Definitions

- Diverticulosis: presence of diverticulae

- Diverticular disease: diverticulae associated with symptoms

- Diverticulitis: diverticular inflammation
Diverticulosis: epidemiology

- 50% of all people aged 50
- 70% of all people aged 80
- rare in people younger than 40
- 75% of people asymptomatic
Symptomatic disease: epidemiology

- 25% of people with symptomatic diverticular disease
  
  75% will have at least one episode of diverticulitis

- Increasing prevalence of perforated sigmoid diverticular disease
  
  2.4/100,000 in 1986, to 3.8/100,000 in 2000
Risk factors

- age over 50 years
- low dietary fibre
- Increased red meat
- obesity in younger patients

- Complicated diverticular disease
  - Smokers
  - NSAID’s
  - Paracetamol
  - Low fibre diets
  - Obesity
Pathophysiology

- Raised intra-colonic pressures
- Segmentation
- Fibre bulks stool and reduces segmentation
Support for fibre theory

- Common in western populations
- Rare in Asian and rural African population
- Asians and Africans who adopt western style diet have increased rates of diverticulosis
Fibre theory unproven

- 2,104 participants, 30–80 years old
- Colonoscopies from 1998 to 2010
- Interviewed regarding diet and physical activity.
- High-fiber diet and increased frequency of bowel movements associated with greater prevalence of diverticulosis

Peery et al, Gastroenterology, 2012; 142: 266-72
Uncomplicated diverticulosis

- cramping
- bloating
- flatulence
- irregular defecation.

Symptoms indistinguishable from IBS.
Investigation of diverticulosis

- Differential diagnosis
  IBS/ diverticulosis
  colorectal cancer

- Investigations
  Colonoscopy
  CT colonography
  CT scan
Uncomplicated diverticulosis

- Patients with symptomatic diverticulosis lower pain thresholds during colonic distension

suggests visceral hypersensitivity may be important

Clemens et al, Gut 2004; 53: 717-22
Acute inflammation and symptoms

- Changes in nerve structure and function post inflammation
  
  Simpson et al, Neurogastroenterol Motil, 2009; 21:e847-8

- Changes in microflora and intestinal inflammation
  
  Tursi A. Dig Liver Dis, 2010; 42: 458
Treatments: old and new

- Fibre
- Probiotics- *Lactobacillus reuteri*
- Antibiotics- rifaximin
- 5-ASA- mesalazine
# Acute diverticulitis

<table>
<thead>
<tr>
<th>Symptoms</th>
<th>Signs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fever</td>
<td>LIF tenderness</td>
</tr>
<tr>
<td>Left lower quadrant pain</td>
<td>Fever</td>
</tr>
<tr>
<td></td>
<td>Taccycardia</td>
</tr>
</tbody>
</table>
Acute diverticulitis: treatment

- Low residue diet

- Oral antibiotics 7-14 days
  - Augmentin / metronidazole
  - Ciprofloxacin / metronidazole

- Monitoring
Acute diverticulitis: who to refer

- Increasing pain
- Vomiting
- Dehydration
- Localised peritonism +/- generalised tenderness
- Increasing fever/ tachycardia
Acute diverticulitis: in patient

- Intravenous fluids
- Intravenous antibiotics
- Investigations
- Blood tests/ inflammatory markers
- CT scan
Monitoring

- **Response to treatment**
  - Pulse temperature and BP
  - Local tenderness
  - Bloods: WCC / CRP

- **Failure to improve**
  - Repeat CT scan
Surgery for acute diverticulitis

- Rarely indicated in acute situation
- Repeated acute attacks
  - elective laparoscopic resection
Complications of diverticulitis

- Abscess
- Fistulation
  - colovaginal
  - colovesical
  - enterocolic
- Perforation
- Stricture
Diverticular abscess

- Fever
- Tachycardia
- Tenderness
- Mass
- High WCC/CRP

Most are amenable to CT or US guided drainage
Treat small ones with antibiotics

Follow up CT scan at 3 months +/- direct visualisation
Colo-vaginal fistula

- Often history of lower abdo pain
- Purulent PV discharge
- Once established
  - Wind PV
  - Stool PV
  - Soreness
  - UTI’s

All patients should be referred
Colovaginal fistula: investigations

- Clinical PV exam confirms stool
- CT scan
  diverticular disease
  visible fistula
- Colonoscopy
- MRI/ contrast radiology
Colo-vaginal fistula: treatment

- Barrier creams
- Surgery
  - Laparoscopic/open resection with anastomosis
- Defunctioning stoma
Colo-vesical fistula

- Pneumaturia
- Debris in urine
- Recurrent UTI
- Lower abdo pain

All patients should be referred
Colo-vesical fistula: diagnosis

- **CT scan**
  - air in bladder
  - fistula visible

- **Cystoscopy**
  - red spot
  - inflamed bladder/debris in urine

- **Colonoscopy**
  - confirms diagnosis
Colo-vesical fistula: treatment

- Surgery
  - laparoscopic or open
  - primary anastomosis
  - bladder catheter post op
Sigmoid colectomy
Entero-cutaneous fistula

- Not common
- Diverticular abscess discharges
  usually LIF
  pus initially
- Then
  faeces and wind

  Always refer
  Nearly all need surgery
  Usually staged procedure
Perforated diverticular disease

- Perforated abscess
- Purulent peritonitis
- Perforated diverticulum
- Faecal peritonitis

Carry significant rates of morbidity and mortality
Hartmann’s procedure
Diverticular bleeding

- Uncommon
- Cause of massive lower GI haemorrhage

- Differential diagnosis
  - Angiodysplasia
  - Tumours (rare)
Diverticular bleeding

- Haemodynamic compromise
  urgent admission

- No compromise - self limiting
  urgent OP referral
Diverticular bleeding: investigation and treatment

- **Initial management**
  - fluid resuscitation/blood transfusion
  - exclude upper GI bleed

- **Investigation**
  - lower GI endoscopy
  - CT angiography

- **Treatment**
  - angiography and embolisation
  - surgery rarely required

Most settle spontaneously
Diverticulosis- conclusions-medical

- Role of fibre remains uncertain
- Greater understanding of causes of symptoms
- New treatment options
  - 5-ASA, probiotics, antibiotics
Diverticulosis - conclusions - surgery

- Minimally invasive approaches to complicated disease
- Laparoscopic surgery
- Interventional radiology
  - percutaneous drainage
  - therapeutic angiography
Questions ?