Pathology of the ‘normal’ colon

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‘The normal colon has no pathology by definition’

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THE END
Plan

• Microscopic colitis
• Focal active colitis
• Patients with known IBD
• Colonoscopic biopsy audit
• Summary
Microscopic colitis

• Colonoscopy normal
  – Not always! Koulaouzidis & Saeed 2011
• Diagnosis on made on biopsy
• Lymphocytic colitis
• Collagenous colitis
  – May see features of both conditions in the same patient
Mucosal lesions
Microscopic colitis

• Profuse watery diarrhoea
• Normal architecture
• *Mild to moderate diffuse increase in lamina propria chronic inflammation*
  – Understand the normal chronic inflammatory cell population of the colonic mucosa
• Additional changes
Microscopic colitis

- Clinical correlations
  - Both F>M but especially collagenous colitis
  - 50s and 60s
  - Associated features otherwise similar
    - Autoimmune disease
    - Arthritis
    - Underlying causes
  - Are they part of the same spectrum?
Lymphocytic colitis

• Increase in intra-epithelial lymphocyte numbers
• Surface and crypt epithelium
• Upper limit of normal ~ 20 lymphocytes per 100 epithelial cells
Lymphocytic colitis
Collagenous colitis

• Thickening of subepithelial collagen plate
• Upper limit of normal ~10 microns
• Entrapment of capillaries
• Artefactual loss of surface epithelium
• Some increase in intra-epithelial lymphocyte number
Collagenous colitis
Collagenous colitis

- Variants – uncommon!
- Collagenous colitis with giant cells
- Granulomatous collagenous colitis
  - Don’t confuse with Crohn’s disease
- Pseudomembranous collagenous colitis
  - Don’t confuse with pseudomembranous colitis
Collagenous colitis
Microscopic colitis

• True incidence may be underestimated
• Cause unknown
  – Possible abnormal response to luminal antigens
    • Diverted colons improve e.g. Hartmann’s
  – Bile acids
  – Drugs: NSAIDs, SSRIs, beta-blockers, statins, PPIs
  – Infectious agents
Brainerd diarrhoea

First described in Brainerd, Minnesota in 1983
Brainerd diarrhoea

• First described in Brainerd, Minnesota in 1983
• Sudden onset watery diarrhoea
• 122 cases; 9 further similar outbreaks
  – Lasts weeks-months; no treatment
• Linked to raw milk or untreated water
• Indistinguishable from microscopic colitis

• *Is this evidence that some cases of microscopic colitis might have an infectious aetiology?*
Focal active colitis

- Normal architecture
- Patchy mild acute inflammation
  - Cryptitis
  - Crypt abscesses
- Is an accompanying patchy increase in chronic inflammation allowed?
Focal active colitis

- Normal architecture
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Focal active colitis
Focal active colitis

- Early inflammatory bowel disease
- (Resolving) infection
- Drugs e.g. NSAID
- Ischaemia
- Bowel preparation
- Sometimes no obvious cause


**The clinical significance of focal active colitis.**

Greenson JK, Stern RA, Carpenter SL, Barnett JL.

Department of Pathology, University of Michigan Medical Center, Ann Arbor
Focal active colitis

- 90 adults
- NSAIDs implicated in 24%
- 'Basal' FAC
- Infection probable cause in 19%
- IBD diagnosed subsequently in 16%
  - Mainly Crohn’s disease but 2 patients with UC
Patients with known IBD

- Inflammation may wax and wane in chronic IBD, often in partially treated disease.
- Colonoscopy may reveal minor changes or patchy inflammation.
- The colonoscopic and histopathological distributions of disease may not match.
- Biopsies from previously inflamed bowel segments may show normal appearances.

References:
  - Ulcerative colitis: patterns of involvement in colorectal biopsies and changes with time.
  - Kleer CG, Appelman HD.
  - Department of Pathology, University of Michigan Medical Center, Ann Arbor, USA.
Colonoscopic biopsy audit

- 717 cases retrieved over a 10 month period
- Histology & endoscopy reports correlated
- 308/717 described as endoscopically normal
- 278/308 showed normal/near normal biopsies
- 30 cases with abnormal biopsies
  - 9 cases of microscopic colitis
  - 6 cases had known IBD

New ways of working
Research: The endoscopically normal colon: when is mapping biopsy histopathologically justifiable?
V J Elliot, A C Bateman, B Green
Frontline Gastroenterol 2012;3:2 104-108 Published Online First: 1 December 2011
doi:10.1136/flgastro-2011-100023
Colonoscopic biopsy audit

- *Change in bowel habit*
- **Total** 260 cases – 145 endoscopically normal
- **132/145** normal histology/minor changes
  - 5 lymphocytic colitis
  - 3 melanosis coli
  - 1 inflammatory bowel disease & 1 ‘colitis’
  - 1 drug-related
  - 1 hyperplastic polyp!
Colonoscopic biopsy audit

- Known inflammatory bowel disease
- Total 110 cases – 17 endoscopically normal
- 11/17 normal histology/minor changes
  - 2 inflammatory bowel disease (UC)
  - 2 inflammatory bowel disease (NOS)
  - 1 ‘colitis’
  - 1 ‘proctitis’
Colonoscopic biopsy audit

• *Bright red rectal bleeding as only symptom*
• **Total** 53 cases – 12 endoscopically normal
• All showed normal histology/minor changes
Colonoscopic biopsy audit

- *Take-home messages*

- 90% of biopsies from patients with endoscopically normal mucosa showed normal/near normal appearances

- Most patients with significantly abnormal biopsies had change in bowel habit or known colonic disease

- Microscopic colitis & melanosis most common
Summary

• Important changes may be present in biopsies from patients with endoscopically normal colons

• ‘True’ microscopic colitis, very early IBD, infection

• In the presence of fresh rectal bleeding, biopsies from the ‘normal’ colon very rarely reveal significant pathology
What to try to avoid

• Patient presenting with fresh rectal bleeding
• Flexible sigmoidoscopy normal
  – Apart from sometimes describing the likely source of bleeding e.g. haemorrhoids...
• Mapping biopsies taken ‘to exclude microscopic colitis’
• Biopsies almost always normal!
• How do we stop this happening?
References

• Koulaouzidis A, Saeed AA. Distinct colonoscopy findings of microscopic colitis: not so microscopic after all? *World J Gastroenterol* 2011; **17**: 4157-4165

• Greenson JK, Stern RA, Carpenter SL, Barnett JL. The clinical significance of focal active colitis. *Hum Pathol* 1997; **28**: 729-733


• Kleer CG, Appelman HD. *Am J Surg Pathol* 1998; **22**: 983-989

• Elliot VJ, Bateman AC, Green B. The endoscopically normal colon: when is mapping biopsy histopathologically justifiable? *Frontline Gastroenterol* 2012; **3**: 104-108
THANKS FOR LISTENING