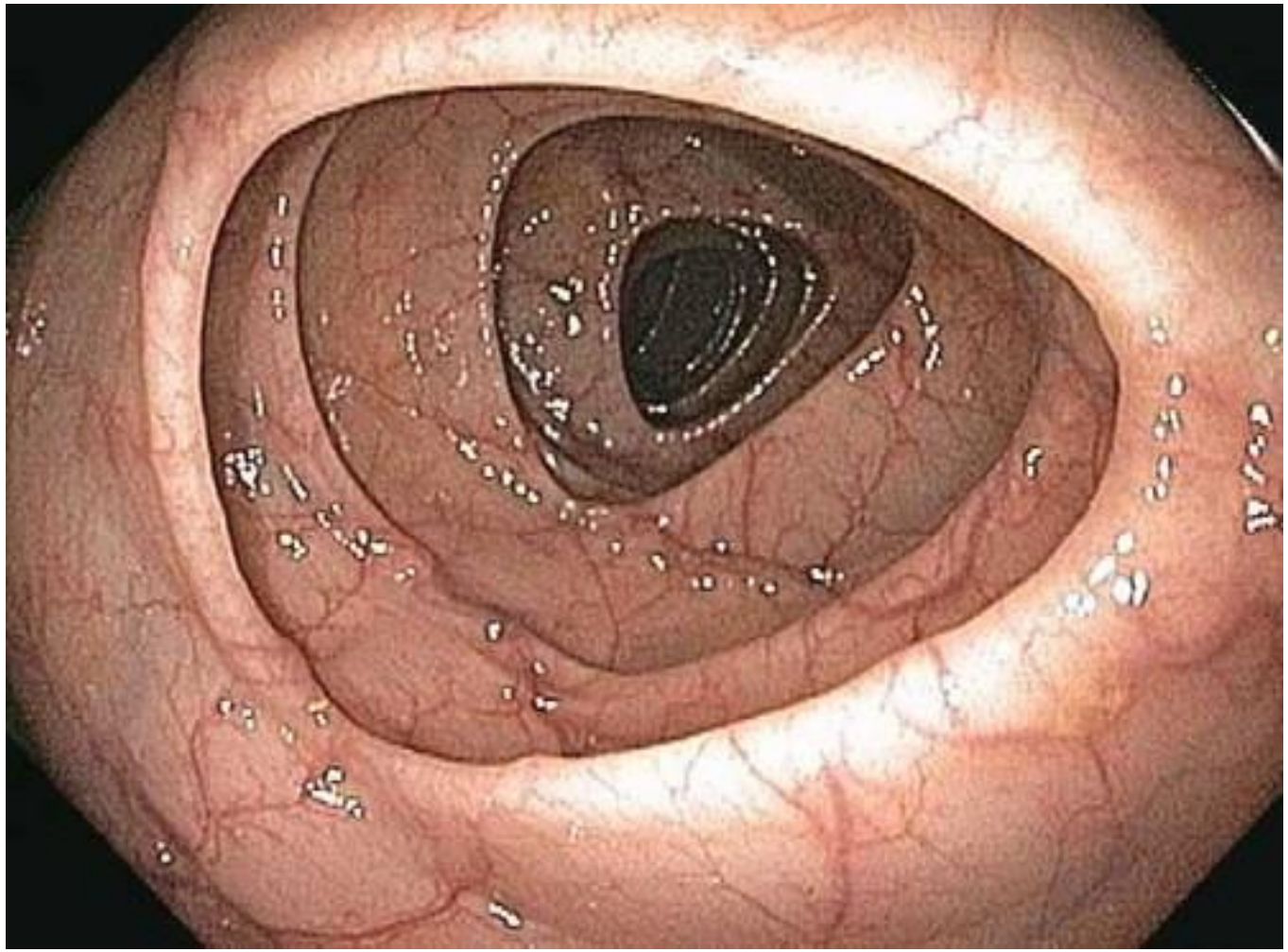
- Crypt architectural distortion
  - Crypt foreshortening
  - Crypt branching
  - Crypt dropout
  - Loss of crypt parallelism

- Basal lymphoplasmacytosis





# Why do we care about histologic findings if there is endoscopic remission?



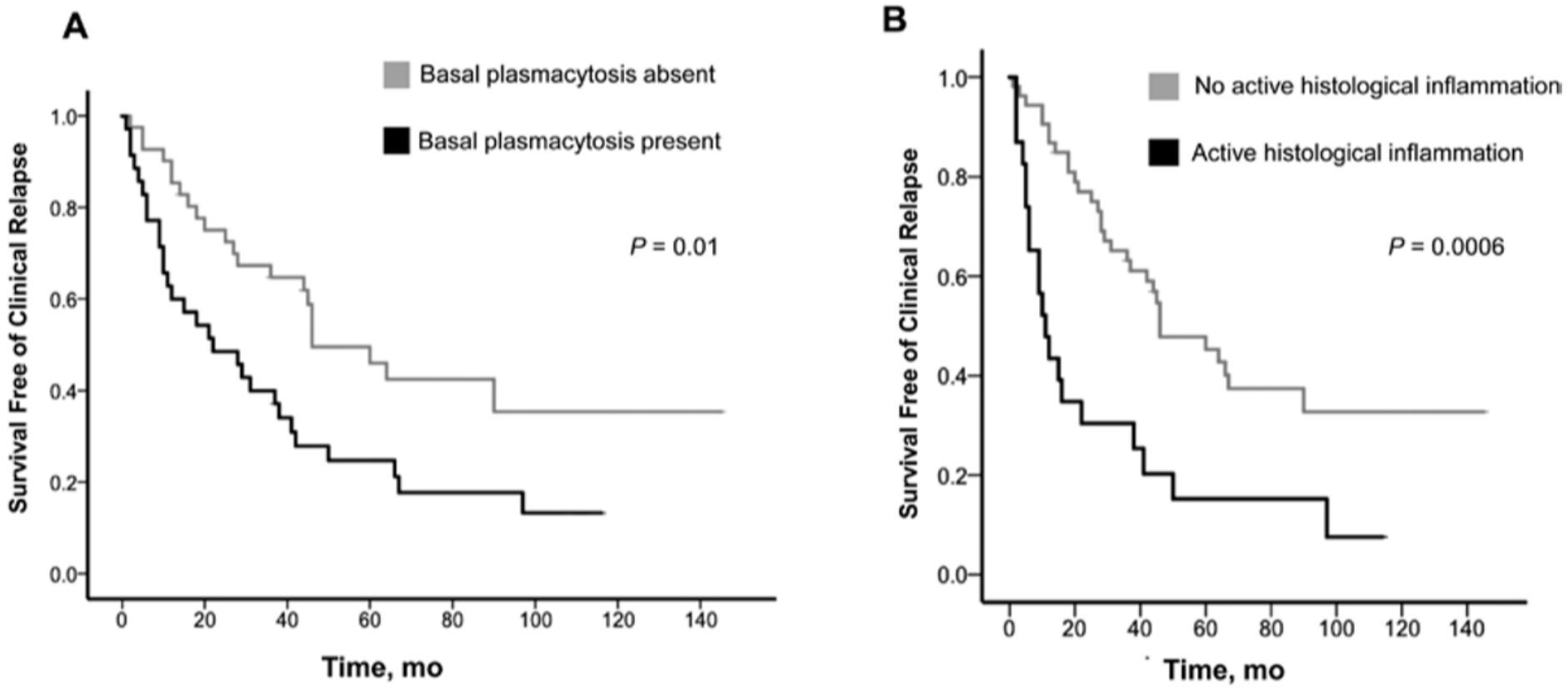



FIGURE 3. Association between histological markers and time to clinical relapse.

# Histological Markers of Clinical Relapse in Endoscopically Quiescent Ulcerative Colitis

*David Kevans, MD,[*,†] Richard Kirsch, PhD,[*,†] Callum Dargavel, MD,[*,†] Boyko Kabakchiev, PhD,[*] Robert Riddell, PhD,[*,†] and Mark S. Silverberg, PhD[*,†]*

*Inflamm Bowel Dis* • Volume XX, Number XX, Month 2019

76 UC patients in endoscopic remission, which they defined as a Mayo score of 0

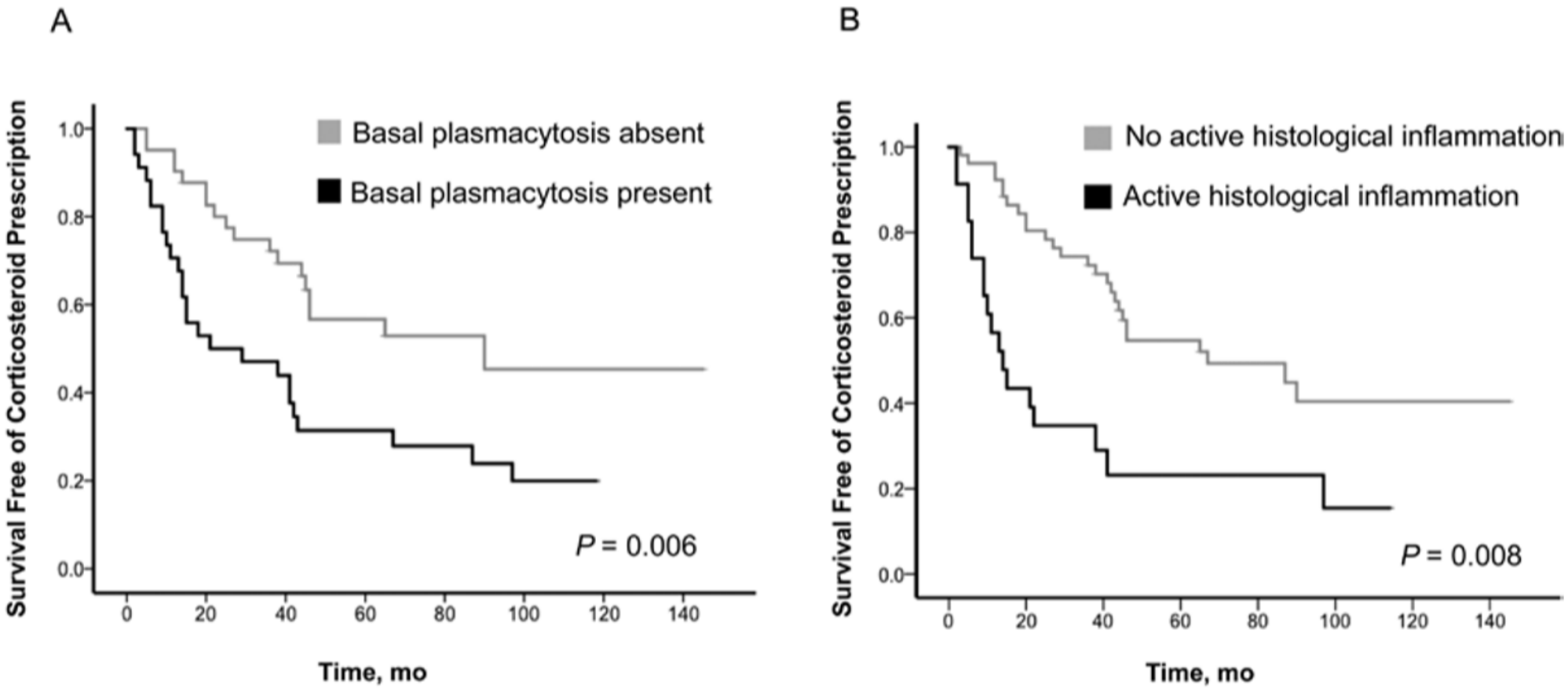



FIGURE 4. Association between histological markers and time to corticosteroid prescription.

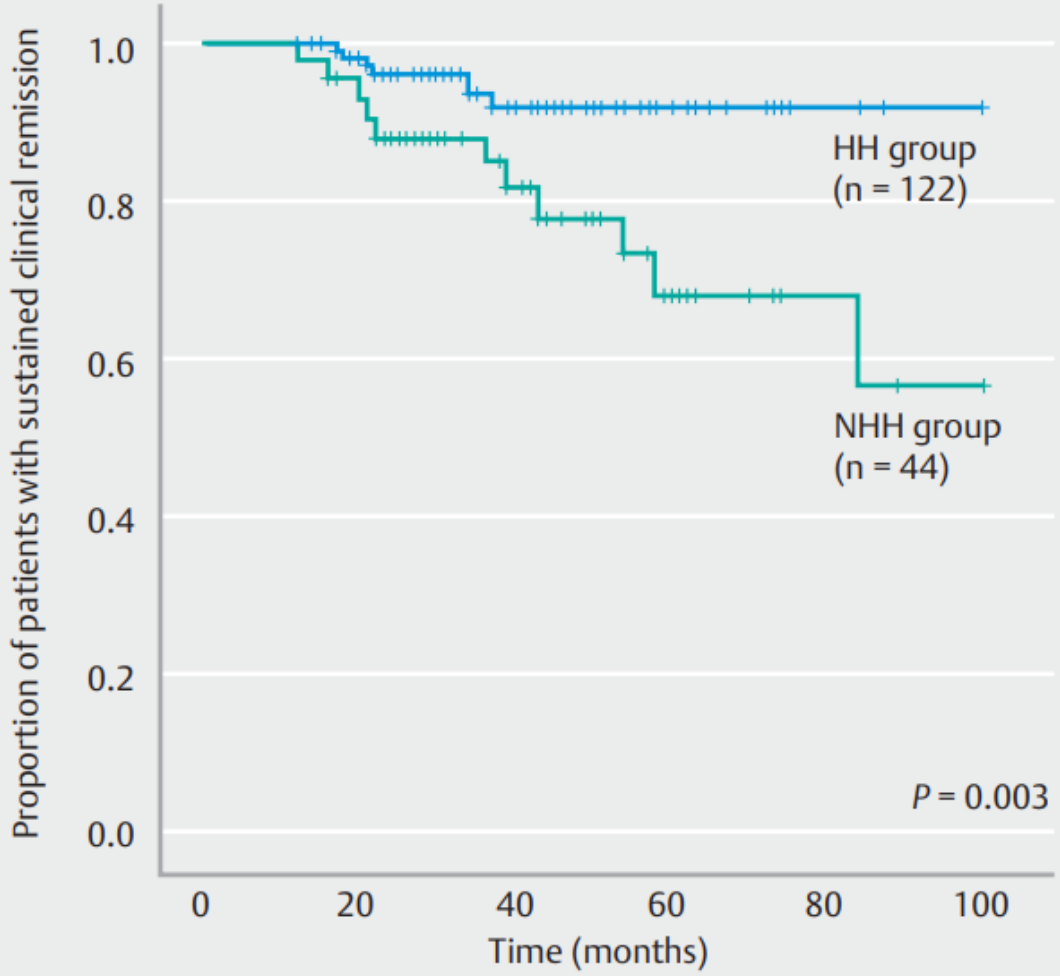
# Histological Markers of Clinical Relapse in Endoscopically Quiescent Ulcerative Colitis

*David Kevans, MD,[*,†] Richard Kirsch, PhD,[*,†] Callum Dargavel, MD,[*,†] Boyko Kabakchiev, PhD,[*] Robert Riddell, PhD,[*,†] and Mark S. Silverberg, PhD[*,†]*

*Inflamm Bowel Dis* • Volume XX, Number XX, Month 2019

# Relationship between endoscopic mucosal healing and histologic inflammation during remission maintenance phase in ulcerative colitis: a retrospective study

166 UC Patients with Mayo endoscopic score of 1




▶ **Fig. 4** Comparison of remission maintenance rates between the HH and NHH groups. HH, histological healing; NHH, non-histological healing.

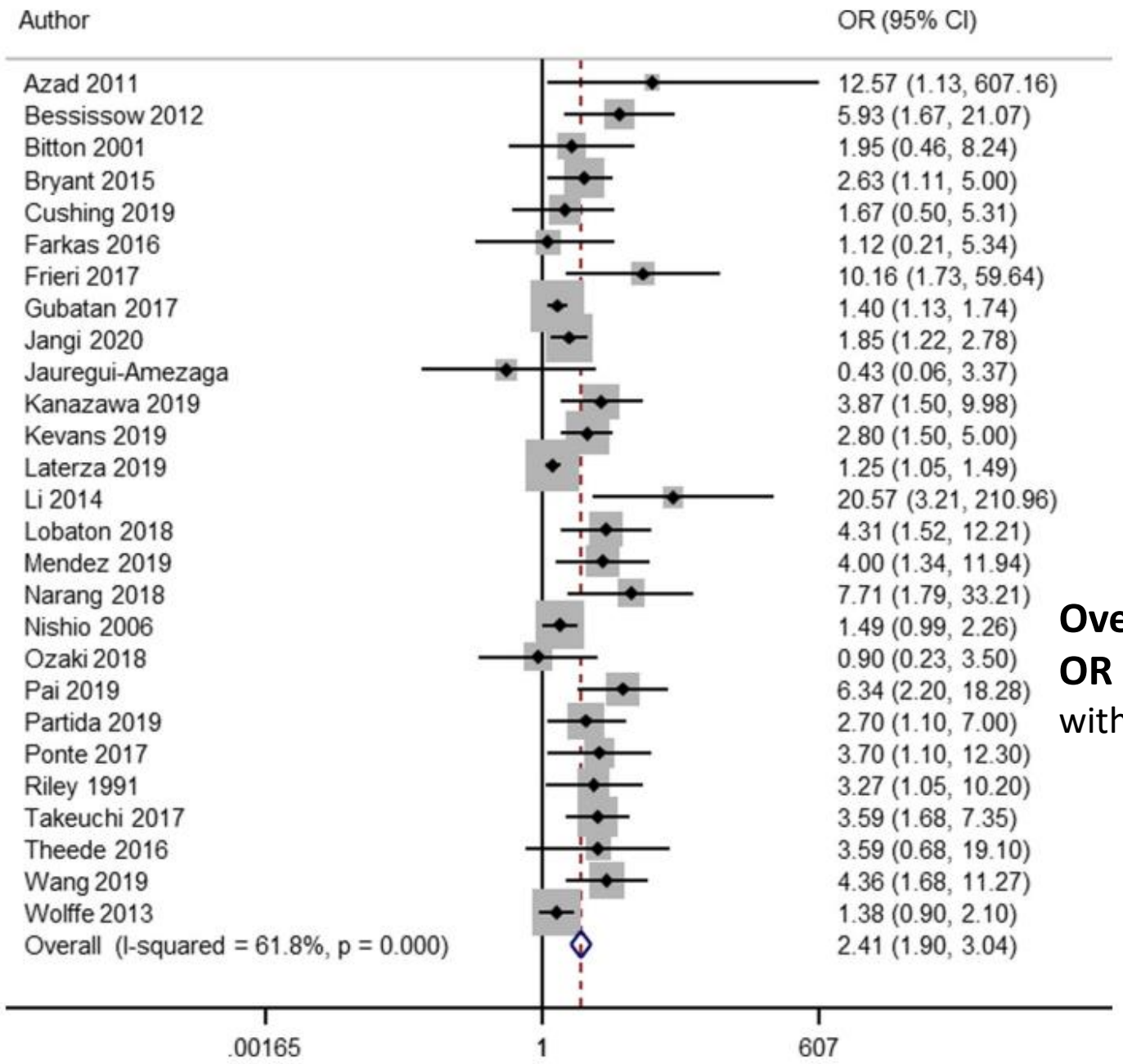



**Figure 2.** Random-effects meta-analysis examining the association between persistent histologic activity and relapse in patients with ulcerative colitis in endoscopic remission.

**Overall increased risk of relapse**
**OR 2.41;** (95% CI, 1.91–3.04)
with histologic activity

**Table 3.** Association Between Individual Histologic Characteristics and Relapse in Patients With Ulcerative Colitis in Endoscopic Remission

| Histologic feature | Included studies | Pooled OR (95% CI) |
|---|---|---|
| Basal plasmacytosis | 9 | 1.95 (1.10–3.46) |
| Neutrophilic infiltrate | 4 | 2.30 (1.14–4.63) |
| Mucin depletion | 3 | 2.05 (1.12–3.73) |
| Crypt architectural irregularities | 3 | 2.22 (1.30–3.80) |
| Crypt abscesses | 4 | 2.59 (0.70–9.51) |
| Chronic inflammatory infiltrate | 2 | 1.89 (0.61–5.86) |

CI, confidence interval; OR, odds ratio.

# Select findings:

- Histologic ***remission*** predicts lower:
  - risk of hospitalization,
  - colectomy, and
  - corticosteroid use.

- Histologic ***activity*** may increase the likelihood of the need for colectomy for neoplastic complications.

# A brief analogy

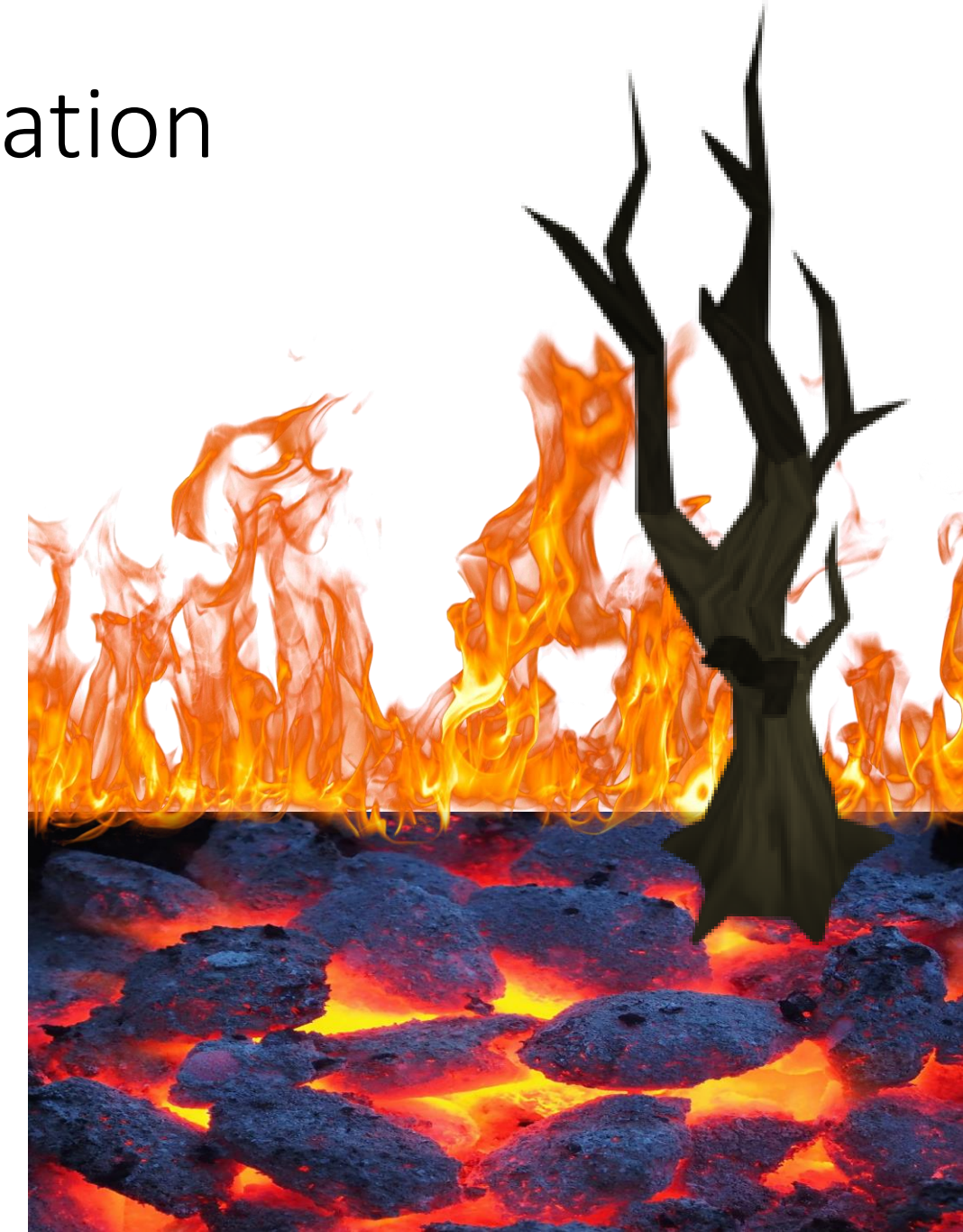
Let’s think of the colon as some lovely California hills and IBD as a wildfire.

# Chronic and Active inflammation

Acute/Active inflammation think of as the **flame**→ It's red, hot, and is very destructive

Chronic inflammation think of as the **embers**→ It is less eye-catching and acutely destructive, but it can easily burst into flames again and melt things.

Scarring and some architectural changes of as→ **burnt trees**



# Endoscopic vs Microscopic

# Endoscopic vs Microscopic

# Endoscopic vs Microscopic

# Endoscopic vs Microscopic

# Endoscopic vs Microscopic


**Pathologist**


Clinical Endpoints

Histologic Endpoints

# *Pathology Report:*

UCDAVIS HEALTH | Department of Pathology and Laboratory Medicine

- Rectum, Biopsy:
  - Chronic active proctitis

- Rectum, Biopsy:
  - Active colitis with prominent basal lymphoplasmacytosis and architectural distortion

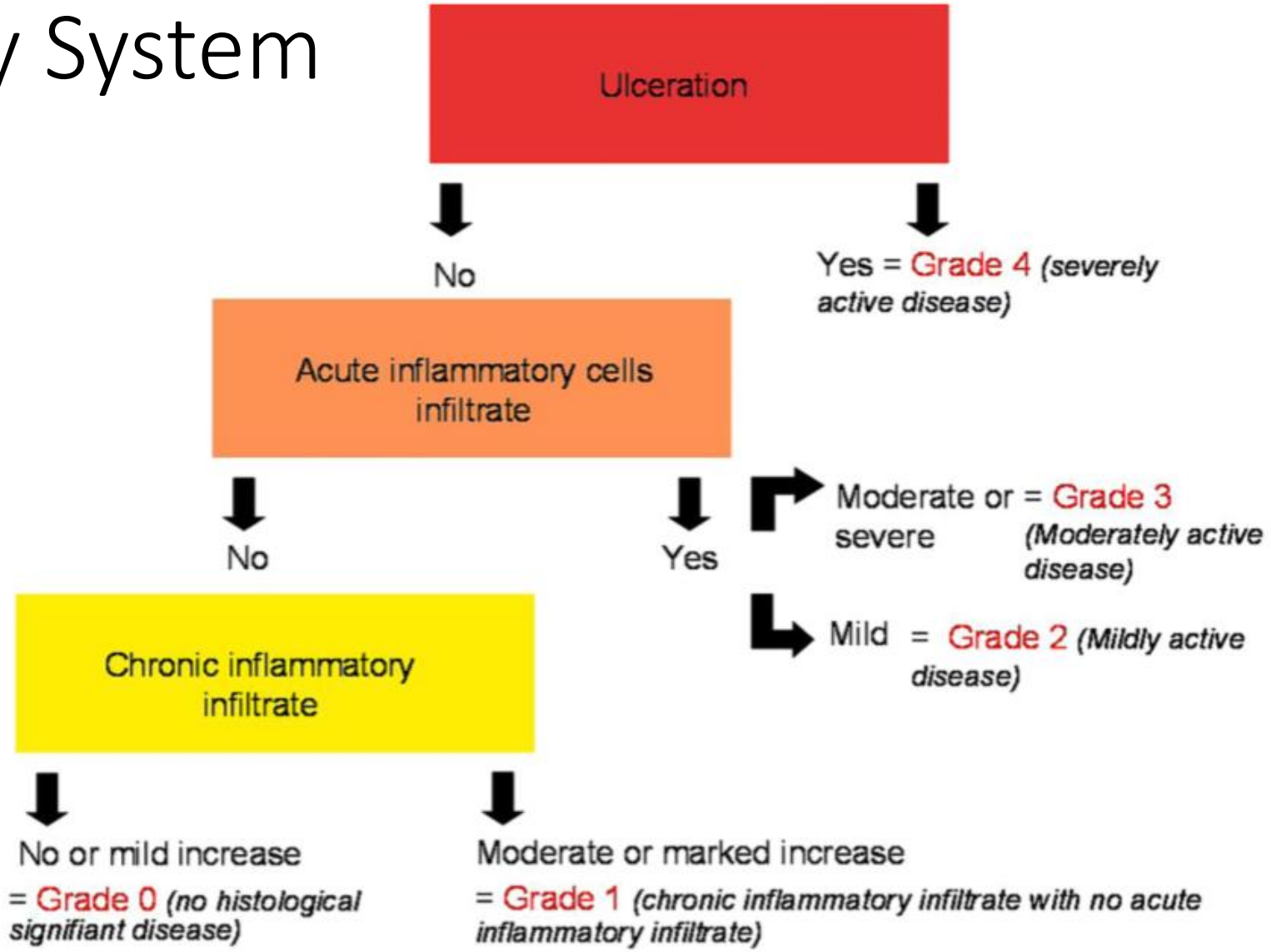
*Electronically signed out by Kurt Schaberg M.D.*

**What do these mean?!**
**How *much* inflammation is there?**
**Should I escalate treatment?**

# Histopathology Scoring Indices

- More than 30 systems have been proposed. Mostly for UC.
- Most involve some combination of:
  - Architectural Change
  - Chronic Inflammatory Infiltrate
  - Lamina Propria Neutrophils
  - Lamina Propria Eosinophils
  - Epithelium Neutrophils
  - Crypt Destruction
  - Erosion/ Ulceration
  - Basal Plasmacytosis
  - Mucin depletion

# The Nancy System




Marchal-Bressenot A, *et al*. *Gut* 2017;**66**:43–49.

# The Robart's Histologic Index

$$\begin{aligned}\text{RHI} = {} & 1 \times \text{chronic inflammatory infiltrate level (4 levels)} \\ & + 2 \times \text{lamina propria neutrophils (4 levels)} \\ & + 3 \times \text{neutrophils in epithelium (4 levels)} \\ & + 5 \times \text{erosion or ulceration (4 levels after combining Geboes 5.1 and 5.2).}\end{aligned}$$

Minimum score = 0
Maximum score = 33

| Component |
|---|
| Intercept |
| Chronic inflammatory infiltrate |
| 0=No increase |
| 1=Mild but unequivocal increase |
| 2=Moderate increase |
| 3=Marked increase |
| Lamina propria neutrophils |
| 0=None |
| 1=Mild but unequivocal increase |
| 2=Moderate increase |
| 3=Marked increase |
| Neutrophils in epithelium |
| 0=None |
| 1=<5% crypts involved |
| 2=<50% crypts involved |
| 3=>50% crypts involved |
| Erosion or ulceration |
| 0=No erosion, ulceration or granulation tissue |
| 1=Recovering epithelium+adjacent inflammation |
| 1=Probable erosion—focally stripped |
| 2=Unequivocal erosion |
| 3=Ulcer or granulation tissue |

Mosli MH, *et al*. *Gut* 2017;**66**:50–58.

# The Geboes score

**Table 2.** The proposed Simplified Geboes Score.

| | |
|---|---|
| Grade 0: No inflammatory activity | 0.0 No abnormalities<br>0.1 Presence of architectural changes<br>0.2 Presence of architectural changes and chronic mononuclear cell infiltrate |
| Grade 1: Basal plasma cells | 1.0 No increase<br>1.1 Mild increase<br>1.2 Marked increase |
| Grade 2A: Eosinophils in lamina propria | 2A.0 No increase<br>2A.1 Mild increase<br>2A.2 Marked increase |
| Grade 2B: Neutrophils in lamina propria | 2B.0 No increase<br>2B.1 Mild increase<br>2B.2 Marked increase |
| Grade 3: Neutrophils in epithelium | 3.0 None<br>3.1 < 50% crypts involved<br>3.2 > 50% crypts involved |
| Grade 4: Epithelial injury [in crypt and surface epithelium] | 4.0 None<br>4.1 Marked attenuation<br>4.2 Probable crypt destruction: probable erosions<br>4.3 Unequivocal crypt destruction: unequivocal erosion<br>4.4 Ulcer or granulation tissue |

*Journal of Crohn's and Colitis*, 2017, 305–313

**Table 1.** The original Geboes Score.

| | |
|---|---|
| Grade 0: Architectural changes | 0.0 No abnormality<br>0.1 Mild abnormality<br>0.2 Mild/moderate diffuse or multifocal abnormalities<br>0.3 Severe diffuse or multifocal abnormalities |
| Grade 1: Chronic inflammatory infiltrate | 1.0 No increase<br>1.1 Mild but unequivocal increase<br>1.2 Moderate increase<br>1.3 Marked increase |
| Grade 2A: Eosinophils in lamina propria | 2A.0 No increase<br>2A.1 Mild but unequivocal increase<br>2A.2 Moderate increase<br>2A.3 Marked increase |
| Grade 2B: Neutrophils in lamina propria | 2B.0 No increase<br>2B.1 Mild but unequivocal increase<br>2B.2 Moderate increase<br>2B.3 Marked increase |
| Grade 3: Neutrophils in epithelium | 3.0 None<br>3.1 < 5% crypts involved<br>3.2 < 50% crypts involved<br>3.3 > 50% crypts involved |
| Grade 4: Crypt destruction | 4.0 None<br>4.1 Probable: local excess of neutrophils in part of the crypts<br>4.2 Probable: marked attenuation<br>4.3 Unequivocal crypt destruction |
| Grade 5: Erosions and ulcerations | 5.0 No erosion, ulceration or granulation tissue<br>5.1 Recovering epithelium + adjacent inflammation<br>5.2 Probable erosion: focally stripped<br>5.3 Unequivocal erosion<br>5.4 Ulcer or granulation tissue |

# Which to use?

- No current standard.
- For UC, the Nancy Index and the Robarts Histopathology Index have undergone the *most* validation.
- However, none of the currently available histologic scoring indices have been *fully* validated.
- In CD, there are fewer systems and even less validation.
- There are no systems that have been validated in both diseases.

COLLEGE of AMERICAN PATHOLOGISTS

# CAP electronic Cancer Protocols




**Reporting Template**
**Protocol Posting Date: June 2022**
**Select a single response unless otherwise indicated.**

**CASE SUMMARY: (COLON AND RECTUM: Resection, Including Transanal Disk Excision of Rectal Neoplasms)**
**Standard(s)**: AJCC-UICC 8

**SPECIMEN**

**Procedure**
___ Right hemicolectomy
___ Transverse colectomy
___ Left hemicolectomy
___ Sigmoidectomy
___ Low anterior resection
___ Total abdominal colectomy
___ Abdominoperineal resection
___ Transanal disk excision (local excision)
___ Endoscopic mucosal resection
___ Other (specify): _____
___ Not specified

**Macroscopic Evaluation of Mesorectum (required for rectal cancers) (Note A)**
___ Not applicable
___ Complete
___ Near complete
___ Incomplete
___ Cannot be determined: _____

**TUMOR**

**Tumor Site (Note B) (select all that apply)**
___ Cecum: _____
___ Ileocecal valve: _____
___ Ascending colon: _____
___ Hepatic flexure: _____
___ Transverse colon: _____
___ Splenic flexure: _____
___ Descending colon: _____
___ Sigmoid colon: _____
___ Rectosigmoid: _____
___ Rectum: _____
**+Rectal Tumor Location (applicable only to rectal primaries) (Note B)**
___ Entirely above anterior peritoneal reflection
___ Entirely below anterior peritoneal reflection
___ Straddles anterior peritoneal reflection

# A “Colitis” Synoptic Checklist

| | Metric | Scoring |
|---|---|---|
| **Activity** | | |
| | Lamina Propria Neutrophils * | Marked (3) |
| | Cryptitis/Crypt abscesses (Neutrophils in Epithelium) * | >50% crypts (3) |
| | Erosion/Ulcers * | Probable erosion (1) |
| **Chronicity** | | |
| | Chronic Inflammatory Infiltrate* | Mild (1) |
| | Basal Lymphoplasmacytosis | None (0) |
| | Architectural distortion and/or metaplasia | None (0) |
| **Additional Findings** | | |
| | Granulomas | Absent |
| | Viral cytopathic effect | Absent |
| | Dysplasia | Negative |
| | Robart’s Activity Index | 15/33 |

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# EDITORIAL

## It Is All in the Fine Print: A Call for a Histopathology Checklist for IBD

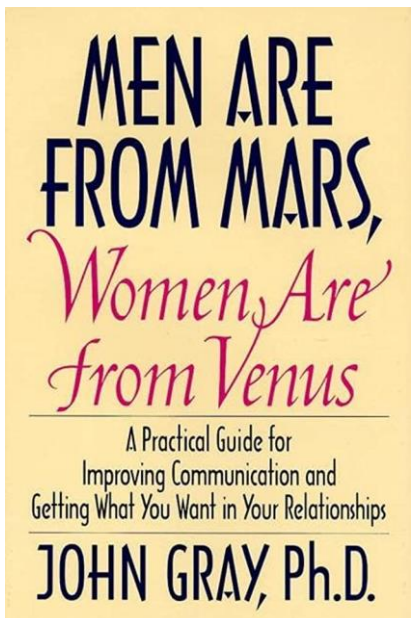

Although recurrence after a curative ileocecal resection is the norm rather than the exception in patients with Crohn's disease (CD), there is enough heterogeneity in the timing and severity of recurrence to make management of CD in this setting both nuanced and individualized.[1,2] Two decades ago when medical options were limited and we had yet to fully recognize the importance of early intervention to maximize effectiveness of treatments, management of CD after a curative resection involved either continuation of the same previously ineffective therapy or a "wait-and-watch" approach that monitored for symptomatic recurrence to reinitiate treatment. However, fundamental advances made in the past decade have increase in risk of clinical recurrence, although the effect on surgical recurrence was less striking. Notably, the severity of plexitis did not influence risk of recurrence. Nineteen studies contributing to nearly 2000 patients noted that granulomas were associated with an increase in risk of both clinical (RR, 1.31) and endoscopic (RR, 1.37) recurrence.

As with any meta-analysis, the granularity of results is limited by the depth of data from the included studies. It remains unclear to what extent these histologic features independently predict the outcomes over and above the risk group conferred by the established clinical risk factors. Are these features additive or overlapping? The design of the studies makes it difficult to estimate the independent absolute increase in risk associated with the presence of each of these individual features, which is essential before incorporating these factors into a decision algorithm. Before the histopathologist incorporates features such as myenteric plexitis in the routine practice, we would need to define the

# Clinicians Are From Mars and Pathologists Are From Venus

## Clinician Interpretation of Pathology Reports

*Seth M. Powsner, MD; José Costa, MD; Robert J. Homer, MD, PhD*




Arch Pathol Lab Med—Vol 124, July 2000

Y A L E - N E W H A V E N H O S P I T A L
A N A T O M I C P A T H O L O G Y R E P O R T

Patient: _____ Service: UROLOGY DEPT(YNHH)
Hospital # 1234567 Path # S94-12345
Birthdate: 02/08/28 (Age: 66)
Sex: M Physician: _____
Accessioned on 08/30/94 UROLOGY 321 YPB
Reported on 09/01/94

Clinical Diagnosis and History:
CLINICAL IMPRESSION: PATIENT WITH BLADDER TUMOR AND
PROSTATIC NODULE.

Tissue Source:
Part 1: TUR TUMOR TRIGONE BLADDER
Part 2: TUR BASE BLADDER
Part 3: BIOPSY LEFT BASE PROSTATE ...

DIAGNOSIS:==========

1) BLADDER, TRIGONE, TRANSURETHRAL RESECTION:
-TRANSITIONAL CELL CARCINOMA, MODERATELY TO POORLY
DIFFERENTIATED, GRADE III/IV
-THE PATTERN OF GROWTH IS NODULAR AND PAPILLARY ...

2) BLADDER, BASE, TRANSURETHRAL RESECTION:
-TRANSITIONAL CELL CARCINOMA, POORLY DIFFERENTIATED,
GRADE IV/IV ...

Please answer the following questions concerning __(patient's)__ case.

**1)** Was carcinoma in situ identified? __Yes __No __Not stated in report

**2)** What was the pathologic staging? Invasion of
___Submucosa ___Superficial muscle
___Deep muscle ___Adjacent tissues
___Not stated in report

**3)** Was lympho-vascular invasion identified? __Yes __No __Not stated in report

**4)** Was the prostate biopsy adequate? __Yes __No __Not stated in report

**5)** Was there prostate cancer? __Yes __No __Not stated in report

**6)** How confident are you in your answers overall? (mark an X along the line)

0 2 4 6 8 10

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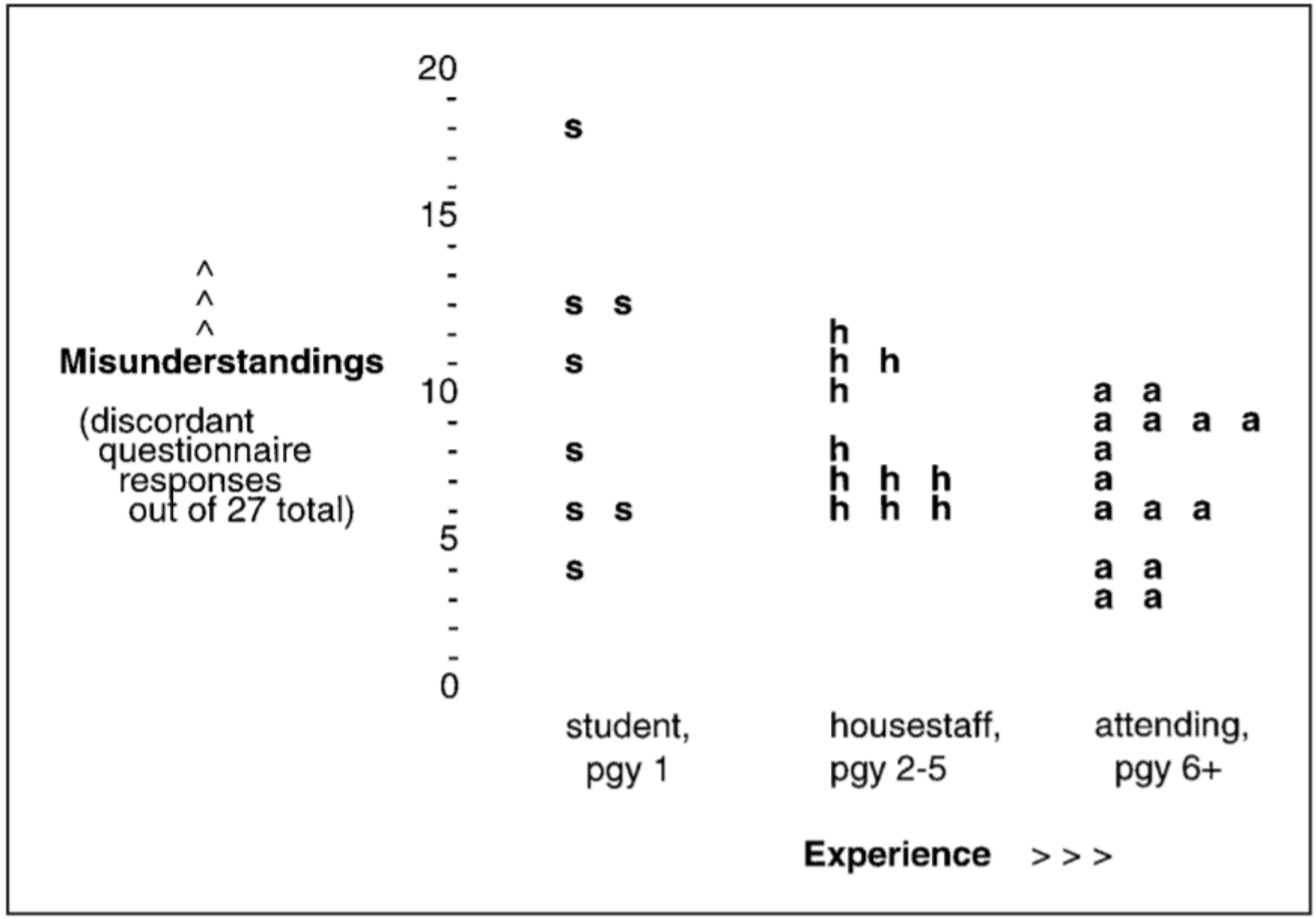
confident unsure




**Surgeons misunderstood pathologists' reports**

**30% of the time.**

Surgical experience reduced but did not eliminate the problem.

***Sample Pathology Report #1:***

**A. ILEUM, TERMINAL, (BIOPSY)**
**- Small bowel mucosa with erosion, cryptitis, pyloric gland metaplasia, and granulomas**

**B. COLON, ASCENDING, (BIOPSY)**
**- Colonic mucosa with no significant histopathologic abnormality**

**C. COLON, TRANSVERSE, (BIOPSY)**
**- Colonic mucosa with erosion, acute cryptitis, and crypt distortion**

**D. COLON, DESCENDING, (BIOPSY)**
**- Colonic mucosa with erosion, acute cryptitis, increased chronic inflammation, and crypt distortion**

**E. RECTUM, BIOPSY**
**- Colonic mucosa with focal acute cryptitis, crypt distortion, Paneth cell metaplasia, and focal pyloric gland metaplasia**

**COMMENT: All specimens are negative for dysplasia.**

Sample Pathology Report #2:

A. COLON, ASCENDING, (BIOPSY)
- Chronic active colitis with focal crypt abscess
- No granulomata, viral cytopathic effect, or dysplasia

B. COLON, TRANSVERSE, (BIOPSY)
- Chronic colitis with moderate activity (crypt abscesses)
- No granulomata, pathogenic organisms or dysplasia

C. COLON, DESCENDING, (BIOPSY)
- Chronic colitis with mild activity
- Indefinite for dysplasia
- No granulomata or pathogenic organisms

D. RECTUM, BIOPSY
- Chronic colitis with moderate activity (crypt abscesses)
- No granulomata, pathogenic organisms or dysplasia

**Figure 1. Inflammatory bowel disease pathology comprehension questionnaire**

For patient XXXX,

1) Is there active inflammation on histology?
____ Yes ____ No ____ Maybe

2) Is there chronic inflammation on histology?
____ Yes ____ No ____ Maybe

3) Are there histologic findings representative of IBD?
____ Yes ____ No ____ Maybe

4) Is there evidence of dysplasia?
____ Yes ____ No ____ There is a finding of "indefinite for dysplasia" ____ Unsure

5) Please rate your confidence in your answers overall:

| Not at all | Only slightly | Somewhat | Moderately comfortable | Very comfortable |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

***Sample Pathology Report #1:***

**A. ILEUM, TERMINAL, (BIOPSY)**
**- Small bowel mucosa with erosion, cryptitis, pyloric gland metaplasia, and granulomas**

**B. COLON, ASCENDING, (BIOPSY)**
**- Colonic mucosa with no significant histopathologic abnormality**

**C. COLON, TRANSVERSE, (BIOPSY)**
**- Colonic mucosa with erosion, acute cryptitis, and crypt distortion**

**D. COLON, DESCENDING, (BIOPSY)**
**- Colonic mucosa with erosion, acute cryptitis, increased chronic inflammation, and crypt distortion**

**E. RECTUM, BIOPSY**
**- Colonic mucosa with focal acute cryptitis, crypt distortion, Paneth cell metaplasia, and focal pyloric gland metaplasia**

**COMMENT: All specimens are negative for dysplasia.**

| Row | Metric | Scoring |
|---|---|---|
| ***Activity*** | | |
| A | Lamina Propria Neutrophils * | Moderate (2) |
| B | Cryptitis/Crypt abscesses (Neutrophils in Epithelium) * | <50% crypts (2) |
| C | Erosion/Ulcers * | Unequivocal erosion (2) |
| ***Chronicity*** | | |
| D | Chronic Inflammatory Infiltrate * | Moderate (2) |
| E | Basal Lymphoplasmacytosis | Moderate (2) |
| F | Architectural distortion and/or metaplasia | Mild (1) |
| ***Additional Findings*** | | |
| G | Granulomas | Present |
| H | Viral cytopathic effect | Absent |
| I | Dysplasia | Negative |
| K | **Robart's Activity Index** | 22/33 |

**Sample Pathology Report #2:**

**A. COLON, ASCENDING, (BIOPSY)**
- **Chronic active colitis with focal crypt abscess**
- **No granulomata, viral cytopathic effect, or dysplasia**

**B. COLON, TRANSVERSE, (BIOPSY)**
- **Chronic colitis with moderate activity (crypt abscesses)**
- **No granulomata, pathogenic organisms or dysplasia**

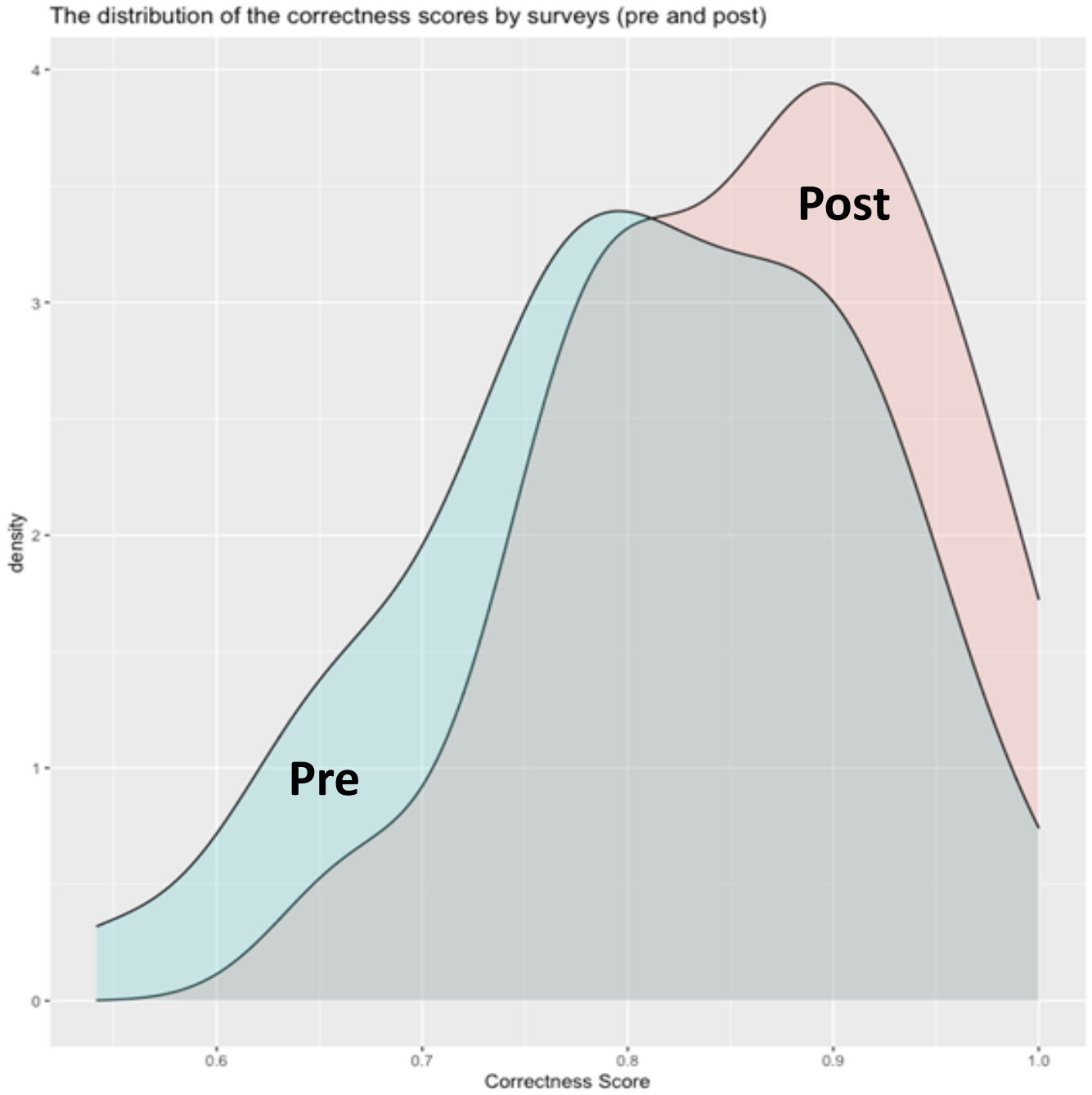
**C. COLON, DESCENDING, (BIOPSY)**
- **Chronic colitis with mild activity**
- **Indefinite for dysplasia**
- **No granulomata or pathogenic organisms**

**D. RECTUM, BIOPSY**
- **Chronic colitis with moderate activity (crypt abscesses)**
- **No granulomata, pathogenic organisms or dysplasia**

| Row | Metric | Scoring (report view) |
|---|---|---|
| ***Activity*** | | |
| A | Lamina Propria Neutrophils * | Moderate (2) |
| B | Cryptitis/Crypt abscesses (Neutrophils in Epithelium) * | <50% crypts (2) |
| C | Erosion/Ulcers * | None (0) |
| ***Chronicity*** | | |
| D | Chronic Inflammatory Infiltrate * | Moderate (2) |
| E | Basal Lymphoplasmacytosis | Mild (1) |
| F | Architectural distortion and/or metaplasia | Moderate (2) |
| ***Additional Findings*** | | |
| G | Granulomas | Absent |
| H | Viral cytopathic effect | Absent |
| I | Dysplasia | Indefinite |
| K | **Robart's Activity Index** | 12/33 |

# What did we find?

- Participants: 9 fellows and 30 attendings.
- Participants were in practice for a mean of 8.6 years and saw a mean of 12.6 IBD patients per month.
- **Mean accuracy scores were higher post-intervention** (0.81 vs 0.86, P = 0.0005).
- Mean confidence was higher post-intervention, but this was not statistically significant (3.91 vs 3.98, P = 0.242).



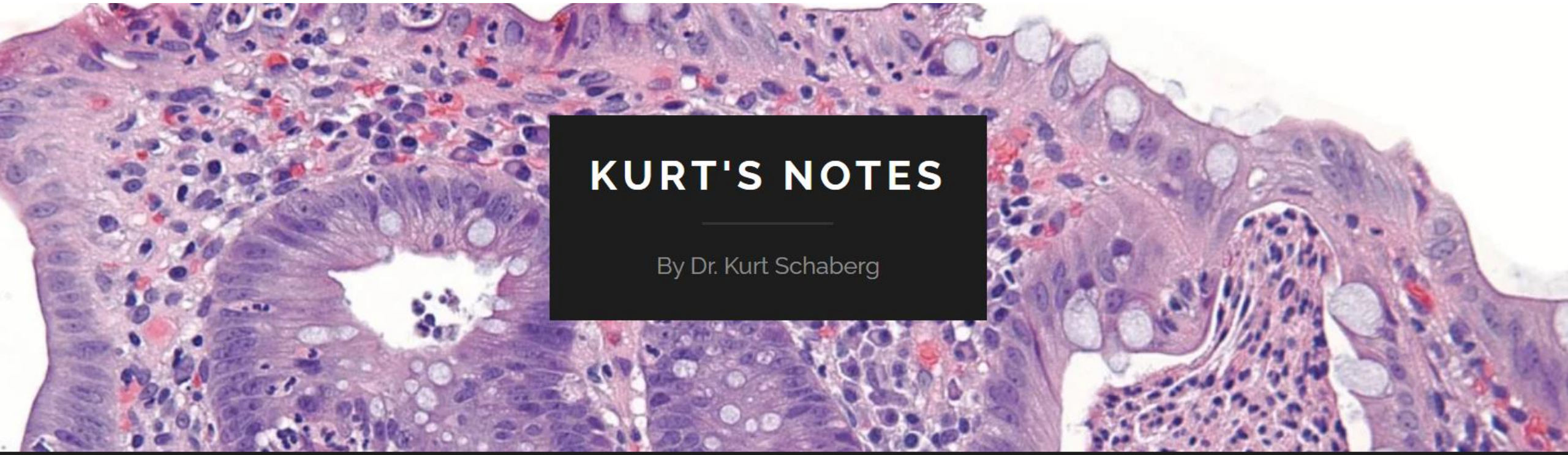
# Conclusions

- In IBD, histologic findings add useful clinical data that can predict disease relapse even in endoscopically normal patients.
- Comprehension of pathology reports by clinicians is imperfect, with up to 30% of findings misinterpreted.
- Reporting findings in standardized synoptic checklists appears to help with understanding reports.

# What we do now at UC Davis:

| ***Colitis Summary Table*** | | | | |
|---|---|---|---|---|
| | **Score** | | | |
| ***Acute Inflammation*** | | | | |
| **Cryptitis/Crypt abscesses** | None | <5% | <50% | >50% Crypts |
| **Ulceration** | Absent | Recovering epithelium | Probable erosion | Unequivocal erosion Ulcer/granulation tissue |
| ***Chronic Inflammation*** | | | | |
| **Chronic inflammatory infiltrate** | None | Mild Increase | Marked Increase | |
| **Basal lymphoplasmacytosis** | None | Mild | Marked | |
| **Architectural distortion/metaplasia** | None | Mild | Marked | |
| ***Other findings*** | | | | |
| **Granulomas** | Absent | Present | Equivocal | |
| **Viral Cytopathic effect** | Absent | Present | Equivocal | |
| **Dysplasia** | Negative | Indefinite | Low-grade | High-grade |

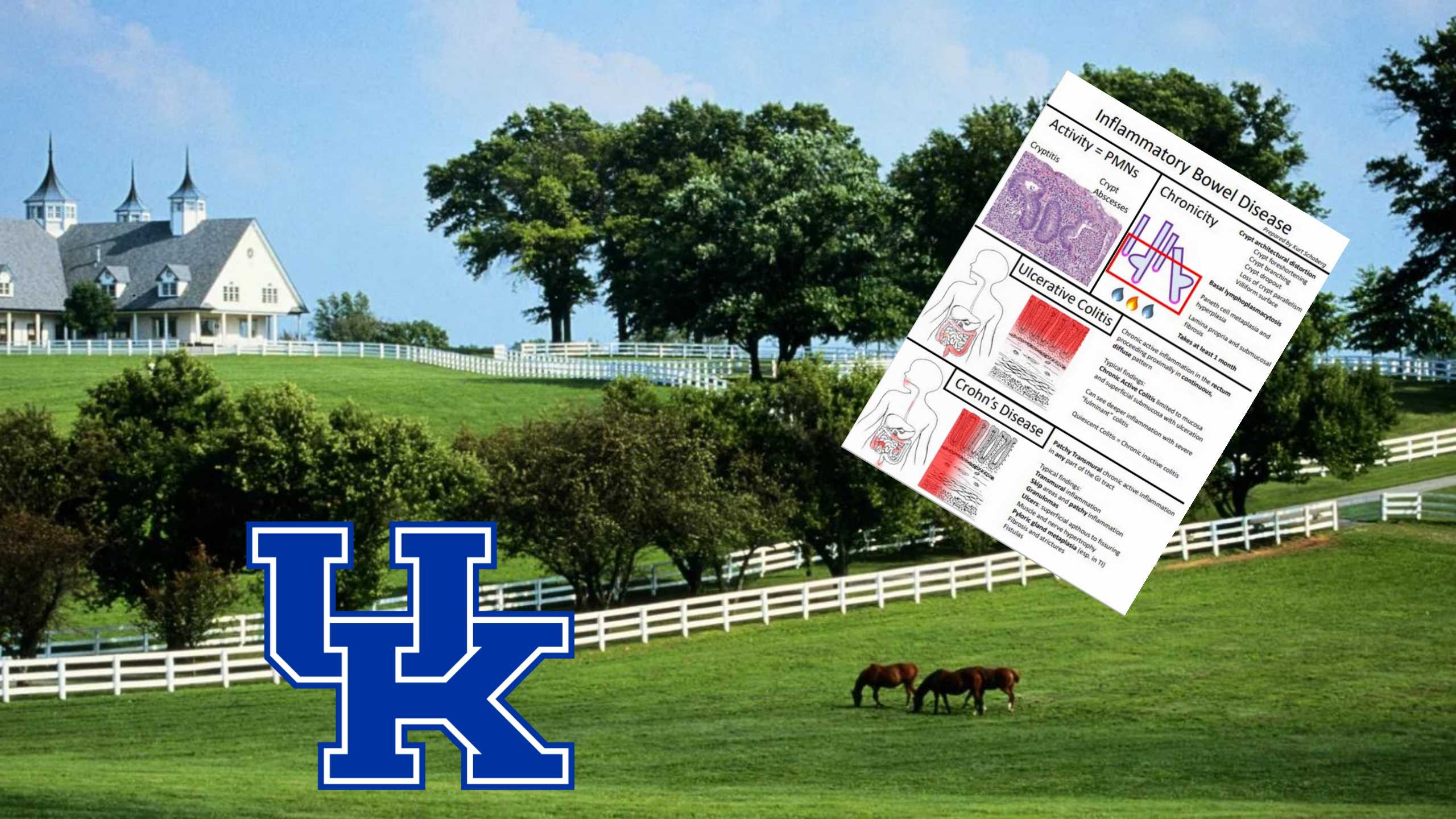
# Questions So Far?

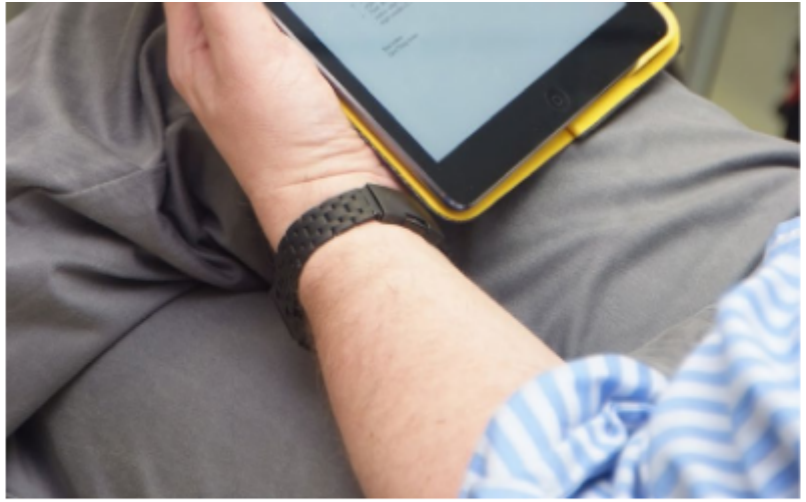


# KURT'S NOTES

By Dr. Kurt Schaberg


Prostate Acinar Adenocarcinoma
Gleason Grading
1
Circumscribed nodule of closely packed but separate, uniform, rounded to oval, medium-sized acini
2
Should not be diagnosed regardless of the type of specimen, with extremely rare exceptions
3
Fairly circumscribed, yet at the edge of the tumor nodule there may be minimal infiltration
Glands are more loosely arranged and not quite as uniform as Gleason pattern 1
Very rarely diagnosed
4
Well-formed glands (with lumina)
Separate, Non-fused
Infiltration
5
Ill-defined, poorly formed glands
Gland fusion
ALL cribriform glands
Hypernephromatoid
Glomerulations (possibly)
Ductal Adenocarcinoma
Often Disqualifies from Active Surveillance
Essentially no glandular differentiation:
solid sheets
cords
single cells
Comedocarcinoma with central necrosis


Inflammatory Bowel Disease
Prepared by Kurt Schoberg
Activity = PMNs
Cryptitis
Crypt Abscesses
Chronicity
Crypt architectural distortion
Crypt foreshortening
Crypt branching
Crypt dropout
Loss of crypt parallelism
Villiform surface
Basal lymphoplasmacytosis
Paneth cell metaplasia and hyperplasia
Lamina propria and submucosal fibrosis
Takes at least 1 month
Ulcerative Colitis
Chronic active inflammation in the rectum proceeding proximally in continuous, diffuse pattern
Typical findings:
Chronic Active Colitis limited to mucosa and superficial submucosa with ulceration
Can see deeper inflammation with severe "fulminant" colitis
Quiescent Colitis = Chronic inactive colitis
Crohn's Disease
Patchy Transmural chronic active inflammation in any part of the GI tract
Typical findings:
Transmural inflammation
Skip areas and patchy inflammation
Granulomas
Ulcers: superficial apthous to fissuring
Muscle and nerve hypertrophy
Pyloric gland metaplasia (esp. in TI)
Fibrosis and strictures
Fistulas



# Handouts 2.0: enhanced capabilities and continued relevance

**Kurt Schaberg**

Department of Pathology and Laboratory Medicine, University of Kentucky Medical Center, Lexington, Kentucky, USA

THE CLINICAL TEACHER 2019; 16: 636–638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By Dr. Kurt Schaberg
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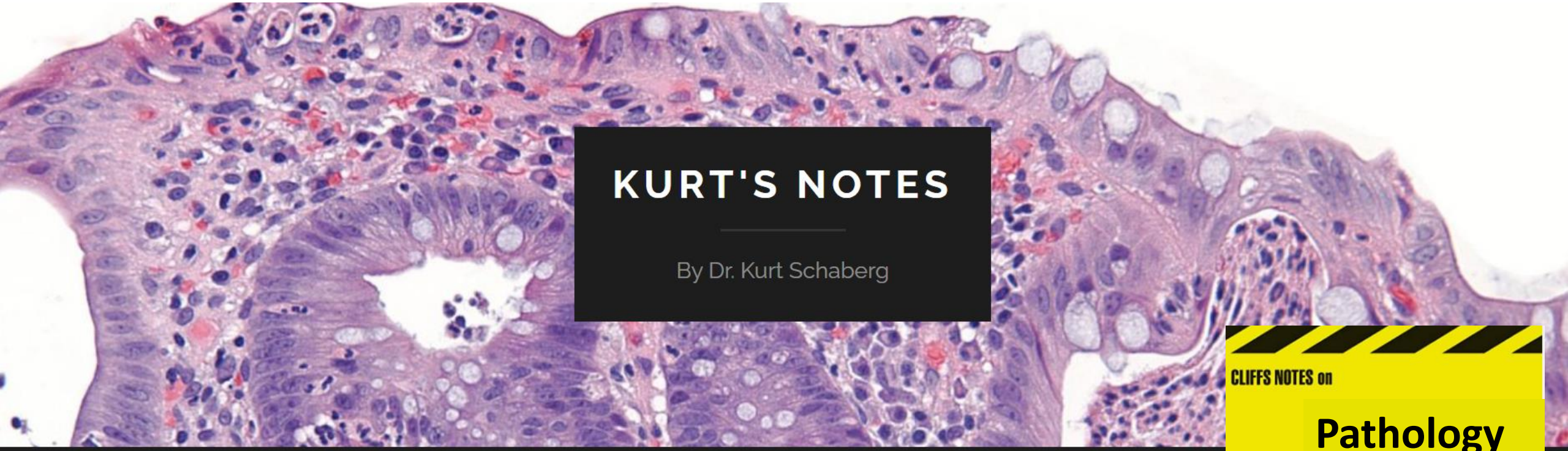
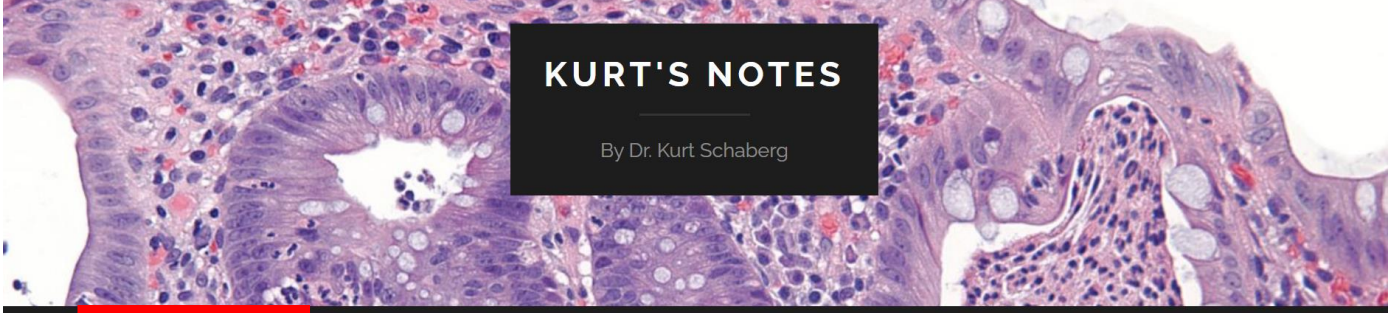




# http://kurtsnotes.net/




**>560 pages of guides**

DIAGNOSTIC GUIDES | REPORTING DIAGNOSES & COMMENTS | QUIZZES | ABOUT ME | LINKS | ARTICLES | BOOKS

*Last updated: 9/22/2020* *Prepared by Kurt Schaberg MD*

# Prostate Tumors

## Acinar Adenocarcinoma

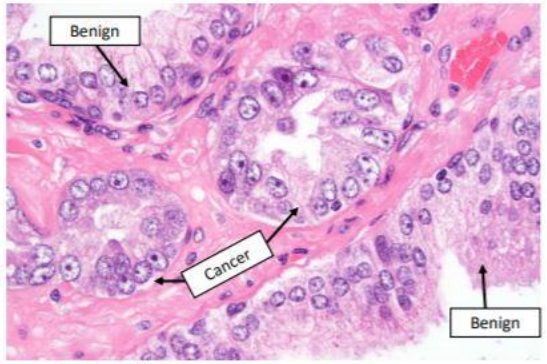
*(The most common/default type of "Prostate Cancer")*

An invasive adenocarcinoma consisting of neoplastic prostatic epithelial cells with secretory differentiation arranged in a variety of patterns, typically without basal cells.

**Most common cancer in men and second leading cause of cancer death in the U.S.A.**

Prevalence is strongly correlated with age (older = higher prevalence)
Majority are **multifocal**, often with 2-3 separate tumors in each prostate.
Most commonly located in **posterior/posterolateral peripheral** gland.
Early tumors are often asymptomatic. Locally advanced prostate cancer mimics BPH with urinary symptoms. Bone very common site of metastasis → bone pain and pathologic fractures

**Morphology:** Always use *multiple* features (there is no single feature to Dx!)




***Nuclear Features:***
- Prominent nucleoli
- Nuclear enlargement
- Nuclear hyperchromasia
- Mitotic figures
- Apoptotic bodies

***Cytoplasmic features:***
- Amphophilic cytoplasm
- Sharp luminal borders

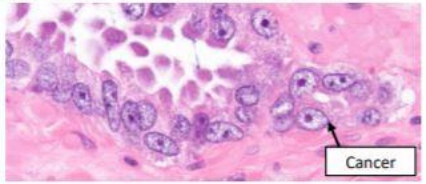
***Luminal contents:***
- Blue-tinged mucin
- Pink amorphous secretions
- Crystalloids

***Architecture:***
- Crowded small glands
- Linear row of atypical glands spanning the width of a core
- Small glands on both sides of a benign gland
- Haphazard, infiltrative pattern

***Absent basal cell layer*** (can highlight with IHC, as fibroblasts may mimic basal cells)

Usually lack desmoplastic stroma. When present, often associated with high-grade carcinoma.

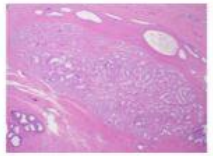
***Findings more common in benign glands:***
- Atrophic cytoplasm
- Merging with benign glands
- Corpora amylacea
- Inflammation
- Lipofuscin

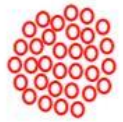



## Gleason Grading

*Based on architecture at low power (using 4x or 10x objective).*

**1**

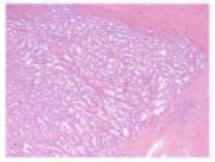




Circumscribed nodule of closely packed but separate, uniform, rounded to oval, medium-sized acini

Should **not** be diagnosed regardless of the type of specimen, with extremely rare exceptions

**2**

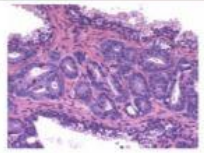


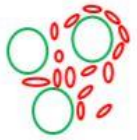
Fairly circumscribed, yet at the edge of the tumor nodule there may be minimal infiltration

**Do not diagnose on biopsy,** rarely diagnosed regardless of specimen.

Glands are more loosely arranged and not quite as uniform as Gleason pattern 1

**3**

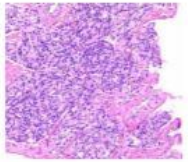




**Well-formed glands** ***(with lumina)***
Separate, discrete, Non-fused

**Infiltration**

**4**

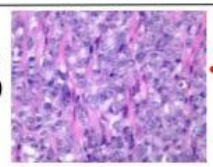


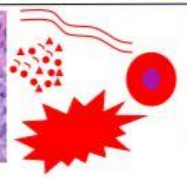
**Ill-defined, poorly formed glands**
**Gland fusion**
**ALL cribriform** glands
Hypernephromatoid
Glomerulations

Ductal Adenocarcinoma (without necrosis)

**Often Disqualifies from Active Surveillance**

**5**





Essentially **no glandular differentiation:**
- Solid sheets
- Cords
- Single cells
- Linear arrays

**Comedocarcinoma** with central necrosis

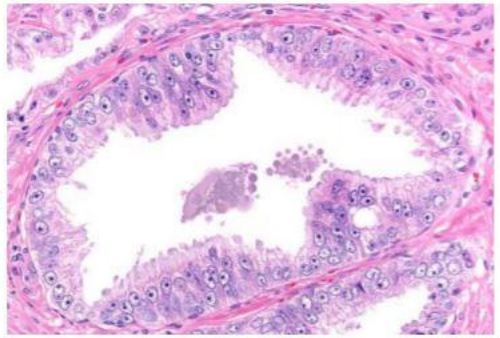
***Notes:*** Given the importance of distinguishing between patterns 3 and 4 for active surveillance, getting levels can be helpful to differentiate tangential sectioning of small well-formed glands (pattern 3) from poorly-formed glands (pattern 4).

## Intraductal Tumors

Non-invasive tumors growing within ducts

### High-grade Prostatic Intraepithelial Neoplasia ("HGPIN")

Pre-invasive neoplastic proliferation.
Often multifocal.



Cytologic changes resembling cancer:
- **Nuclear enlargement**
- **Prominent nucleoli**
- **Hyperchromasia**
- **Clumped chromatin**

Although non-invasive, basal cells may be patchy (so be careful interpreting IHC!)

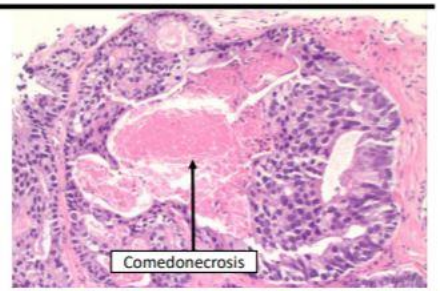
Four main architectures: tufting, micropapillary, cribriform, and flat

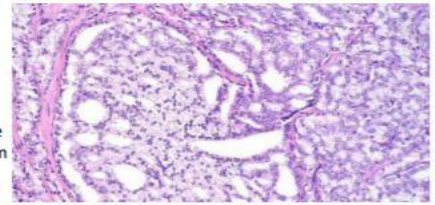
Often cytoplasmic AMACR staining

Clinical importance: associated with subsequent detection of cancer (more HGHPIN→ higher risk)

### Intraductal Carcinoma

***Diagnostic requirement:***
Malignant epithelial cells filling large acini and prostatic ducts, with preservation of basal cells with either:
- Solid or dense cribriform pattern, or
- A loose cribriform or micropapillary pattern with either:
  - Marked nuclear atypia (nuclei 6x normal or larger)
  - Comedonecrosis



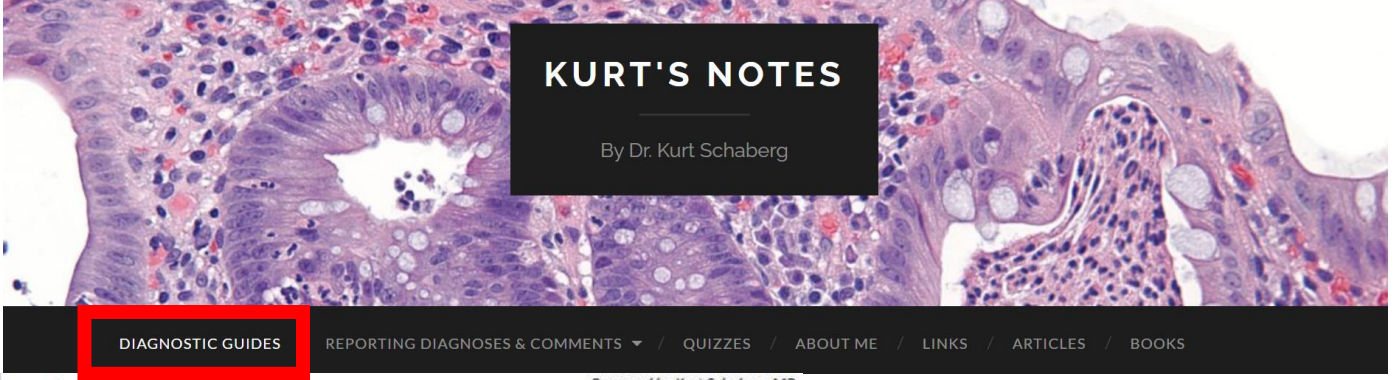



Can be seen in two scenarios:
1) Intraductal spread of a high-grade invasive cancer (majority of cases)
2) Distinct precursor lesion (separate from HGPIN) with high risk of progression to cancer

IHC often required for diagnosis to demonstrate basal cells. Can show loss of PTEN (rarely seen in HGPIN)

If seen on biopsy→ often treat with radical prostatectomy as highly associated with cancer and multiple adverse factors (high Gleason grade, high tumor volume, etc..). Sometimes repeat biopsy immediately.

If a lumen-spanning atypical lesion morphologically falls short of Intraductal Carcinoma, best to call "***Atypical Intraductal Proliferation***" and recommend immediate repeat biopsy.

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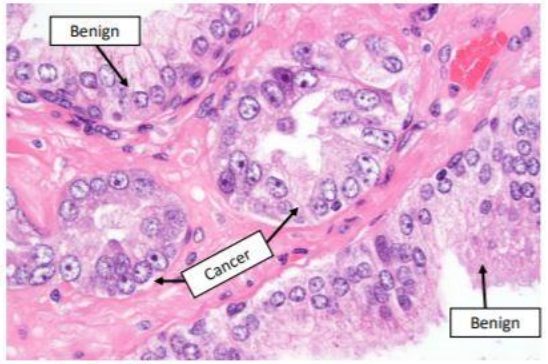


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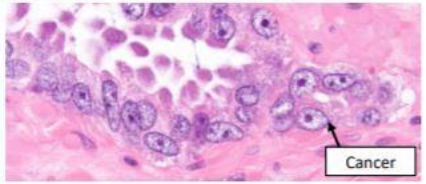
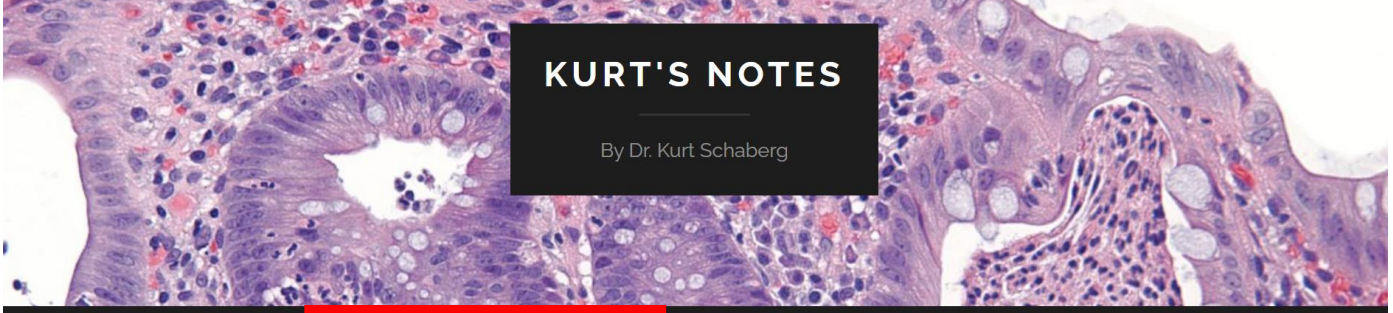



# Dual/Competing Goals

- **Boards studying**
  - Concise, High-yield
- **Useful at the scope daily**
  - Reference for common problems





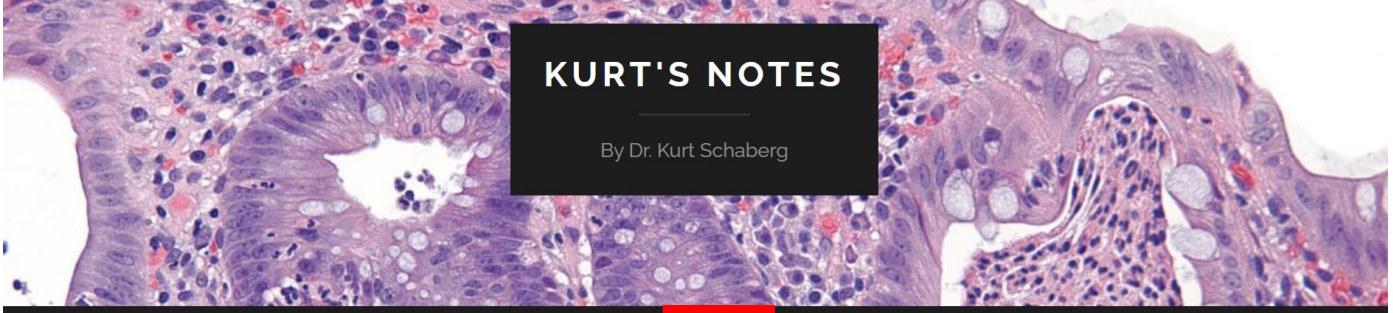

# Stomach

– Mild chronic gastritis

– Chronic active gastritis

– Helicobacter organisms identified

– Reactive (chemical) gastropathy






# Quizzes

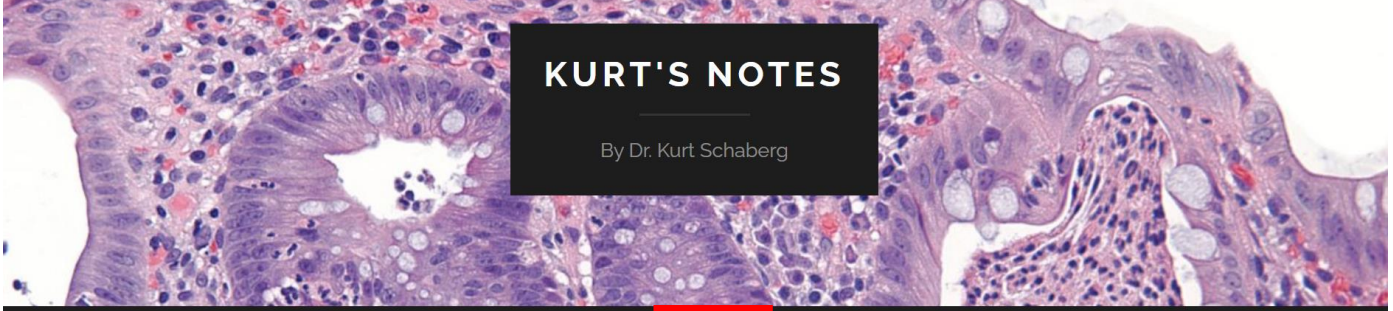
Here are some practice quizzes that I've made using the amazing PathPresenter website:

## Practice Board Exams (1/2 Length):

*Multiple choice, like the boards. Record your diagnoses on the website, which will grade your answers when you're done. You can then review your selections with the answer sheet after submission to see the answers to the questions you got wrong.*

*The real AP boards slide exam is 85 slides, for which you have 3.75 hours, so for each 43 question practice test, you should finish in a little less than 2 hours to be "on pace" for the real thing. Or, of course, you could try to do both in 3.75 hours.*

Exam #1






PathPresenter | Assessments | Practice Board Exam

Assessment Summary Attachments

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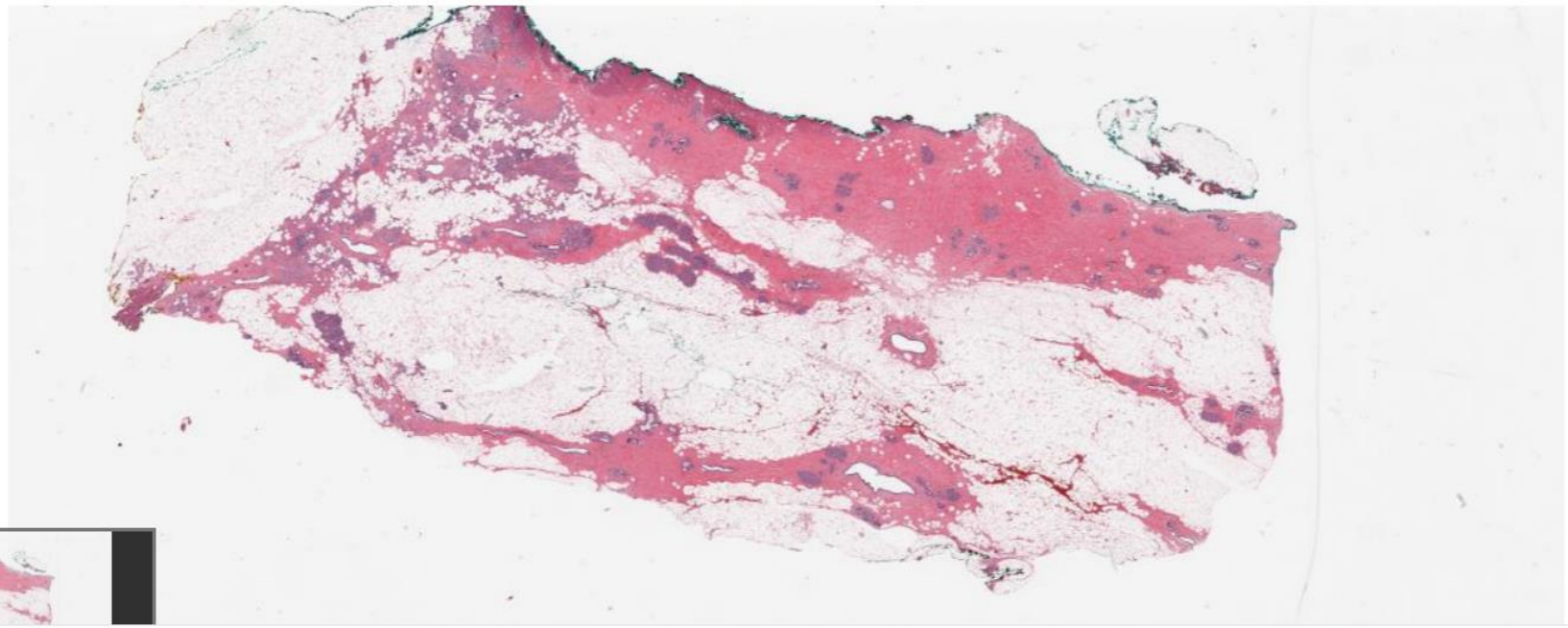

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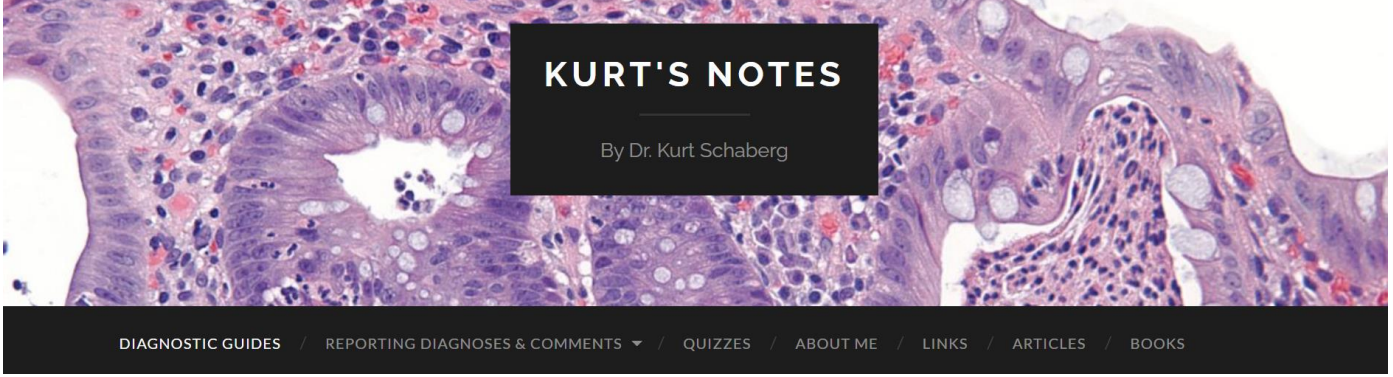
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20

Next

Answered Selected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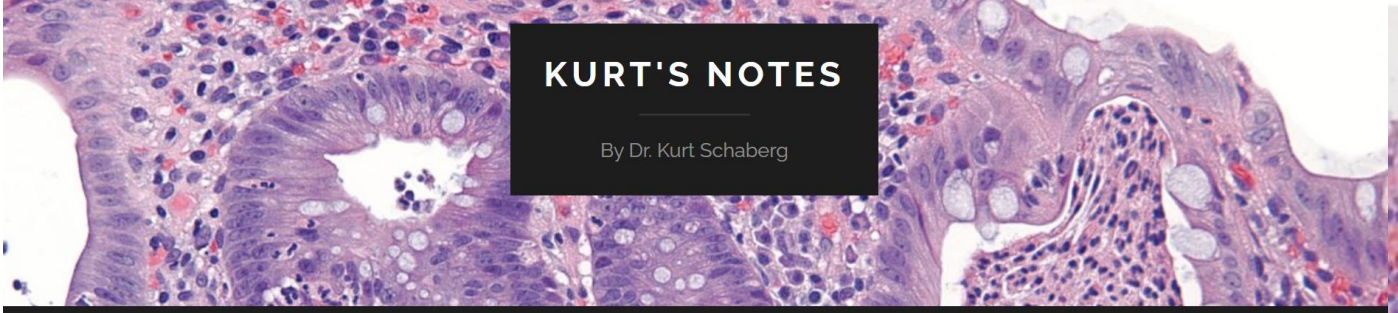
Analytics


Users
1,000
500
2020
2021

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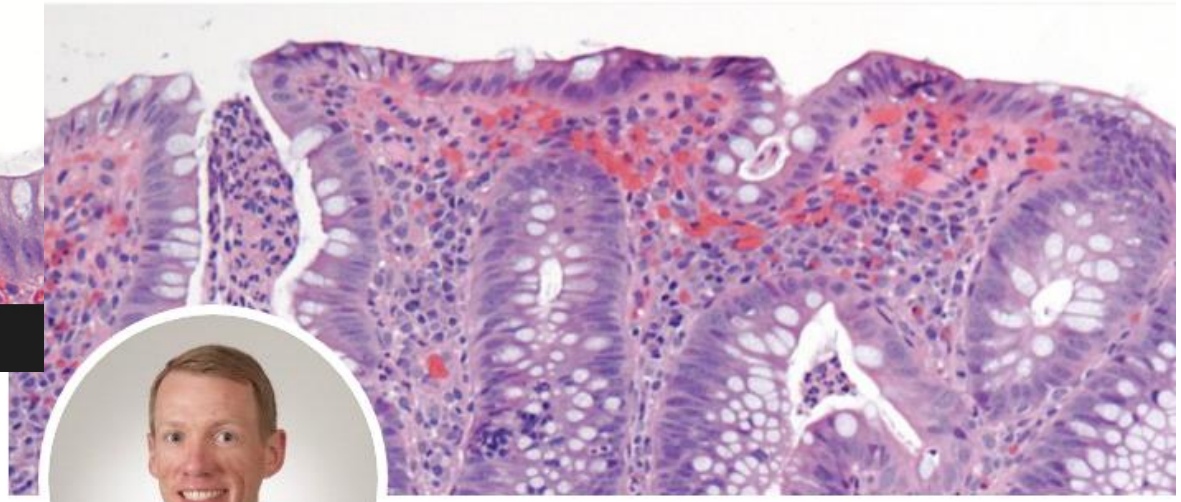
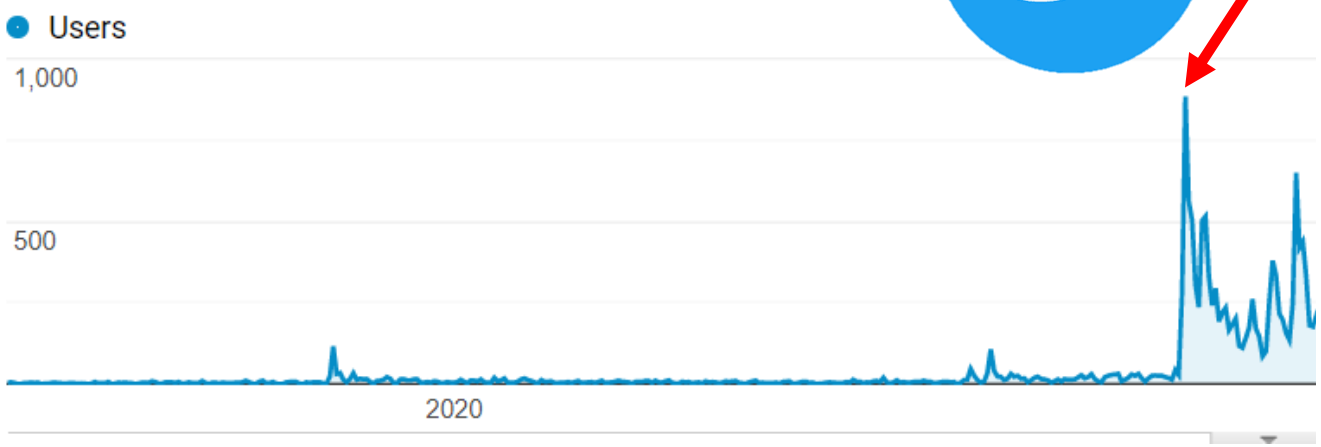




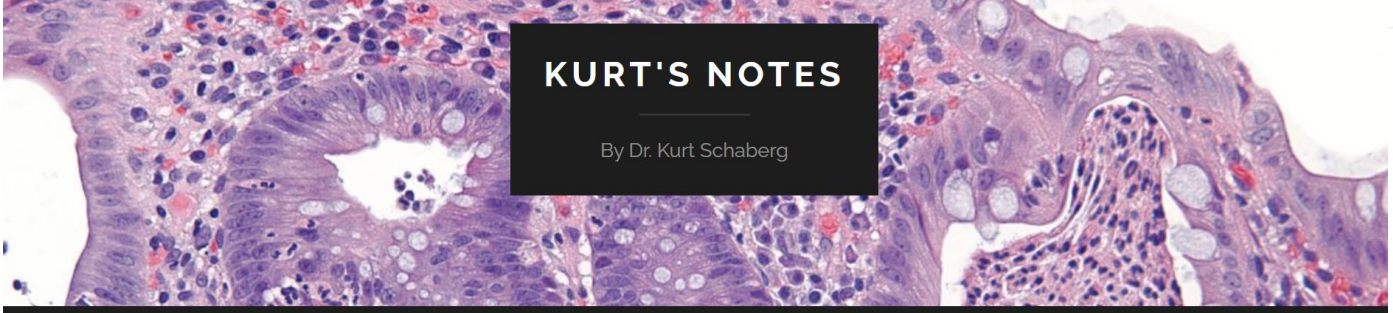



**Kurt Schaberg**
@KurtSchaberg

Assistant Professor UC Davis Dept. of Pathology
Associate Residency Program Director
Specializing in GI surgical pathology and cytopathology

Sacramento, CA kurtsnotes.net Joined January 2020

**674** Following **3,539** Followers

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**Karamatullah Danyal MD PhD** @KDanyal · Mar 5
Replying to @KurtSchaberg @VHNguyenMD and 3 others
Thank you so much. I utilized your notes my entire surgical pathology rotation. Even took printouts to sign out to defend my diagnoses. Amazingly helpful.
2

**Van-Hung Nguyen, MD FRCPC** @VHNguyenMD · Mar 4
Replying to @KurtSchaberg @SteveLongMD and 2 others
WOW! @McgillPathRes
2

**Leo Yenwongfai, MD, MS** @Leonard37319543 · Mar 7
Replying to @KurtSchaberg @VHNguyenMD and 3 others
Thank you
1

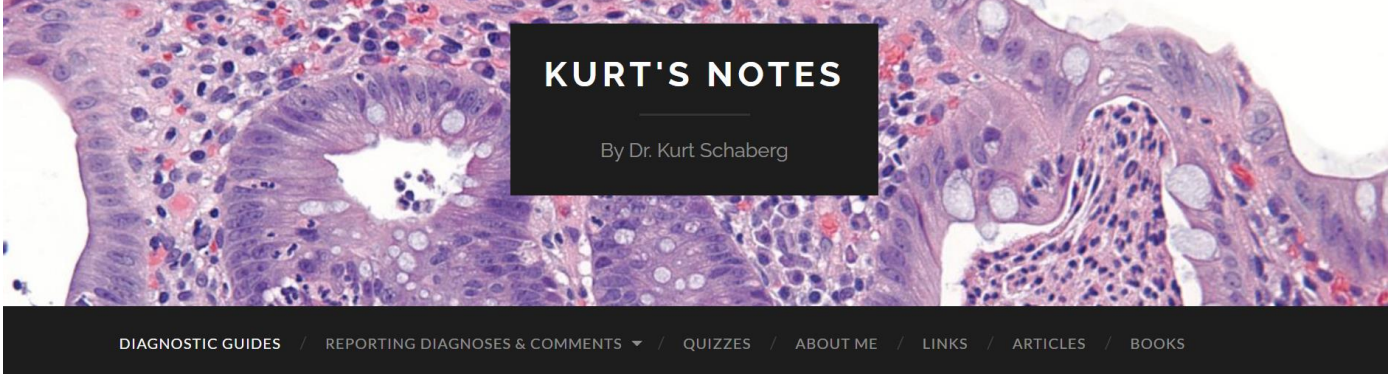
**Olaleke Folaranmi** @DrGeeONE · Aug 11
Replying to @KurtSchaberg
#PathTweetAward
1
3

**Van-Hung Nguyen, MD FRCPC** @VHNguyenMD · Aug 11
+1 🙌🙌🙌
2

**Pembe Oltulu, MD** @pembeoltulu · Aug 12
Replying to @KurtSchaberg
#pathtweetaward⭐
2

**Josh Segal, MD** @jsegalurmc · Aug 10
Replying to @KurtSchaberg
these are fantastic kurt, thank you!
1
2

**Kurt Schaberg** @KurtSchaberg · Aug 10
Thanks Josh!😎




Analytics

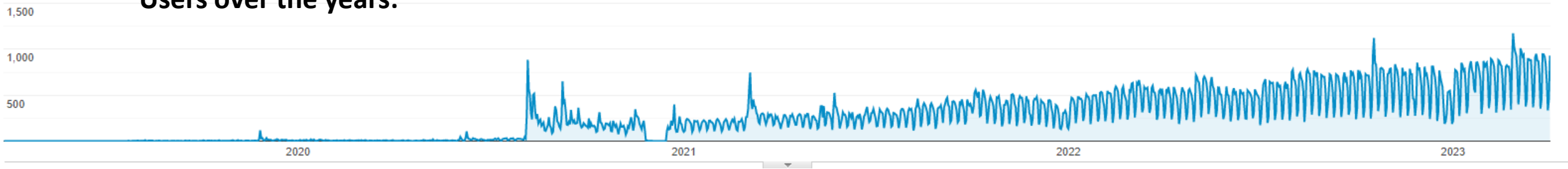
Overview

Users vs. Select a metric

Hourly Day Week Month

Users

## Users over the years:



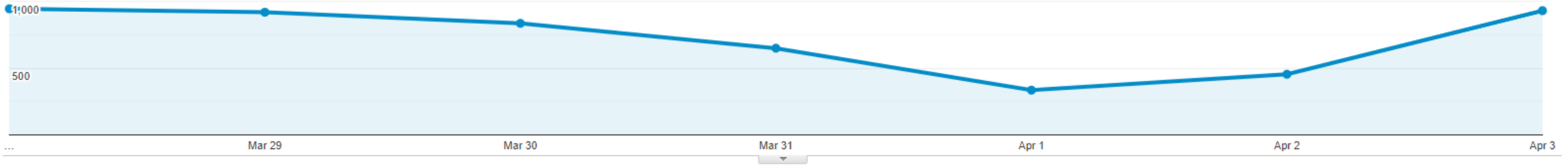

Overview

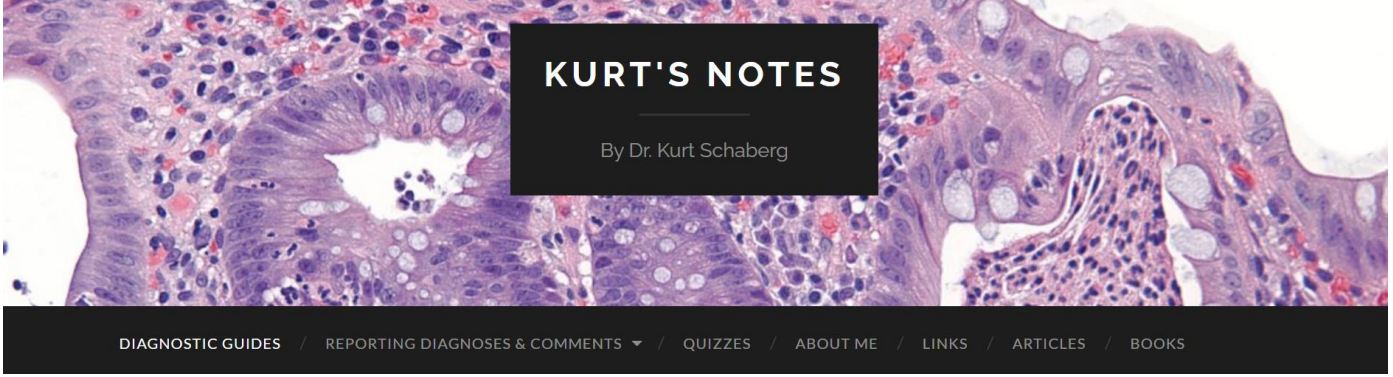
## Users in a week:

Users vs. Select a metric

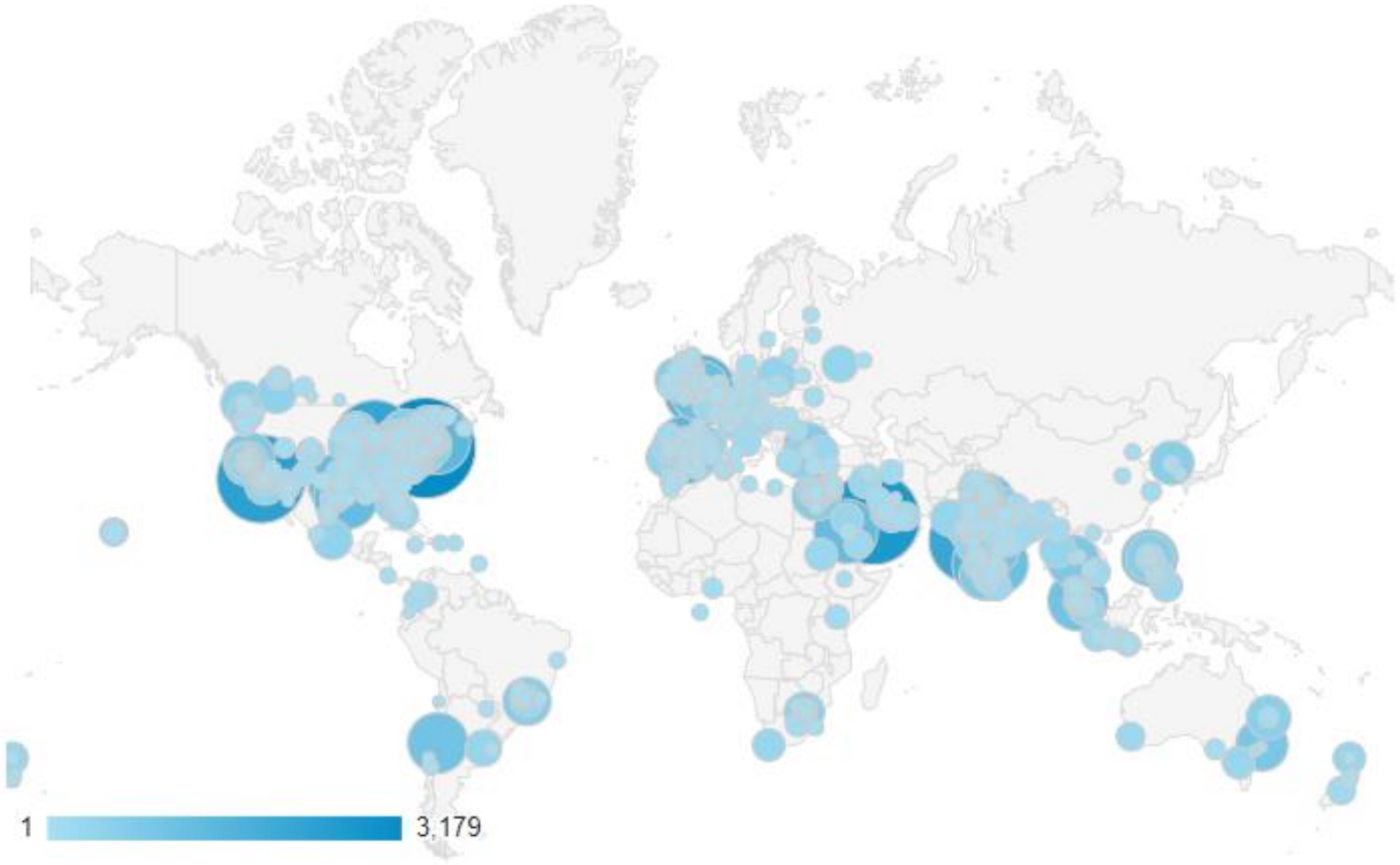
Hourly Day Week Month

Users



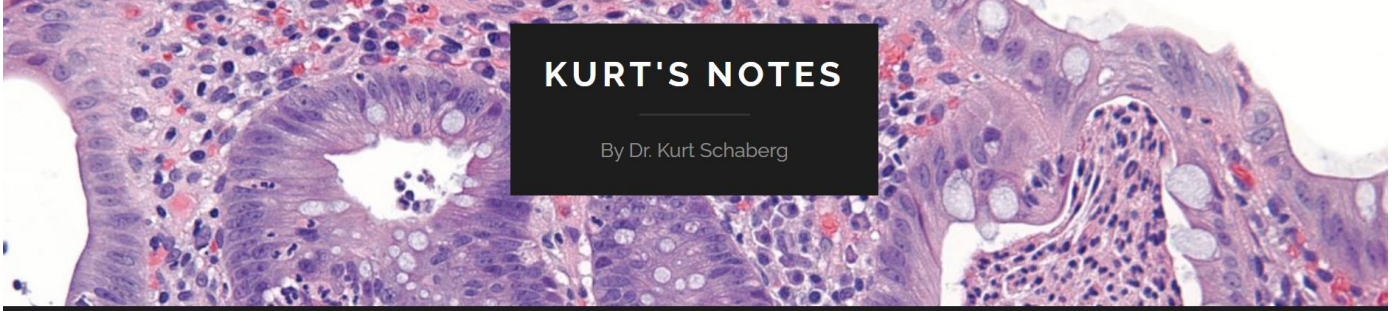



Analytics

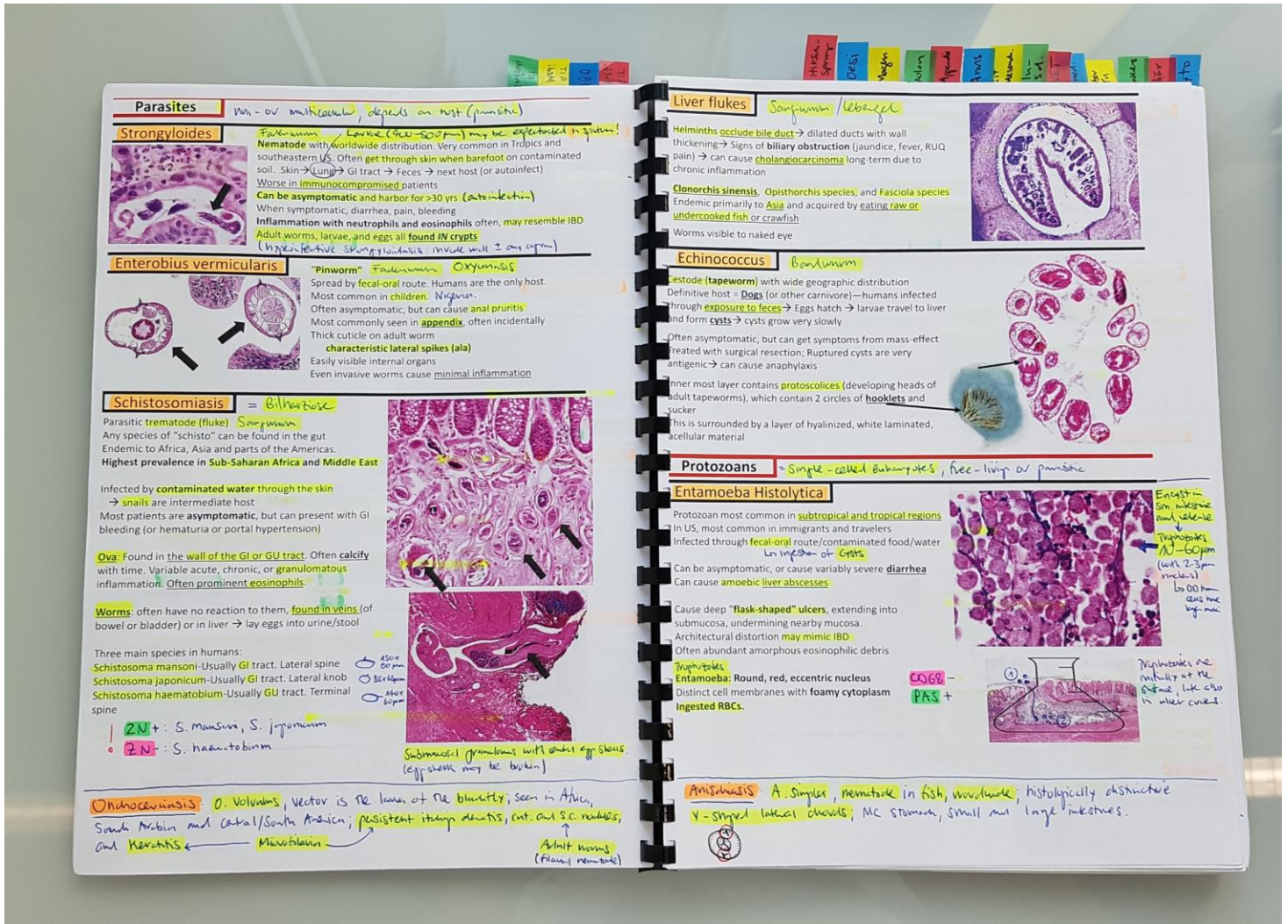



## Top Cities:

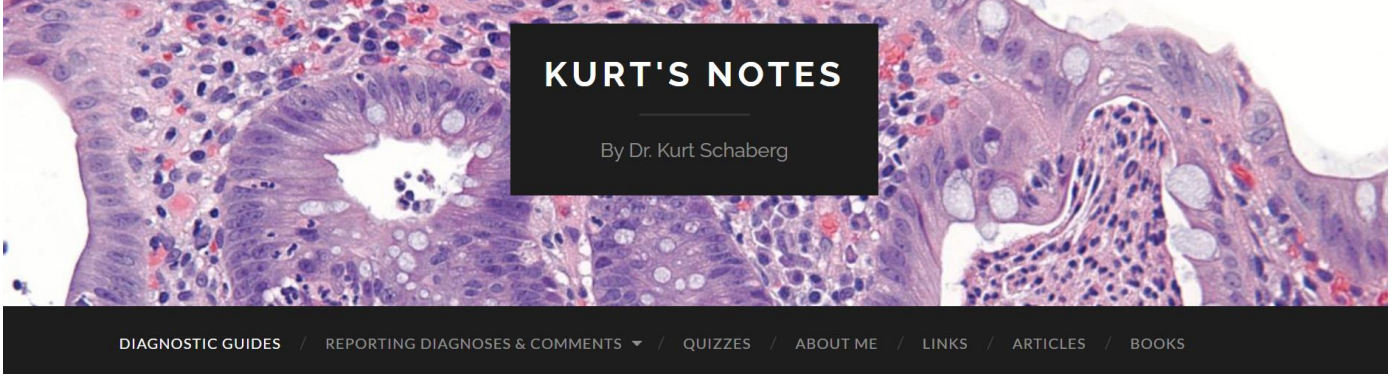
| | |
|---|---|
| 1. | (not set) |
| 2. | New York |
| 3. | London |
| 4. | Riyadh |
| 5. | Los Angeles |
| 6. | Chicago |
| 7. | Mumbai |
| 8. | Bengaluru |
| 9. | Madrid |
| 10. | Boston |





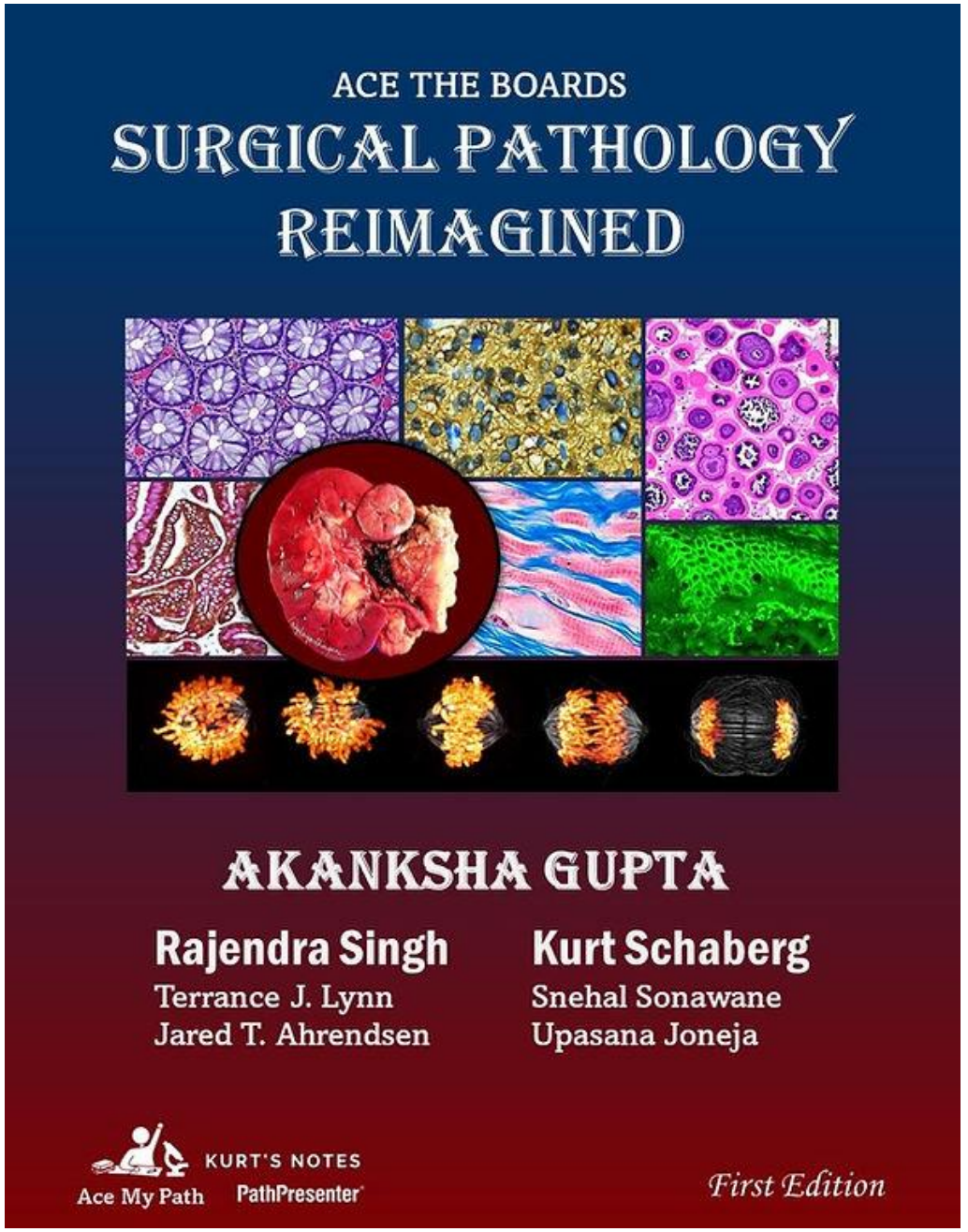

"That is very good."

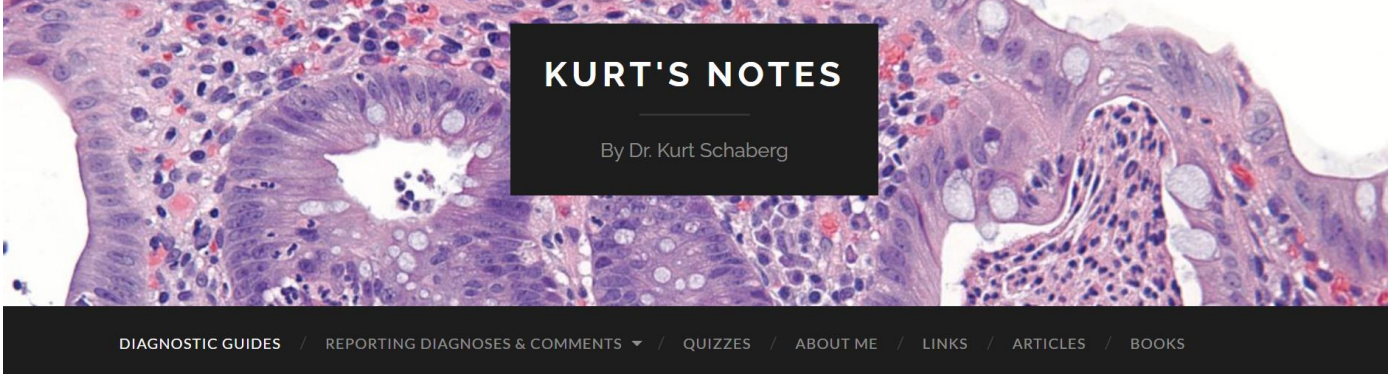



Anki Flashcards

SYNAPTIQ

The Flashcard Platform for Medical Education






# What next?

- Continue to update, improve, and expand existing pages
- Add more cytology
- Add sample gross descriptions?


# Thank you!

Questions?