Microscopic colitis
Histological Classification

K. Geboes
Dept of Pathology, Univ Hospital, KULeuven, Belgium
Microscopic colitis : History

• 1993
  – Levison et al. Microscopic colitis cases revisited. Gastroenterology 1993; 105: 1594-6
Microscopic colitis is an “umbrella term” which covers any form of colitis in which there is histological but no endoscopical or radiological abnormality (Flejou & Bogomoletz; Levison et al. 1993)
Microscopic colitis
Normal endoscopy – Abnormal histology

• **Infections**
  – Spirochetosis
  – Post-dysenteric Irritable bowel syndrome
  – Miscellaneous : C. difficile

• **Drug-related colitis**
  – Pseudomelanosis coli
  – Drug-related lymphocytic and collagenous colitis
  – Miscellaneous
Microscopic colitis
Normal endoscopy – Abnormal histology
Intestinal Spirochetosis      CD3 staining
(Spiller e.a. Gut 2000; 47: 804)
Microscopic colitis

Normal endoscopy – Abnormal histology

Pseudomelanosis coli  Minimal change colitis
Microscopic colitis
Normal endoscopy – Abnormal histology

• Inflammatory bowel disease (Crohn & UC)
  – Minimal change colitis
  – Quiescent – inactive IBD
• Allergy-associated colitis
• Eosinophilic colitis / cryptitis
• Microscopic colitis
Microscopic colitis: Definition (2)

- Clinical features: Chronic intermittent course with watery diarrhoea, weight loss, abdominal pain …
- Routine blood tests: non-diagnostic
- Radiography: non-diagnostic
- Endoscopy: non-diagnostic
  - Erythema – oedema: +/- 30%
  - Mucosal tears: rare
- Histology: abnormal - characteristic
Microscopic colitis: Definition (3)

- **Endoscopy**
  - Normal
  - Oedema – erythema
  - Mucosal tears

- **Histology**
  - Abnormal
Microscopic colitis = 1 : Increased lamina propria cellularity
Lamina propria (LP) T lymphocyte counts per high power field (hpf) in 52 IBS patients with diarrheal symptoms. Lymphocyte scores increased with increasing frequency of diarrhea. *\( p = 0.04 \) vs 2 days/wk of loose stools. **\( p = 0.012 \) vs 2 days/wk of loose stools. (Dunlop e.a. Am J Gastroenterol 2003; 98; 1578)
Microscopic colitis
Histology

• Increase in lamina propria cellularity
  – Loss of normal gradient, accumulation of cells basally
  – Mononuclear cells (CD4+)
  – Eosinophils (collagenous colitis)
  – Neutrophils (uncommon)
Collagenous colitis (593950)
Microscopic colitis
Histology

Active crypt inflammation may be present
Microscopic colitis
Histology

- Diffuse Increase in number of intraepithelial lymphocytes (IELs)
  Lymphocytic colitis > 20 / 100 surface epithelial cells
Microscopic colitis

Histology

- (Diffuse) Increase in number of intraepithelial lymphocytes (IELs) (normal = 4; > 10 - > 20)
  - Lymphocytic colitis
  - Overlap with Collagenous colitis
  - Post-dysenteric IBS
  - IBD (focal increase in Crohn’s disease)
Microscopic colitis
Histology

• Subepithelial collagen layer
  – **Thickening** *(collagenous colitis)*
    > 10 micrometer (15-70)
    normal < 4 micrometer
  – **Composition**
    Collagen I, III, VI, tenascin
  – **Distribution**
    Patchy
    Thickening increases towards right side
    Rectum spared in 30% of cases
Microscopic colitis
Histology
Microscopic colitis
Histology

• Epithelial compartment
  – Surface epithelial cells
    • Flattening
    • Detachment
  – Crypt distortion
    • Uncommon
    • Focal (differential diagnosis with minimal change colitis)
  – Paneth cell metaplasia
Microscopic ileocolitis (1008693)
Microscopic colitis
Histology – Small Intestine

• Duodenal abnormalities in up to 70% (7% antiendomysial antibodies)
• Ileal abnormalities in up to 15%
• Primary Ileal villous atrophy
Microscopic colitis
Histology

TWO MAJOR SUBTYPES CAN BE DISTINGUISHED BASED ON THE

- PRESENCE OR ABSENCE OF THICKENED SUBEPITHELIAL COLLAGEN LAYER
- INCREASE OF IEL

- Overlap of features can be present
- Clinical differences support two types
Microscopic colitis
Normal endoscopy – Abnormal histology

• Collagenous colitis
  – Idiopathic
  – Drug-related
  – Infection-related
  – IBD-related

• Lymphocytic colitis
  – Idiopathic
  – Celiac disease related
  – Drug-related
  – Infection-related
    (Brainerd diarrhoea and other)
  – IBD-related
Celiac disease and colitis (634250)
Abnormalities present in up to 30% of patients
Microscopic colitis
Normal endoscopy – Abnormal histology

• Variants
  – Microscopic colitis with giant cells
  – Microscopic colitis with granulomatous inflammation
  – Pauci-IEL lymphocytic colitis
  – Pseudomembranous variant of collagenous colitis
  – Apoptotic colopathy
  – Microscopic colitis NOS

• Atypical cases
  – Cryptal lymphocytic colitis
Microscopic colitis
Variants (with giant cells)
Microscopic colitis: Variants
Pseudomembranous colitis (683480) &
Apoptotic colopathy
Microscopic colitis Variants

Rare
Specific entity? Most variants are
- small series
- case reports
- abstracts

Microscopic colitis with giant cells: 1 case recurrence as collagenous colitis

Pauci IEL lymphocytic colitis: Postdysenteric IBS?

Apoptotic colopathy and bowel preparation?
Microscopic colitis & IBD

• Differential diagnosis
  – Focal Lymphocytic colitis-like pattern in Crohn’s disease (Goldstein NS Am J Surg Pathol 1999; 23: 1075)

• Combination of two diseases
  (Panaccione et al Gastroenterology 1999; 116: A833)

• Progression towards IBD
Microscopic colitis & IBD

• Progression towards IBD
  – 16 patients have been identified presenting initially collagenous colitis and progressing towards ulcerative colitis
    • Usually pancolitis
    • pANCA positive (n = 2)
  – The association – progression - between collagenous colitis and Crohn’s disease seems less common (n = 2)
Conclusions (1)

• The combination of “clinical symptoms – normal endoscopy/ radiology and abnormal histology” is not uncommon
• Histology may show a variety of lesions or patterns
• “Microscopic colitis” is characterized by
  – A clinical presentation of chronic watery diarrhea
  – Normal endoscopy/radiology and abnormal histology
  – Abnormal histology shows two major patterns
  – “Collagenous & Lymphocytic colitis”
Conclusions (2)

- Clinical features support the distinction between two subtypes
- The etiology of “microscopic colitis” can be variable
- A familial occurrence has been noted
- Various “variants” of “microscopic colitis” have been reported. It is unclear if these are “specific entities”
Conclusions (2)

• Lymphocytic colitis must be differentiated from post-infectious conditions
• “Microscopic colitis” must be differentiated from “minimal change colitis” which is IBD related
• Lymphocytic-type colitis is not uncommon in celiac disease
• The relation between “microscopic colitis” and IBD is unclear and uncommon