Microscopic Colitis: Treatment

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Akademisches Lehrkrankenhaus, Ruhr-Universität Bochum (Germany)
Microscopic Colitis – Definition

Collagenous and lymphocytic colitis

Microscopic Colitis

Collagenous Colitis (Lindström et al. 1976) (Freeman et al. 1976)

Lymphocytic Colitis (Lazenby et al. 1989)

“The watery diarrhea colitis syndrome” (Sylwestrowicz et al. 1989)
Microscopic Colitis – Symptoms

Symptoms of collagenous colitis

n = 163 patients

- Watery diarrhea: 100%
- Nocturnal diarrhea: 27%
- Weight loss: 42%
- Abdominal pain: 41%
- Fatigue: 21%
- Meteorism: 12%

Bohr et al., Gut 1996; 39: 846 - 851
Clinical course and prognosis in collagenous colitis

n=24 patients (Bonderup et al., 1999)

- Generally benign course
- Good general and nutritional condition
- 10 / 24 patients (42 %) with chronic or intermittent diarrhea
- 4 / 24 patients (17 %) in remission over 2 – 10 years
- Cause of death unrelated to collagenous colitis: 6 / 24 patients (Age 20 – 82 years) after 5 – 16 years duration

Study with 117 patients (Chan et al., 1999)

- No increased risk of colon neoplasms (follow up over 2 – 12 years)

Microscopic Colitis – Pathogenesis

Pathogenetic factors

Genetics
(HTLA)

Drugs
(NSAID)

Infection
(Yersinia antibodies)

Bile acids
(Malabsorption)

Altered immune response
(associated autoimmune disease)

? Altered inflammation markers
(NO, TGF-beta, VEGF etc.)
Microscopic Colitis – Therapy

Recommendations for therapy of microscopic colitis

**Symptomatic**

- Loperamide
- Colestyramine
- Octreotide
- Bismuth

**Anti-inflammatory**

- Systemic steroids
- Topical steroids
- Salicylates
- Anti-/Probiotics
- Immunosuppressants
Microscopic Colitis – History

Collagenous and lymphocytic colitis in the literature

- **1976**: First descriptions
  - Lindström, Freeman et al.

- **1988**: First case of duodenal involvement
  - Eckstein et al.

- **1990**: 268 published cases
  - Lindström et al.

- **1996**: > 500 published cases
  - Bohr et al.

- **1999**: First published controlled study
  - Fine et al.

- **2003**: First published meta-analysis
  - Chande et al.
Microscopic Colitis – Therapy

Controlled studies of collagenous colitis (2005)

- **Budesonide**
  - 3 studies, 1 metaanalysis
  - n = 94 patients
  - with collagenous colitis
  - Positive effect
  - Evidence level Ia

- **Prednisolone**
  - 1 small study
  - n = 12 patients
  - with collagenous colitis
  - Slight effect
  - (Evidence level Ib)

- **Bismuth**
  - 1 small study (*abstract*)
  - n = 14 patients
  - with collagenous
  - and lymphocytic colitis
  - Positive effect
  - (Evidence level Ib)
**Microscopic Colitis – Therapy**

**Non-controlled study with bismuth in microscopic colitis**

**Patients**

- n = 13 (1 drop out)
  - 7 patients with collagenous colitis
  - 6 patients with lymphocytic colitis

**Therapy**

- 9 tablets = 262 mg bismuth-subsalicylate/day over 8 weeks

**Results**

- 11 / 12 no diarrhea, stool weight
- Response within 2 weeks
- Histology: 9 / 12 without signs of inflammation
  - 7 / 7 without collagen layer

Fine & Lee, Gastroenterology 1998; 114: 29-36
Microscopic Colitis – Therapy

Bismuth in microscopic colitis: Randomized placebo-controlled study

- **Patients**
  - n = 14
  - 9 patients with collagenous colitis
  - 5 patients with lymphocytic colitis

- **Therapy**
  - 3 x 3 tablets = 262 mg bismuth-subsalicylate/day
  - or placebo for 8 weeks

- **Results**
  - Bismuth (n = 7) vs Placebo (n = 7)
  - Stool frequency and stool weight:
    - Bismuth: 7 / 7
    - Placebo: 0 / 7

- **Cross-Over**
  - Bismuth in 5 / 6 patients effective,
  - in 1 / 6 patients withdrawal due to nausea

Fine et al., Gastroenterology 1999; 116: A880
Microscopic Colitis – Therapy
Systemic vs. topical steroid therapy in collagenous colitis

Prednisolone

Budesonide
Microscopic Colitis – Therapy

Budenofalk® 3mg capsules with pH modified drug release

Möllmann et al. (1996)
### Microscopic Colitis – Therapy

**Budesonide in collagenous colitis: Pilot studies**

<table>
<thead>
<tr>
<th>Study</th>
<th>Year</th>
<th>Patients (n)</th>
<th>Clinical effects</th>
<th>Histological effects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Delarive</td>
<td>1998</td>
<td>5</td>
<td>3 complete, 2 partial</td>
<td>not studied</td>
</tr>
<tr>
<td>Bohr</td>
<td>1998</td>
<td>2</td>
<td>positive</td>
<td>not studied</td>
</tr>
<tr>
<td>Janetscheck</td>
<td>1998</td>
<td>3</td>
<td>positive</td>
<td>1 / 1 positive</td>
</tr>
<tr>
<td>Lanyi</td>
<td>1999</td>
<td>3</td>
<td>positive</td>
<td>not studied</td>
</tr>
<tr>
<td>Tromm</td>
<td>1999</td>
<td>7</td>
<td>positive</td>
<td>3 / 3 positive</td>
</tr>
</tbody>
</table>

Delarive et al. (1998); Bohr et al. (1998); Janetscheck et al. (1998); Lanyi et al. (1999); Tromm et al. (1999)
Microscopic Colitis – Therapy

Budesonide in collagenous colitis: Stool frequency

Stool frequency/day

Before therapy

After 10 days of therapy

After 10 weeks of therapy

(n = 7)

p < 0.001

Tromm et al., Am. J. Gastroenterol. 1999: 94; 1871-1875
**Budesonide in collagenous colitis: Effects on the collagen layer**

<table>
<thead>
<tr>
<th>Patients (n = 3)</th>
<th>Number of measurements</th>
<th>Thickness of collagen layer (µm; average ± standard deviation)</th>
<th>Paired Student’s t-Test</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Before Budesonide</td>
<td>After Budesonide</td>
</tr>
<tr>
<td>1</td>
<td>16</td>
<td>16.47 ± 4.9</td>
<td>5.57 ± 0.97</td>
</tr>
<tr>
<td>2</td>
<td>7</td>
<td>12.85 ± 2.7</td>
<td>4.95 ± 0.88</td>
</tr>
<tr>
<td>3</td>
<td>21</td>
<td>21.14 ± 9.3</td>
<td>9.28 ± 3.77</td>
</tr>
</tbody>
</table>

Tromm et al., Am. J. Gastroenterol. 1999: 94; 1871-1875
Microscopic Colitis – Therapy

Budesonide in collagenous colitis:
1. randomized placebo-controlled study

Patients n = 28

Therapy 9 mg Budesonide-PMR*/day or Placebo for 8 weeks

Results

<table>
<thead>
<tr>
<th></th>
<th>Budesonide-PMR* (n = 14)</th>
<th>Placebo (n = 14)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Clinical response</strong></td>
<td>8 / 14 p = 0.05</td>
<td>3 / 14</td>
</tr>
<tr>
<td><strong>Histological response</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• complete</td>
<td>9 / 14</td>
<td>4 / 14</td>
</tr>
<tr>
<td>• partial</td>
<td>4 / 14</td>
<td>0 / 14</td>
</tr>
<tr>
<td>• none</td>
<td>0 / 14</td>
<td>8 / 14</td>
</tr>
<tr>
<td></td>
<td>p &lt; 0.001</td>
<td></td>
</tr>
</tbody>
</table>

*PMR: pH-modified release

Baert et al., Gastroenterology 2002; 122: 20-25
## Microscopic Colitis – Therapy

### Budesonide in collagenous colitis:

2. randomized placebo-controlled study

- **Patients** \( n = 43 \)
- **Therapy** 9 mg Budesonide-CIR*/day or placebo for 6 weeks

### Results

<table>
<thead>
<tr>
<th></th>
<th>Budesonide-CIR* (( n = 23 ))</th>
<th>Placebo (( n = 20 ))</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Clinical response</strong></td>
<td>20 / 23 p &lt; 0.001</td>
<td>1 / 20</td>
</tr>
<tr>
<td><strong>Histological response</strong></td>
<td>18 / 23 p &lt; 0.001</td>
<td>1 / 20</td>
</tr>
</tbody>
</table>

*CIR: controlled ileal release

- **Time to response:** 13 days

Miehlke et al., Gastroenterology 2002; 123: 978-984
Microscopic Colitis – Therapy

Budesonide in collagenous colitis:
3. randomized placebo-controlled study

- **Patients** n = 20

- **Therapy** initially 9 mg Budesonide-CIR*/day or placebo for 8 weeks

- **Results**

<table>
<thead>
<tr>
<th>Clinical response</th>
<th>Budesonide-CIR* (n = 10)</th>
<th>Placebo (n = 10)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>10 / 10</td>
<td>2 / 10</td>
</tr>
<tr>
<td></td>
<td>p &lt; 0.001</td>
<td></td>
</tr>
</tbody>
</table>

*BIR: controlled ileal release

week 1-4: 9 mg/d
week 5-6: 6 mg/d
week 7-8: 3 mg/d

Bonderup et al., Gut 2003; 52: 248-251
### Microscopic Colitis – Therapy

**Budesonide in collagenous colitis: Cochrane Metaanalysis 2004 – Clinical features**

*Clinical improvement*

<table>
<thead>
<tr>
<th></th>
<th>Budesonide</th>
<th>Placebo</th>
<th>Weight</th>
<th>Odds-Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baert et al. 2002</td>
<td>8 / 11</td>
<td>3 / 12</td>
<td>25.0</td>
<td>6.3 (1.26; 30.92)</td>
</tr>
<tr>
<td>Miehlke et al. 2002</td>
<td>20 / 26</td>
<td>3 / 25</td>
<td>53.8</td>
<td>13.08 (4.39; 38.99)</td>
</tr>
<tr>
<td>Bonderup et al. 2003</td>
<td>10 / 10</td>
<td>2 / 10</td>
<td>21.2</td>
<td>3.73 (4.15; 135.72)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>38 / 47</td>
<td>8 / 47</td>
<td>100.0</td>
<td>12.32 (5.53; 27.46)</td>
</tr>
</tbody>
</table>

Chande et al., The Cochrane Library 2004; Baert et al., Gastroenterology 2002; 122: 20-25; Miehlke et al., Gastroenterology 2002; 123: 978-984; Bonderup et al., Gut 2003; 52: 248-251
**Microscopic Colitis – Therapy**

**Budesonide in collagenous colitis: Metaanalysis II – Clinical features**

*Clinical improvement*

- **Relative risk for response**
  
  (clinical improvement = reduction of stool frequency)
  
  = 4.9 (2.67 – 6.38)

- **NNT = 1.58 (95% CI: ± 1.86)**


Baert et al., Gastroenterology 2002; 122: 20-25

Miehlke et al., Gastroenterology 2002; 123: 978-984

Bonderup et al., Gut 2003; 52: 248-251
Microscopic Colitis – Therapy

Budesonide in collagenous colitis: Cochrane Metaanalysis 2004 – Histology

Histological improvement

<table>
<thead>
<tr>
<th></th>
<th>Budesonide</th>
<th>Placebo</th>
<th>Odds-Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baert et al. 2002</td>
<td>10 / 11</td>
<td>4 / 12</td>
<td>20.20 (1.85; 216.19)</td>
</tr>
<tr>
<td>Miehlke et al. 2002</td>
<td>14 / 26</td>
<td>1 / 25</td>
<td>28.00 (3.28; 238.91)</td>
</tr>
<tr>
<td>Bonderup et al. 2003</td>
<td>10 / 10</td>
<td>3 / 10</td>
<td>45.00 (2.01; 100.80)</td>
</tr>
<tr>
<td>Total</td>
<td>34 / 47</td>
<td>8 / 47</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(72.34 %)</td>
<td>(17.02 %)</td>
<td></td>
</tr>
</tbody>
</table>

Chande et al., The Cochrane Library 2004; Baert et al., Gastroenterology 2002; 122: 20-25; Miehlke et al., Gastroenterology 2002; 123: 978-984; Bonderup et al., Gut 2003; 52: 248-251
Microscopic Colitis – Therapy

Budesonide in collagenous colitis: Improvement in quality of life

Gastrointestinal Quality of Life Index (GIQLI)

- **Patients**
  - n = 29 patients
  - n = 17 budesonide
  - n = 12 placebo

- **Therapy**
  - 9 mg Budesonide/day for 6 weeks

Madisch et al., Int. J. Colorectal. Dis. 2004; 11 (Epub)
Effect of budesonide on bile acid uptake in collagenous colitis

Mean $^{75}$SeHCAT values increase from 23 ± 9.9 % to 40 ± 14.7 %

Bajor et al., Gastroenterology 2003; 124: A-146
Effect of budesonide on vascular endothelial growth factor (VEGF) in collagenous colitis

**Affected bowel surface area** (n = 6 patients)

**Microscopic Colitis – Therapy**

**Prednisolone in collagenous colitis:**
*First randomized placebo-controlled study*

- **Patients** n = 12
- **Therapy** 50 mg Prednisolone/day or placebo for 2 weeks

**Results**

<table>
<thead>
<tr>
<th></th>
<th>Prednisolone (n = 9)</th>
<th>Placebo (n = 3)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Stool weight</strong></td>
<td>7 / 9</td>
<td>1 / 3</td>
</tr>
<tr>
<td><strong>Stool frequency</strong></td>
<td>5 / 9</td>
<td>0 / 3</td>
</tr>
<tr>
<td><strong>Remission</strong></td>
<td>2 / 9</td>
<td>0 / 3</td>
</tr>
</tbody>
</table>

Stool weight ≤ 200 g/day and frequency ≤ 2/day

Munck et al., Scand. J. Gastroenterol. 2003; 38: 606-610
Microscopic Colitis – Therapy

Pilot study:
*E. coli* Nissle 1917 in collagenous colitis

Stool frequency/day

![Graph showing stool frequency changes over therapy time](image)

- **Therapy start**
  - **Therapy end ≥ 4 weeks**

<table>
<thead>
<tr>
<th>Therapy start</th>
<th>Therapy end ≥ 4 weeks</th>
</tr>
</thead>
<tbody>
<tr>
<td>7.6 ± 4.8/day</td>
<td>3.7 ± 5.8/day</td>
</tr>
</tbody>
</table>

- **Non-Responders** 21.4%
- **Responders** 78.6%

Tromm et al., Z. Gastroenterol. 2004; 42: 365-368
Microscopic Colitis

Latest news: DDW 2005 in Chicago (USA):

Boswellia serrata extract (BSE) in collagenous colitis – A randomized, double-blind, placebo controlled, multicentre trial.

**Patients**

- n = 31 randomised; n = 25 per protocol
- Stool frequency > 5/d

**Therapy**

- 3 x 400 mg BSE vs placebo for 6 weeks

**Results**

<table>
<thead>
<tr>
<th></th>
<th>BSE</th>
<th>Placebo</th>
</tr>
</thead>
<tbody>
<tr>
<td>stool frequency (&lt; 3/d)</td>
<td>58.3%</td>
<td>30.8%</td>
</tr>
</tbody>
</table>

Madisch et al., Poster #W1037 DDW 2005
Microscopic Colitis – Therapy

Collagenous Colitis: Evidence-based therapy 2005

Exclude use of NSAIDs

With respect to pathophysiology
- Budesonide (Colestyramine)

With respect to controlled studies
- Budesonide (Bismuth) (Prednisolone)
Microscopic Colitis

Collagenous and lymphocytic colitis: Open questions on therapy in 2005

- Spontaneous remission rate
- Duration of acute phase therapy (6 – 8 weeks)
- Therapy in non-responders to budesonide or bismuth
- Maintenance therapy:
  - Which drug?
  - At what dose and for which period?
Microscopic Colitis

Ongoing studies in 2005

- Budesonide for maintenance therapy of collagenous colitis*

- *E. coli* Nissle 1917 vs. Budesonide in collagenous colitis (acute phase)**

- Budesonide in lymphocytic colitis (acute phase)*

* A. Madisch, Dresden (Germany): personal communication;
** A. Tromm, Hattingen (Germany)
Non-controlled study with boswellia serrata in collagenous colitis

**Patients**

n = #

# patients with collagenous colitis

**Therapy**

Bosweelia serrata/day

for # weeks

**Results**

• 11 / 12 no diarrhea, stool weight

• Response within 2 weeks

• Histology: 9 / 12 without signs of inflammation

  7 / 7 without collagen layer

*A. Madisch, Dresden (Germany): personal communication*
<table>
<thead>
<tr>
<th>Clinical diagnosis in collagenous and lymphocytic colitis</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESR</td>
</tr>
<tr>
<td>Stool frequency</td>
</tr>
<tr>
<td>Stool volume</td>
</tr>
<tr>
<td>Steatorrhea</td>
</tr>
<tr>
<td>Leukocyte excretion in stool</td>
</tr>
<tr>
<td>Blood and mucus admixture in stool</td>
</tr>
<tr>
<td>Extraintestinal manifestations</td>
</tr>
</tbody>
</table>
Pathogenesis of collagenous colitis: Pathological bowel flora

Costridium difficile / pseudomembranous colitis

2000 Khan et al.
2000 Vesoulis et al.
2001 Treanor et al.
2003 Yuan et al.

Yersinia antibodies in collagenous colitis vs. controls:
9 / 32 vs. 1 / 17 (p = 0.0078)

1998 Mäkinen et al.

Yersinia-IgA antibodies: 82.3%
Yersinia-IgG antibodies: 73.4%

2003 Miehlke et al.
Microscopic Colitis – Diagnosis

Histology of collagenous colitis

(H.E. stain)
Microscopic Colitis – Symptoms

Diseases associated with collagenous colitis

- Sjögren’s Syndrome
- Hyper-. Hypothyroidism
- Sprue
- Psoriasis
- Raynaud’s Syndrome
- Rheumatoid Arthritis (RF+/-)
Microscopic Colitis – Diagnosis

Histology of lymphocytic colitis

(H.E. stain)
Pathogenesis of diarrhea in collagenous colitis

The frequency of diarrhea is correlated with inflammatory changes in the lamina propria not with the thickness of the collagen layer

(Lee et al., 1992; Jackson et al., 1995; Tremaine et al., 1999)

Active chloride secretion and chloride resorption

(Lee et al., 1992; Burgel et al., 2002)
# Microscopic Colitis – Differential diagnosis

## CIBD vs. microscopic colitis: Histological differential diagnosis

<table>
<thead>
<tr>
<th></th>
<th>Normal</th>
<th>CIBD</th>
<th>Collagenous colitis</th>
<th>Lymphocytic colitis</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Epithelial flattening</strong></td>
<td>7.3</td>
<td>8.2</td>
<td>35.4</td>
<td>35.2</td>
</tr>
<tr>
<td><strong>Intraepithelial lymphocytes</strong></td>
<td>4.6</td>
<td>4.4</td>
<td>21.1</td>
<td>24.6</td>
</tr>
<tr>
<td><strong>Crypt lymphocytes</strong></td>
<td>1.1</td>
<td>1.2</td>
<td>1.6</td>
<td>2.0</td>
</tr>
<tr>
<td><strong>Collagen layer</strong></td>
<td>–</td>
<td>–</td>
<td><strong>100</strong></td>
<td>–</td>
</tr>
<tr>
<td><strong>Mononuclear cells</strong></td>
<td>1.1</td>
<td>1.8</td>
<td>1.9</td>
<td>1.6</td>
</tr>
<tr>
<td><strong>Neutrophilic granulocytes</strong></td>
<td>0.1</td>
<td>0.6</td>
<td>0.1</td>
<td>0.2</td>
</tr>
<tr>
<td><strong>Crypt distortion</strong></td>
<td>0.3</td>
<td>1.9</td>
<td>0.5</td>
<td>0.8</td>
</tr>
</tbody>
</table>

All data in [%]

*Contents*

Lazenby et al. (1989)
Microscopic Colitis – Pathogenesis

Collagen metabolism in the intestinal mucosa

Collagen synthesis

Collagen breakdown

Subepithelial collagen layer

Contents
Microscopic Colitis – Pathogenesis

Collagen metabolism in collagenous colitis

- Normal architecture and extracellular matrix outside the collagen layer
  (Aigner et al., 1997)

- No increase of collagen type VI mRNA
  (Aigner et al., 1997)

- MMP-1 (Matrix Metallo-Proteinase-1) ↓
  TIMP-1 (Tissue Inhibitor Metallo-Proteinase-1) ↑
  (Günther et al., 1999)

Contents

Aigner et al. (1997)
Günther et al. (1999)

Reduced collagen breakdown
Collagenous Colitis: Effect of intestinal contents ("fecal stream diversion")

**Patients**

- n = 9 Patients with severe diarrhea in collagenous colitis refractory to therapy

**Stoma**

- Primary ileostomy (n = 8)
- Primary sigmoidostomy (Hartmann) (n = 1)
- Secondary placement of an ileostoma

**Results**

- Postoperative, no diarrhea
- Histological reduction of collagen layer:
  - 20 µm (10 – 40 µm) ➔ 2 µm (0 – 10 µm)

Importance of luminal agencies

Järnerot et al. (1995)
Microscopic Colitis – Pathogenesis

Pathogenesis the collagenous colitis: NSAID

Patients
n = 31 with collagenous colitis vs.
n = 31 matched controls with irritable bowel or diverticulosis

Symptoms
Diarrhea begins after an average NSAID use of 5.5 (0.5 – 15) years

Association of NSAID use with collagenous colitis

<table>
<thead>
<tr>
<th>Duration NSAID use</th>
<th>greater than 6 months</th>
<th>less than 6 months</th>
</tr>
</thead>
<tbody>
<tr>
<td>Association with collagenous colitis</td>
<td>19 / 31 Patients</td>
<td>4 / 31 Patients</td>
</tr>
</tbody>
</table>

p < 0.02

Significantly more frequent with use over 6 months
Overview: Epidemiology of lymphocytic and collagenous colitis

Per 100,000 persons

Olmsted County, Minnesota, USA

1985 – 89

Microscopic colitis – Epidemiology

1990 – 93

Per 100,000 persons

1994 – 97

Contents

1998 – 2001

Microscopic colitis

Lymphocytic colitis

Collagenous colitis

Pardi et al. (2004)
Biopsies of normal mucosa in 111 patients with more than 4 weeks of persistent diarrhea

11.7 % (n = 13) Microscopic Colitis
4.5 % (n = 5) Melanosis coli
0.9 % (n = 1) Suspected collagenous colitis
Microscopic Colitis – Diagnosis

Microscopic colitis: Enhancing diagnostic reliability

Patients \((n = 111)\) with a primary diagnosis of microscopic colitis

- Blinded re-evaluation
- 15% with normal histology

Fraser et al. (2002)
Epidemiology of collagenous colitis

Sex

♀ : ♂ 4.75 : 1

Age

Average 53 years at time of first diagnosis

Diagnosis

In 9.5 of 100 colonoscopies with macroscopically normal findings and watery diarrhea

(Fernandez-Banares et al., 1999)

Incidence

0.6 – 2.3 / 100,000

(Fernandez-Banares et al., 1999)

4.9 / 100,000

(Olesen et al., 2004)

Prevalence

10 – 15.7 / 100,000

(Fernandez-Banares et al., 1999)
Patients
n = 199

Sex
♀ : ♂ 2.4 : 1

Age
Average 59 (48 – 70) years at time of first diagnosis

Incidence
4.4 / 100,000
(Olesen et al., 2004)

Genetics
12 % with diagnosis of a chronic inflammatory bowel disease. Sprue or collagenous colitis in first or second-degree relatives

Clinical course
30 % intermittent
7 % continuous
63 % single event
Pathogenesis of collagenous colitis: Bile acids

Patients
n = 27 Patients with collagenous colitis
12 / 27 (44 %) with pathological $^{75}$SeHCAT test

Treatment with colestyramine
21 / 27 (78 %) with improvement:
• 11 / 12 (92 %) with pathological $^{75}$SeHCAT test
• 10 / 15 (68 %) with normal $^{75}$SeHCAT test

$^{75}$SeHCAT test = $^{75}$Selenium homotaurocholic acid test
Microscopic Colitis – Pathogenesis

Pathogenesis of collagenous colitis: Vascular endothelium growth factor (VEGF)

Percent of bowel surface area affected (n = 21 patients)

- Griga et al. (2004)
- Taha et al. (2004)

VEGF expression in colon epithelial cells and lamina propria fibroblasts

VEGF in perfusate significantly higher than in controls

(Griga et al., 2004)

(Taha et al., 2004)
Microscopic Colitis – Pathogenesis

Pathogenesis of collagenous colitis: Histamine

Histamine secretion
[ng/mg saturated weight]

Contents

Schwab et al. (2000)

Histamine secretion

Collagenous colitis

Healthy controls

Stimulation with

Food allergens

Lipopolysaccharides

Anti-IgE

spontaneous

Stimulation with Anti-IgE

spontaneous

p < 0.001
Microscopic Colitis – Differential diagnosis

CIBD vs. microscopic colitis: Patient characteristics

Chronic inflammatory bowel disease

- Mostly younger patients
- Males and females
- Diarrhea: porridge-like, watery, bloody
- Weight loss
- Endoscopy: Signs of inflammation

Microscopic colitis

- Age usually > 50 years
- Females predominate
- Diarrhea: watery
- Weight usually unchanged
- Endoscopy: Normal findings