

Disorders of the lower GI

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Diagnostic

- Anamnesis
- Investigation
- Determination of biochemical blood parameters
- Radiological examinations
- Invasive Diagnostic

Diagnostic

- Anamnesis
- **Clinical examination**
- Determination of biochemical blood parameters
- Radiological examinations
- Invasive Diagnostic

Investigation

- Inspection
- Auscultation
- Percussion
- Palpation
- Digitorectale investigation

Diagnostic

- Anamnesis
- Clinical examination
- **Determination of biochemical blood parameters**
- Radiological examinations
- Invasive Diagnostic

Diagnostic

- Anamnesis
- Clinical examination
- Determination of biochemical blood parameters
- **Radiological examinations**
- Invasive Diagnostic

Radiological examinations

- Sonography
- X-raying
- Computertomography
- (Magnetic Resonance Imaging)

Diagnostic

- Anamnesis
- Investigation
- Determination of biochemical blood parameters
- Radiological examinations
- **Invasive Diagnostic**

Overview

- **Anatomy/topography of the gastrointestinal tract**
- **Diverticulosis/Diverticulitis (Diverticular disease)**
 - **Pathogenesis**
 - Symptoms (done)
 - Diagnosis (done)
 - **Differential diagnosis**
 - **Therapy**

Diverticulosis/Diverticulitis

Diverticulosis:

- Diverticula:
 - Real diverticula
 - Pseudo Diverticula
- Real diverticula:
 - **Protuberances of all layers** of the intestinal wall
 - Especially in the area of the Coecum
- Pseudo diverticula:
 - **Protuberances of the mucosal layer** through gaps of the muscle layer
 - Especially in the area of the descending colon and the sigmoid colon

Sopena et al., Gastroenterology, 2011

Epidemiology

- Prevalence total population: 20-30 %
- Prevalence of the over 65 year olds: 50 %
- Gender distribution: m = f
- Disease of the „industrial revolution“
 - no reports of this disease before this time
Painter et al., Clin Gastroenterol, 1975
- Incidence: 3,4 to 4,5 per 100.000 persons per year
Etzioni et al., Ann Surg. 2009; **Morris et al.**, Br J Surg, 2008; **Hart et al.**, Eur J Gastroenterol Hepatol, 2000
- most common disease affecting the large bowel in the Western world
Sopena et al., Gastroenterology, 2011
- large majority of patients (80-85 %) will remain entirely asymptomatic throughout their life
Sopena et al., Gastroenterology, 2011

Pathogenesis

- Lack of fiber
Unlu et al., Int J Colorectal Dis, 2012; **Aldoori et al.**, Am J Clin Nutr, 1994
 - elongated gastrointestinal transit time
Aldoori et al., J Nutr, 1998
- Increased intraluminal pressure
Painter et al., Gastroenterology, 1968
- Increased intestinal motility
Commane et al., World J Gastroenterol, 2009; **Trotman et al.**, Gut, 1988; **Bassotti et al.**, Dis Colon Rectum, 2001
- diets that are low in dietary fiber and high in refined carbohydrates
Eastwood et al., BMJ, 2009
- Current medication
Humes et al., GUT, 2011; **Morris et al.**, GUT, 2003
 - nonsteroidal anti-inflammatory drugs (NSAIDs)
 - corticosteroids

Pathogenesis

Diverticulosis/diverticular disease:

- presence of uninflamed diverticula

Diverticulitis (15-20 %):

- Inflammatory complication of the disease
 - Diverticulitis without complications
 - Diverticulitis with complications

Sopena et al., Gastroenterology, 2011

Pathogenesis

Diverticulitis:

- Around 1–2 % of the patients will require hospitalization and 0.5 % will require surgery
Stollman et al., Lancet, 2004
- 80% of patients who present with diverticulitis are 50 or older
Jeyarajah et al., Aliment Pharmacol Ther, 2009
 - The 30-day mortality rate was **5.1 %**
 - The 1-year mortality rate was **14.5 %**
 - The 28-day readmission rate was **9.6 %**
Jeyarajah et al., Aliment Pharmacol Ther, 2009
- Diverticular disease hospital admissions are increasing, with poor outcomes in the elderly and emergency admissions
- 130.000 hospitalizations yearly in the United States
Jacobs et al., N Engl J Med, 2007

Pathogenesis

Complications:

Salzman et al., Am Fam Physician, 2005

- Perforation
- Peritonitis
- Abszess formation
- Chronic complications
- Obstruction/Stenosis
- Fistula
- Bleeding

Differential Diagnosis

- Chronic inflammatory bowel disease
 - Morbus Crohn
 - Ulcerative colitis
- Colorectal carcinomas
- Gynecologic diseases
 - Adnexitis
 - Gynecologic carcinomas
 - Ectopic pregnancy
 - Rotation of the ovary
- Ischemia
- Perforation
- Appendicitis

Types of diverticulitis

Classification of diverticular disease (CDD)

Type 0 Asymptomatic diverticulosis

asymptomatic; incidental finding, not a disease

Type 1 Acute uncomplicated diverticular disease/diverticulitis

Type 1a	Without surrounding reaction	Diverticulum-typical symptoms, inflammatory constellation, optional: radiological imaging
Type 1b	With surrounding inflammatory reaction	inflammatory constellation obligat, radiological imaging: phlegmonous diverticulitis

Types of diverticulitis

Classification of diverticular disease (CDD)

Type 2	Acute complicated diverticulitis as 1b, in addition	
Type 2a	Microabscess	Covered perforation; small abscess <1 cm; minimal paracolic air
Type 2b	Macroabscess	Para- or mesocolic abscess >1 cm
Type 2c	Free perforation	Free perforation; air in the abdominal cave; generalized peritonitis
Type 2c1	Purulent peritonitis	
Type 2c2	Feculent peritonitis	

Types of diverticulitis

Classification of diverticular disease (CDD)

Type 3	Chronical diverticular disease (recurrent or persistent symptomatic)	
Type 3a	symptomatic uncomplicated diverticular disease	Typical symptoms; optional inflammatory constellation
Type 3b	Recurrent diverticular disease without complications	Inflammatory constellation and typical optional radiological imaging
Type 3c	Recurrent diverticular disease with complications	Detection of stenosis, fistulas, conglomerate
Type 4	Diverticular bleeding	

Therapy

Type 0	Asymptomatic diverticulosis	
		no treatment needed

Type 1	Acute uncomplicated diverticular disease/diverticulitis	
Type 1a	Without surrounding reaction	Analgesics
Type 1b	With surrounding inflammatory reaction	- Analgesics - (Antibiotics -> if comorbidities exist)

- Primary conservative treatment
- no improvement of symptoms and exclusion of other diseases (CT; coloscopy) -> Surgery
- Risk indicators of recurrences and complications (eg transplantation, immunosuppression, chronic systemic glucocorticoids) -> Surgery

Therapy

Classification of diverticular disease (CDD)

Type 2	Acute complicated diverticulitis	
Type 2a	Microabscess	- Hospitalisation - Antibiotic therapy - Fluid replacement
Type 2b	Macroabscess	- Hospitalisation - Antibiotic therapy - Fluid replacement - Abscess >4 cm -> interventional puncture - If not possible, conservative treatment for 72 hours -> conservativ treatment or surgery - Surgery in a inflammation free intervall (6-8 weeks later)

- Primary conservative treatment
- no improvement of symptoms -> Surgery within the next 72 hours

Therapy

Classification of diverticular disease (CDD)

Type 2	Acute complicated diverticulitis	
Type 2c	Free perforation	
Type 2c1	Purulent peritonitis	- in peritonitis immediate surgery
Type 2c2	Feculent peritonitis	- in peritonitis immediate surgery

- immediate surgery

Therapy

Classification of diverticular disease (CDD)

Type 3	Chronical diverticular disease (recurrent or persistent symptomatic)	
Type 3a	symptomatic uncomplicated diverticular disease	- (Mesalazin (oral))
Type 3b	Recurrent diverticular disease without complications	- depending on symptoms conservative treatment or elective surgery
Type 3c	Recurrent diverticular disease with complications	- Fistula: Elective surgery - Stenosis: depending on symptoms early to electively
Type 4	Diverticular bleeding	

Therapy

Classification of diverticular disease (CDD)

Type 4	Diverticular bleeding	
		- Hospitalisation - Colonoscopy - Endoscopic hemostasis - When necessary Angiography - Embolisation - with continued bleeding or clinically relevant bleeding recurrence - Surgery

Prevention

- High-fiber diet
- Physical activity
- Proper hydration
- Normal body mass index (19,9-24,9 kg/m²)
- Probiotics

Thank's for attention

