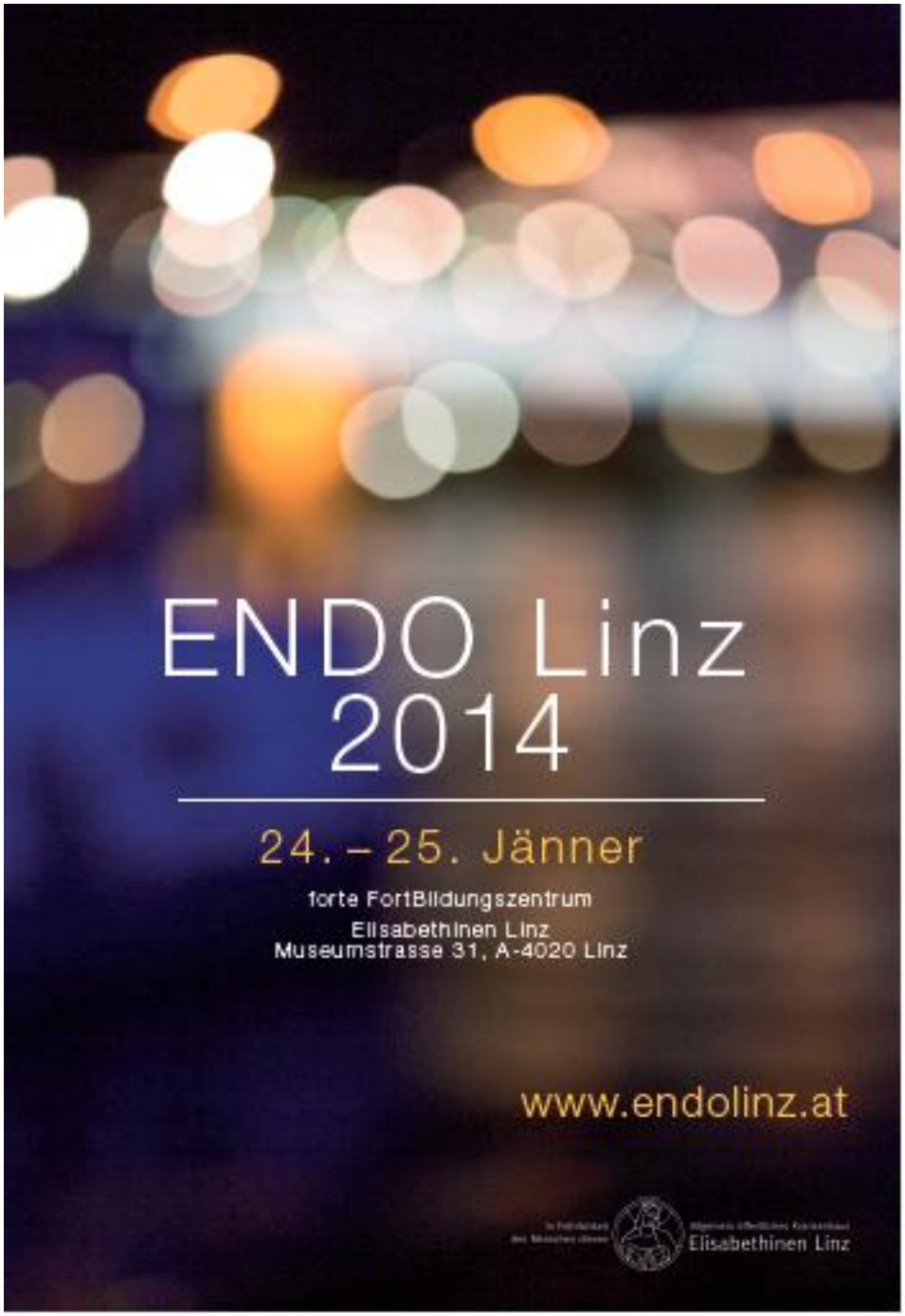


Innere
Medizin 4
Gastroenterologie, Hepatologie
Stoffwechsel, Ernährung
Endokrinologie

„Updates“ – aus dem letzten Jahr

Gastrointestinale Fisteln

Harry Fuchssteiner

Elisabethinen

- Definition und Einteilung
- SOWATS – der Patient hinter der Fistel
- postoperative GI Fisteln
- perianale Crohnfisteln
- Fistelcarcinom

Fistel Definition und Einteilung

A fistula is any abnormal anatomical connection between two epithelialized surfaces.

Sleisinger and Fordtran`s Gastrointestinal and Liver Disease, 9th ed., Saunders 2010

Table 1 Classifications of gastrointestinal fistulae

Scheme	Classification
Anatomical	• Internal • External
Output volume	Pancreatic[3 8–10] • Low (<200 ml/day) • High (≥200 ml/day) Intestinal[11 12] • Low (<500 ml/day) • High (≥500 ml/day)
Aetiological	Underlying disease

Fanconi et al. Gut 2002

Table 4 Factors that may adversely affect spontaneous closure rates[1 13 36 38]

Anatomical	Other
• Discontinuity of bowel ends	• Cancer
• Complete disruption	• Chemotherapy
• Distal obstruction (caused by an obstacle downstream or discontinuity between parts of the gastrointestinal tract)	• Radiation
• Intra-abdominal foreign body	• Underlying IBD
• Lateral fistula	• Uncontrolled sepsis, with or without abscess formation
• Complex fistula	• Fistula fluid infected
• Associated abscess	• Hypoproteinaemia
• Adjacent bowel diseased	• Large and early leakage of anastomosis
• Poor bowel vascularisation	• Diabetes patients
• Fistula tract <2 cm	• Corticosteroids
• Defect >1 cm	• Renal failure
• Epithelialisation of mucocutaneous fistula tract	• Output may prognosticate closure[a]
• Drainage through large abdominal wall defect (multiple orifices)	
• Internal fistulae	
• Fistula site (gastric, lateral duodenal, or ileal)	

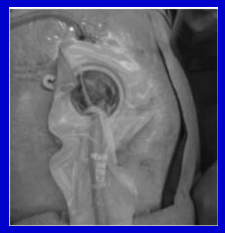
Fanconi et al. Gut 2002

Treatment Strategies in 135 Consecutive Patients with Enterocutaneous Fistulas

Sepsis control

Optimization of nutritional state

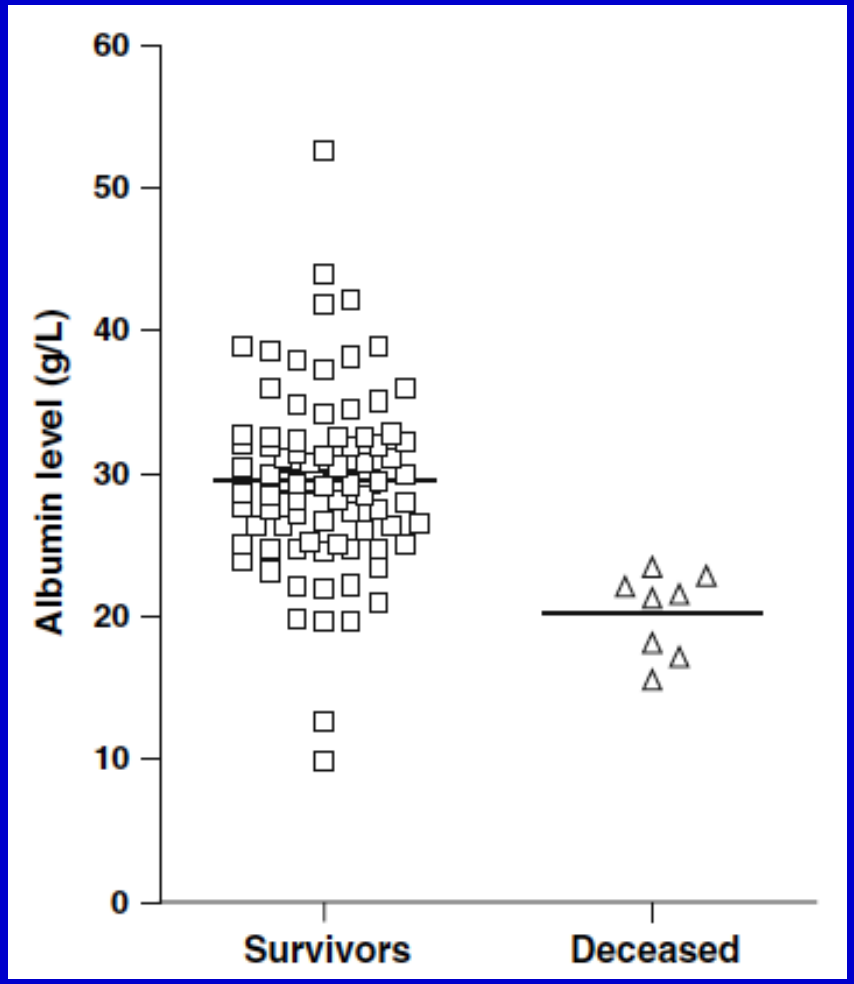
Wound Care



Assessment of fistula Anatomy

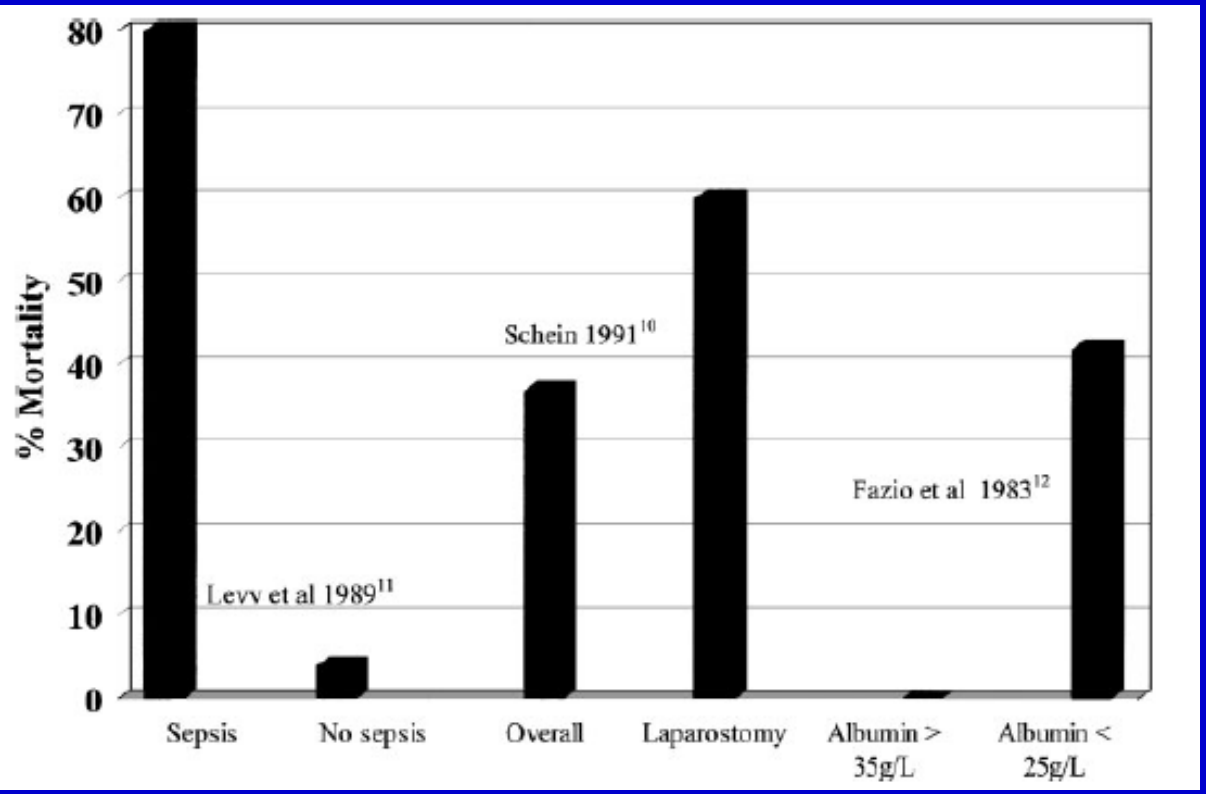
Timing of Surgery

Surgical Strategy (*endosc. Intervention*)



Visschers et al., WJS 2008

Management of Enterocutaneous Fistulas



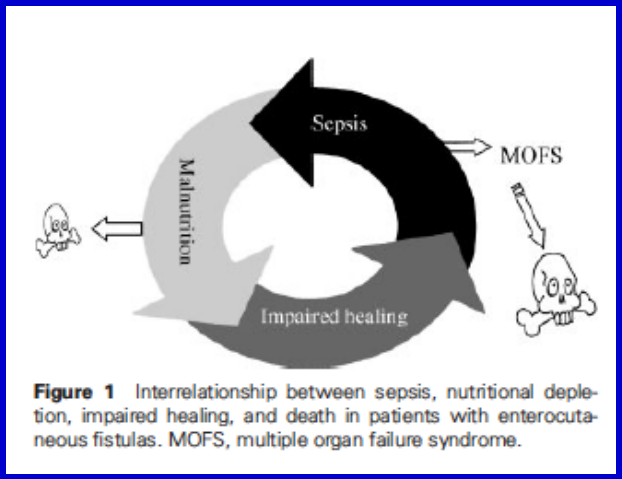


Figure 1 Interrelationship between sepsis, nutritional depletion, impaired healing, and death in patients with enterocutaneous fistulas. MOFS, multiple organ failure syndrome.

Kaushal et al., Clinics in Colon and Rectal Surgery 2004

Treatment of upper gastrointestinal fistula and leakage with personal stage nutrition support

Table 4 Complications, hospitalized time and cost of the two groups

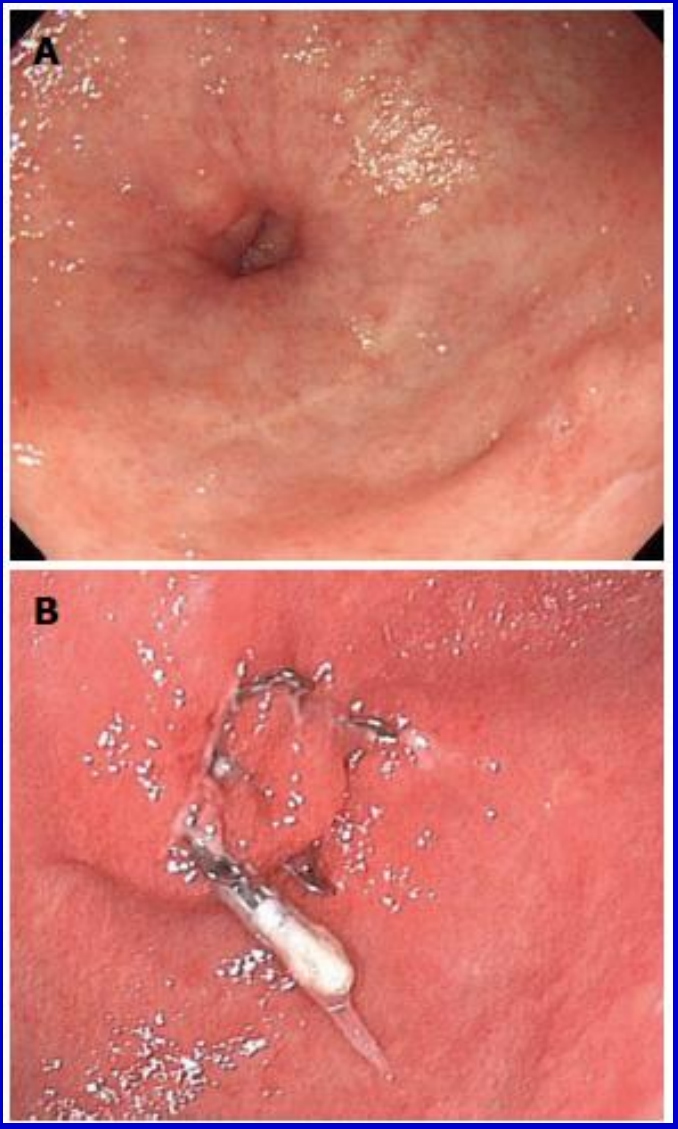
	A (n = 20)	B (n = 20)	P
Stoma fistula	0	2	
Infection of incisional wound	0	3	
Abdominal distension	2	0	
Diarrhoea	1	0	
Infection of abdominal cavity	1	1	
Total incidence rate (%)	20%(4/20)	30%(6/20)	0.53
Average stay (d)	40 ± 2.6	50 ± 3.7	0.001
Average expenditure(10 thousand yuan)	2.3 ± 0.5	3.9 ± 0.8	0.001

Wang et al., WJS 2008

Efficacy and safety of over-the-scope clip: Including complications after endoscopic submucosal dissection

Table 2 Relationship between each characters and overall clinical success rate *n* (%)

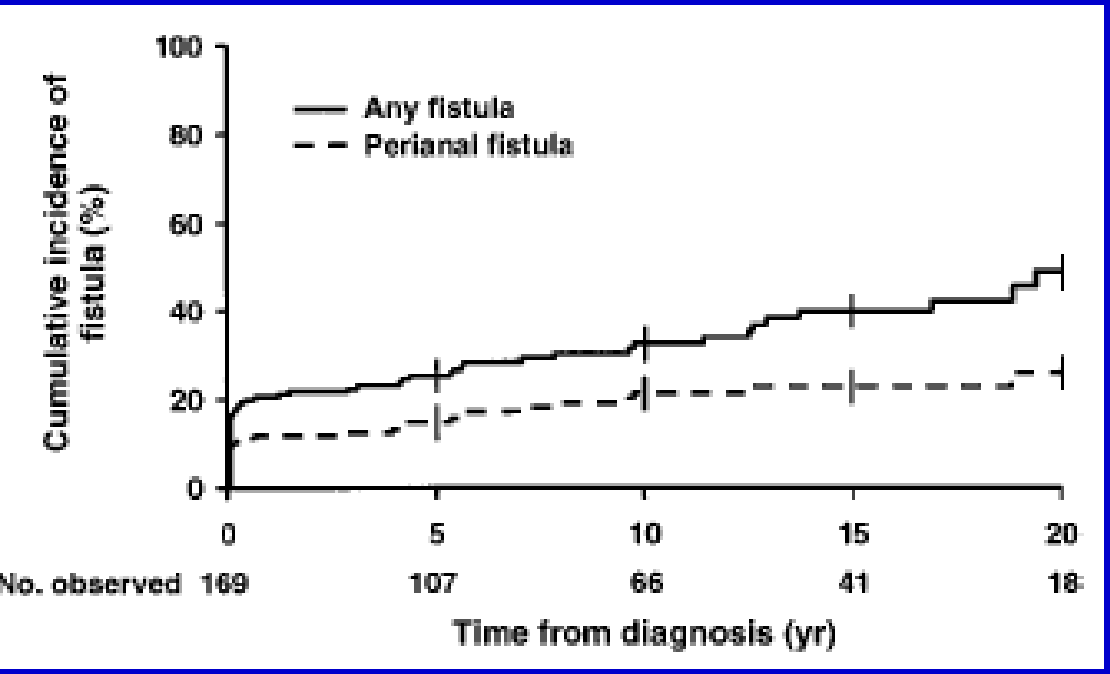
	Patients	Overall clinical success
Location		
Esophagus	1	1 (100)
Stomach	10	6 (60)
Duodenum	5	5 (100)
Colon	3	3 (100)
Rectum	4	4 (100)
Primary disease		
GI bleeding	9	7 (77)
Chronic fistulae	4	3 (75)
Perforation	11	10 (90)
Maximum lesion size (mm)		
< 20	9	9 (100)
20-30	8	6 (75)
> 30	6	4 (66)
Time from diagnosis (wk)		
< 1	18	18 (100)
1-4	3	0 (0)
> 4	2	1 (50)



Nishiyama et al., WJG 2013

OTSC appl. for gastrocut. fistula

The Natural History of Fistulizing Crohn's Disease in Olmsted County, Minnesota



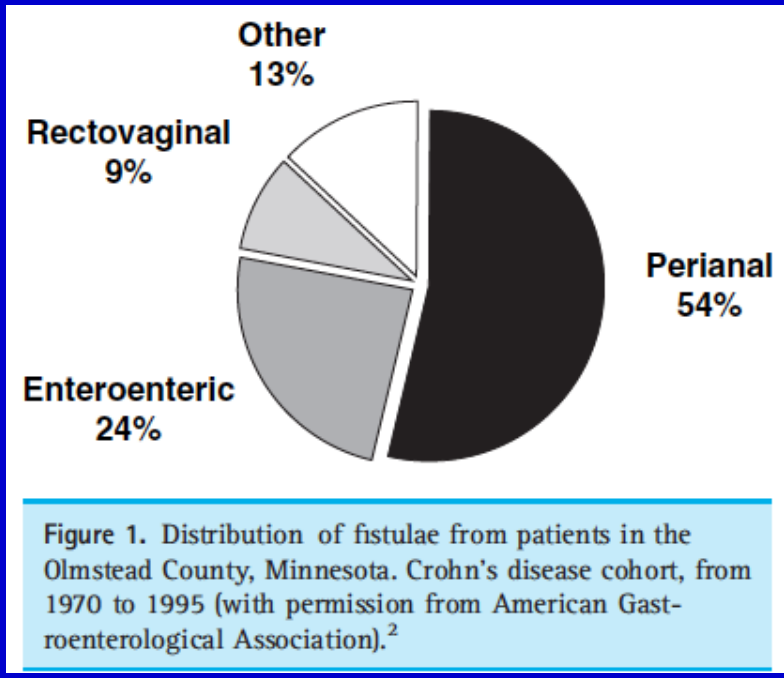


Figure 1. Distribution of fistulae from patients in the Olmstead County, Minnesota. Crohn's disease cohort, from 1970 to 1995 (with permission from American Gastroenterological Association).[2]

Schwartz et al., Gastro 2002

Bressler et al., APT 2006

Review article: the medical treatment of Crohn's perianal fistulas

D. A. SCHWARTZ & C. R. HERDMAN

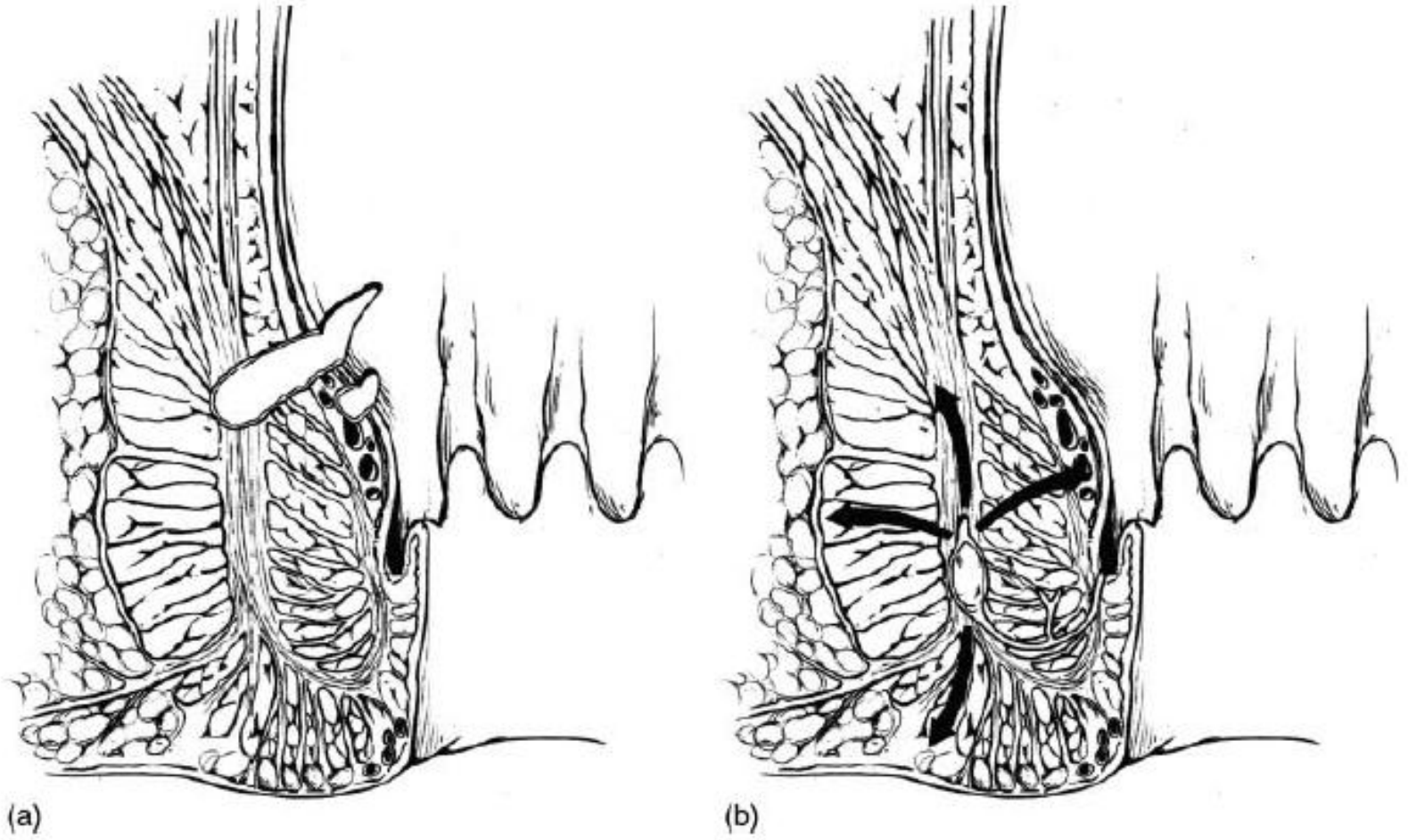
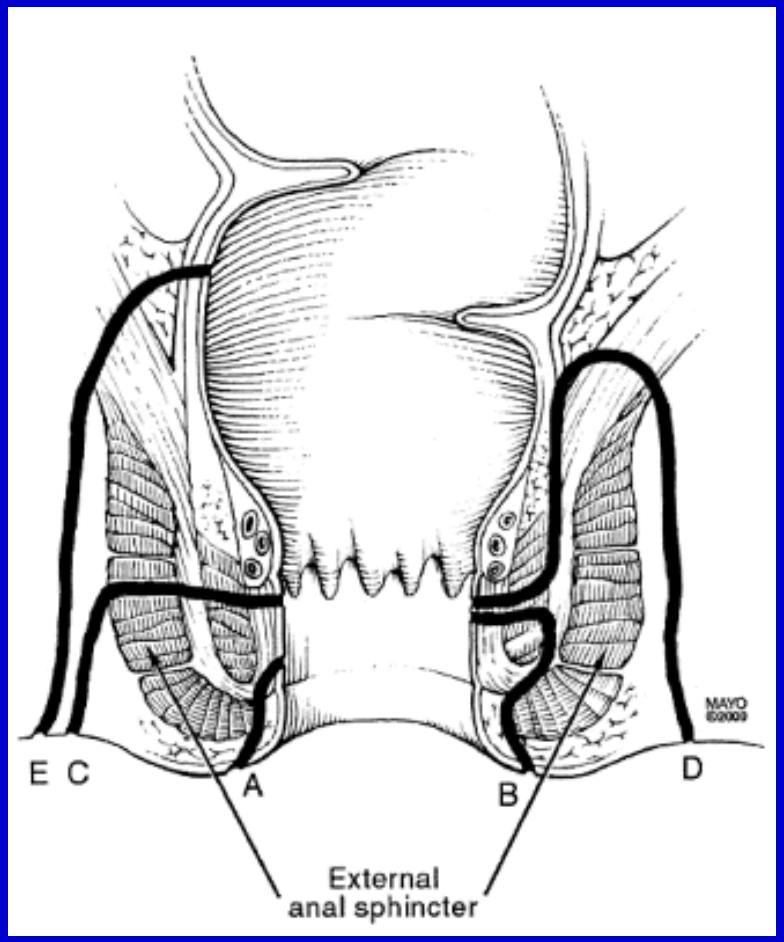


Figure 3. Proposed mechanisms for fistula development. (a) Fistulas develop as ulcers that extend over time as faeces is forced into the ulcer. (b) Fistulas begin as anal gland abscesses that ramify within the inter-sphincteric space.

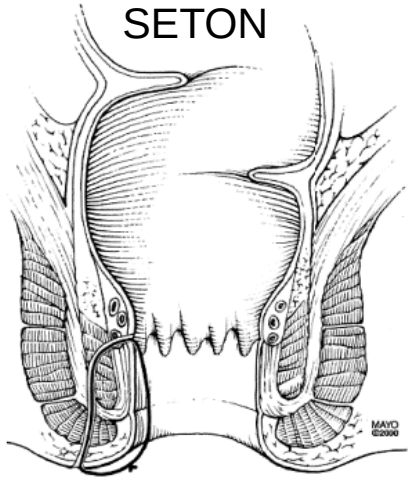
APT 2004



PARKS Classification

	Lokalisation	OP
A	subcutan	Spaltung
B	intersphinctär	Spalt/Drain
C low	transsphinctär /low	Spalt/Drain
C high	transsphinctär/high	Drainage
D	suprasphinctär	Drainage
E	extrasphinctär	Drainage

SETON



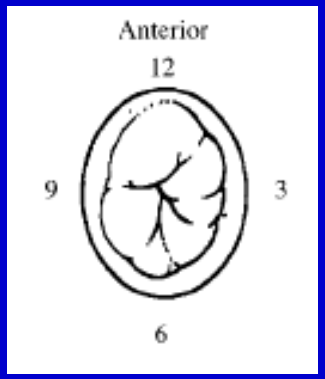
ECCO Statement 9H
Seton placement should be recommended [EL4, RGD] for complex fistulae. The timing of removal depends on subsequent therapy.

Gastro 2003

Klinische Untersuchung und perianaler Aktivitätsscore

Table 5. Perianal Crohn's Disease Activity Index

Categories affected by fistulas	Score
Discharge	
No discharge	0
Minimal mucous discharge	1
Moderate mucous or purulent discharge	2
Substantial discharge	3
Gross fecal soiling	4
Pain/restriction of activities	
No activity restriction	0
Mild discomfort, no restriction	1
Moderate discomfort, some limitation activities	2
Marked discomfort, marked limitation	3
Severe pain, severe limitation	4
Restriction of sexual activity	
No restriction in sexual activity	0
Slight restriction in sexual activity	1
Moderate limitation in sexual activity	2
Marked limitation in sexual activity	3
Unable to engage in sexual activity	4
Type of perianal disease	
No perianal disease/skin tags	0
Anal fissure or mucosal tear	1
<3 Perianal fistulae	2
≥3 Perianal fistulae	3
Anal sphincter ulceration or fistulae with significant undermining of skin	4
Degree of induration	
No induration	0
Minimal induration	1
Moderate induration	2
Substantial induration	3
Gross fluctuance/abscess	4



+ klinische **anorectale** Untersuchung (ggf. in Anästhesie)

A Comparison of Endoscopic Ultrasound, Magnetic Resonance Imaging, and Exam Under Anesthesia for Evaluation of Crohn's Perianal Fistulas

MRI: 87% accuracy (CI 69-96%)
EUS: 91% accuracy (CI 75-98%)
EUA: 91% accuracy (CI 75-98%)
(n=34, prospective)

Schwartz et al., Gastro 2001

ECCO Statement 9A
Pelvic MRI should be the initial procedure because it is accurate and non-invasive, although it is not needed routinely in simple fistulae [EL2b, RG B].

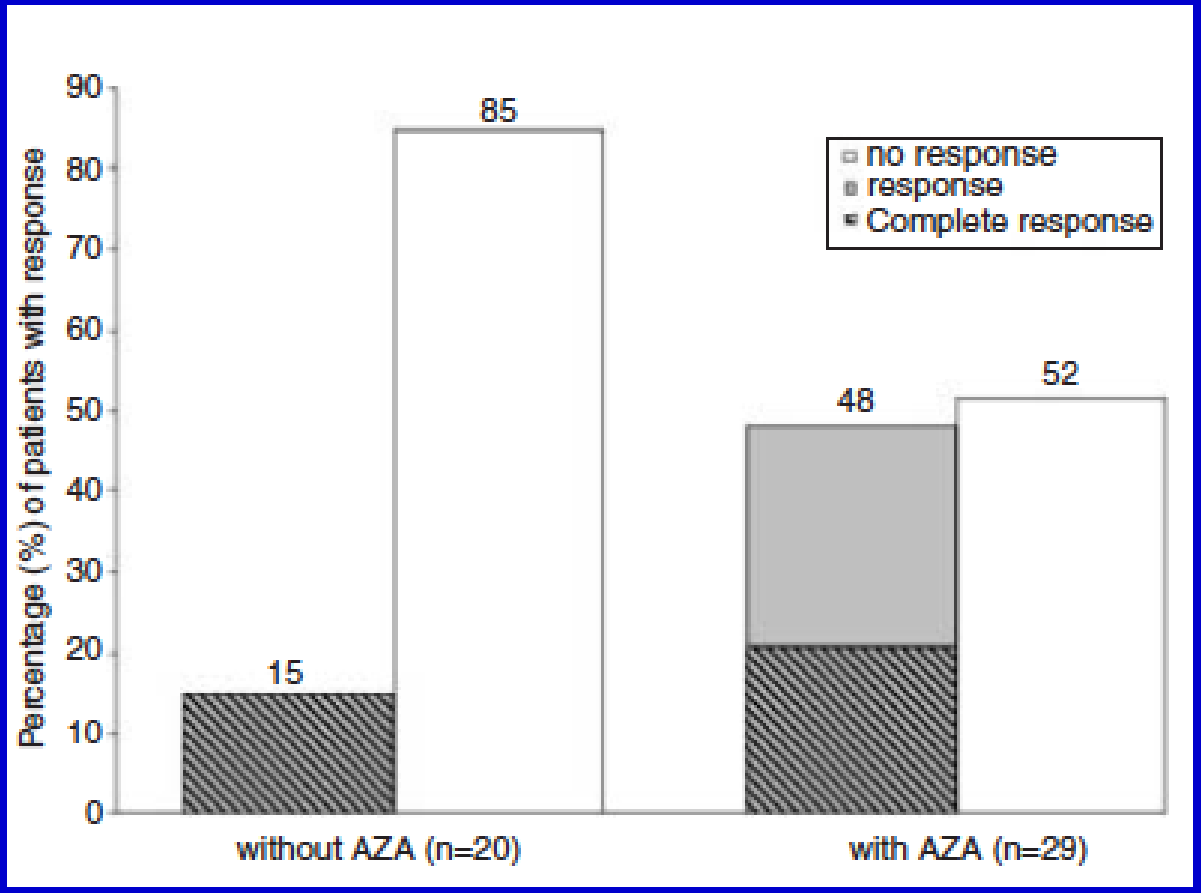
ECCO Statement 9F
The presence of a perianal abscess should be ruled out and if present should be drained as a matter of urgency [EL5, RGD].

ECCO Statement 9G

ECCO Statement 9D
Since the presence of concomitant rectosigmoid inflammation has prognostic and therapeutic relevance, proctosigmoidoscopy should be used routinely in the initial evaluation [EL2b, RG B].

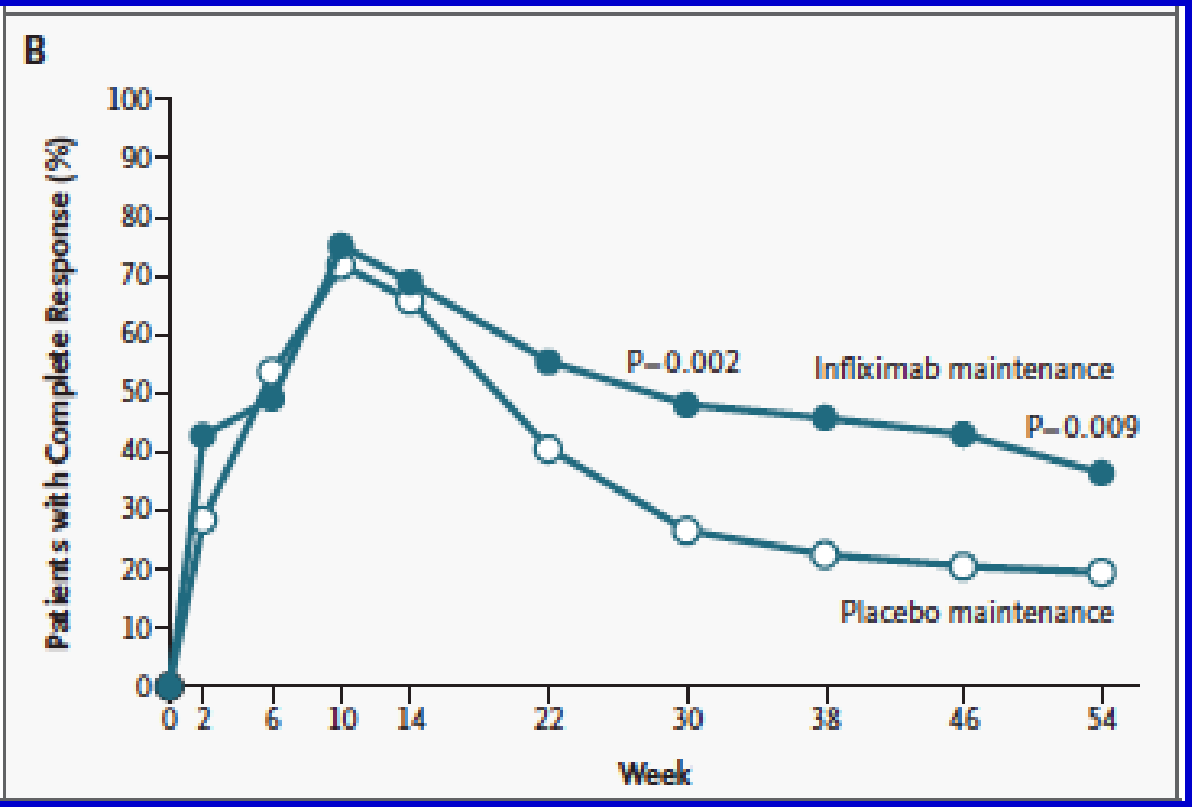
van Asche et al., ECCO 10, JCC 2010

Antibiotics and azathioprine for the treatment of perianal fistulas in Crohn's disease

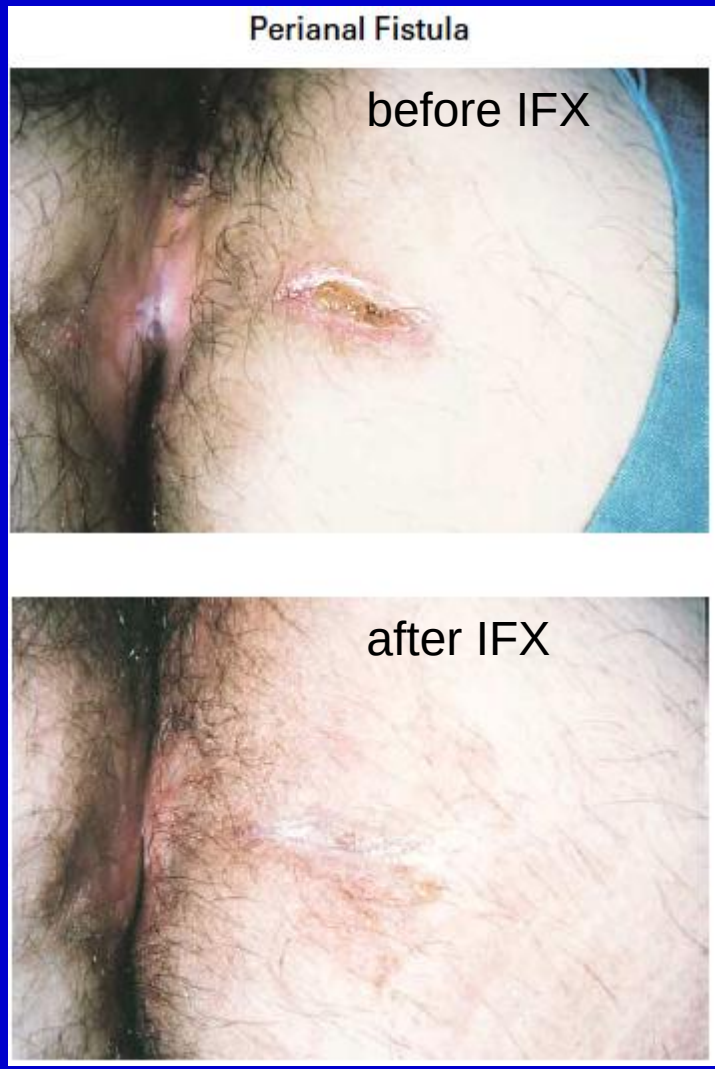


Dejaco et al., APT 2003

Infliximab Maintenance Therapy for Fistulizing Crohn's Disease

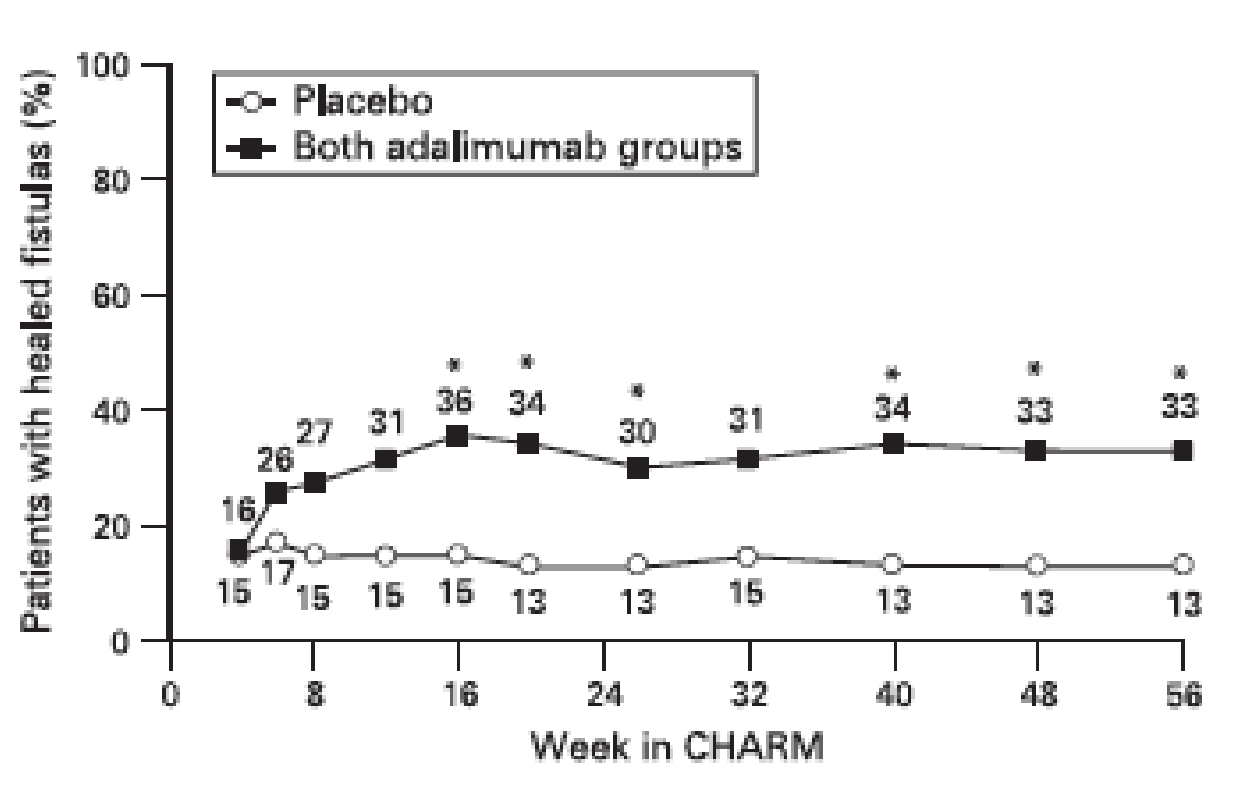


Sands et al., NEJM 2004



Present et al., NEJM 1999

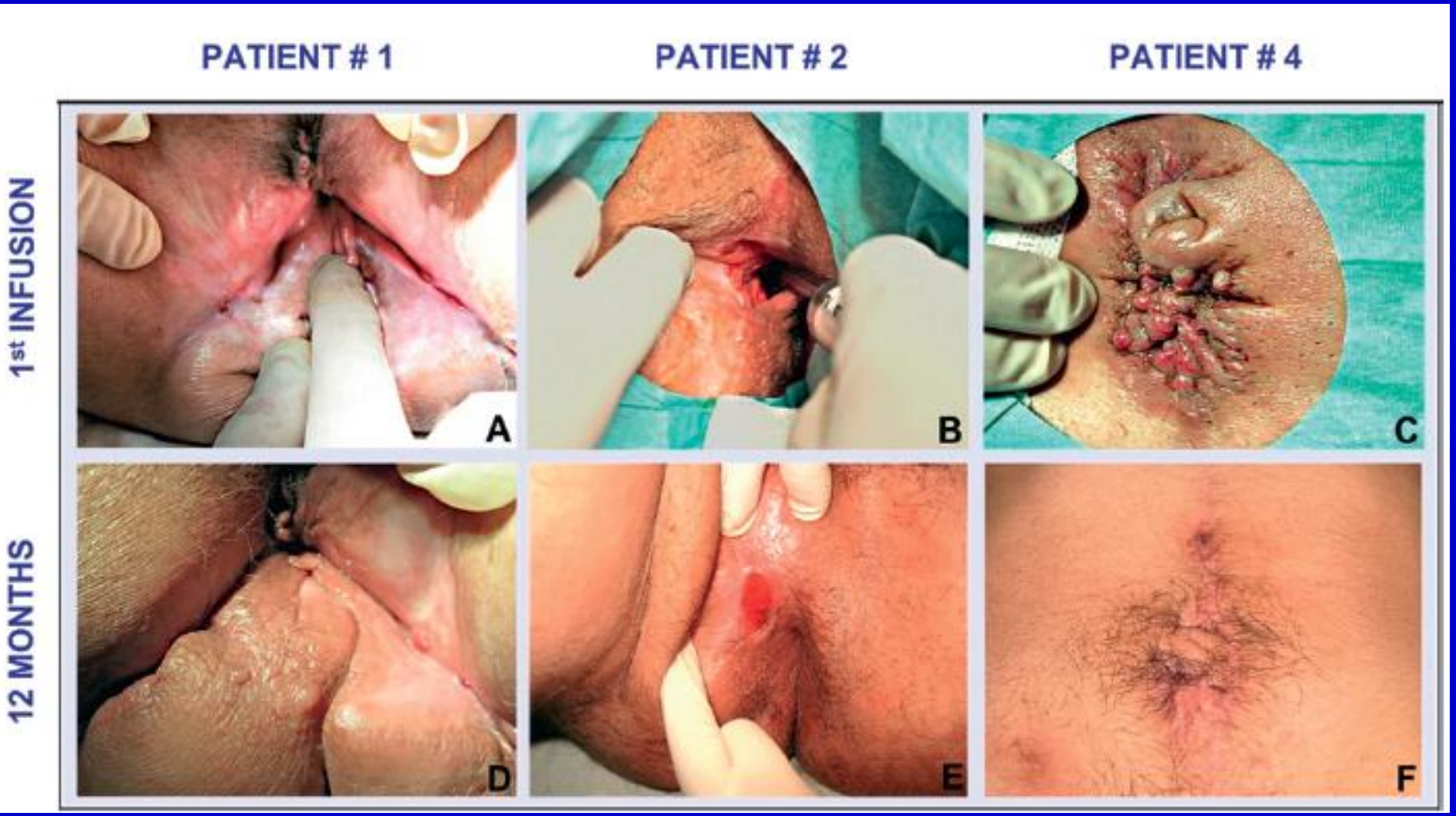
Adalimumab for the treatment of fistulas in patients with Crohn's disease



Colombel et al., Gut 2009

Autologous bone marrow-derived mesenchymal stromal cells in the treatment of fistulising Crohn's disease

n=12



Cicciocioppo et al., Gut 2011

Ng et al., AJG 2009

Prospective Evaluation of Anti-Tumor Necrosis Factor Therapy Guided by Magnetic Resonance Imaging for Crohn's Perineal Fistulas

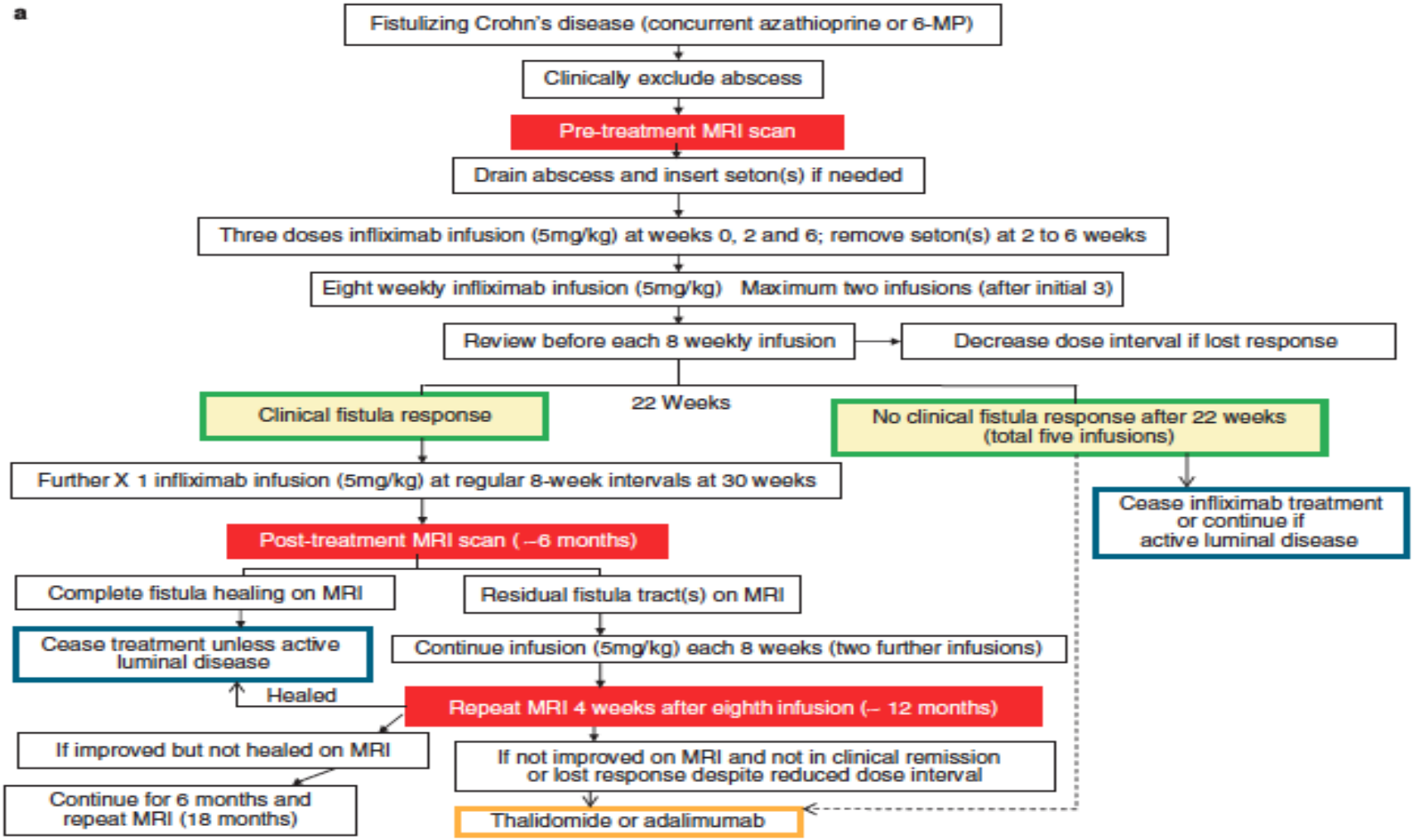
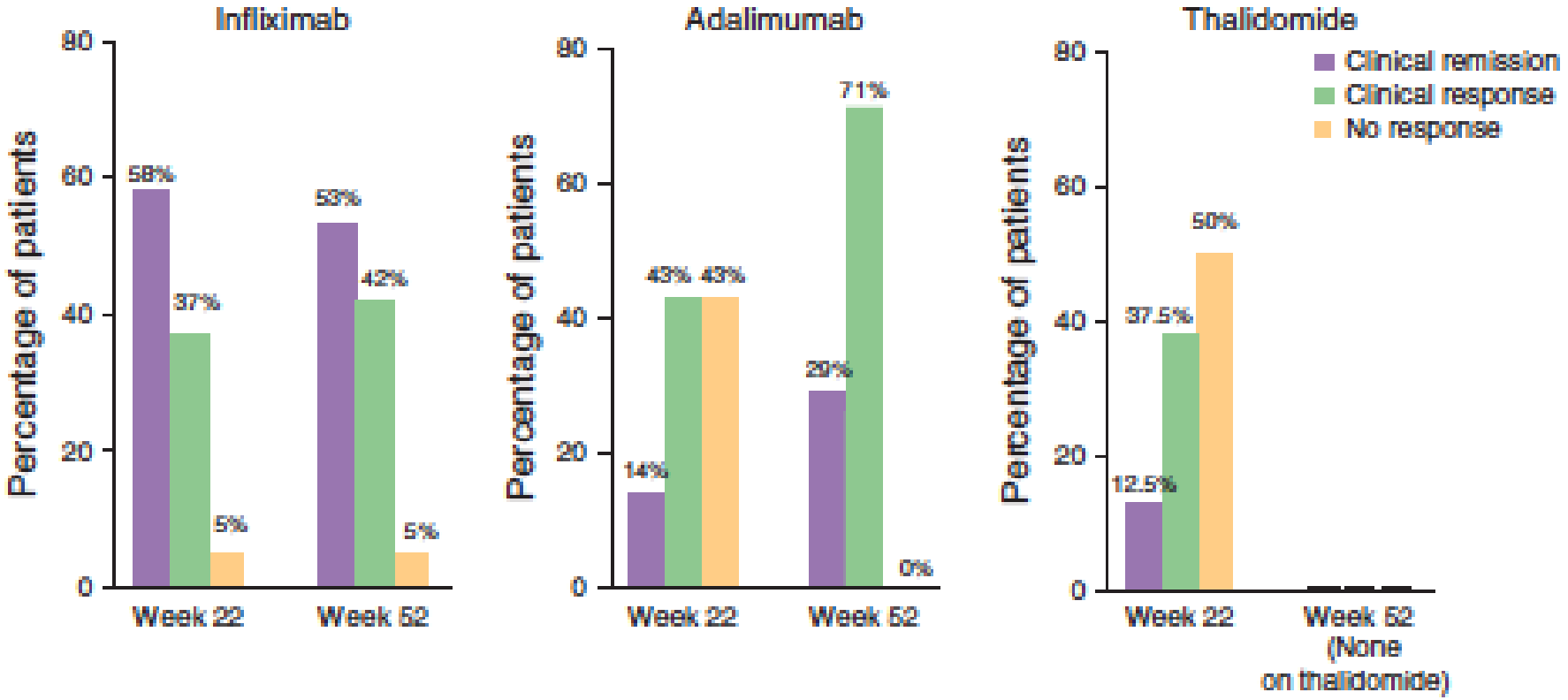
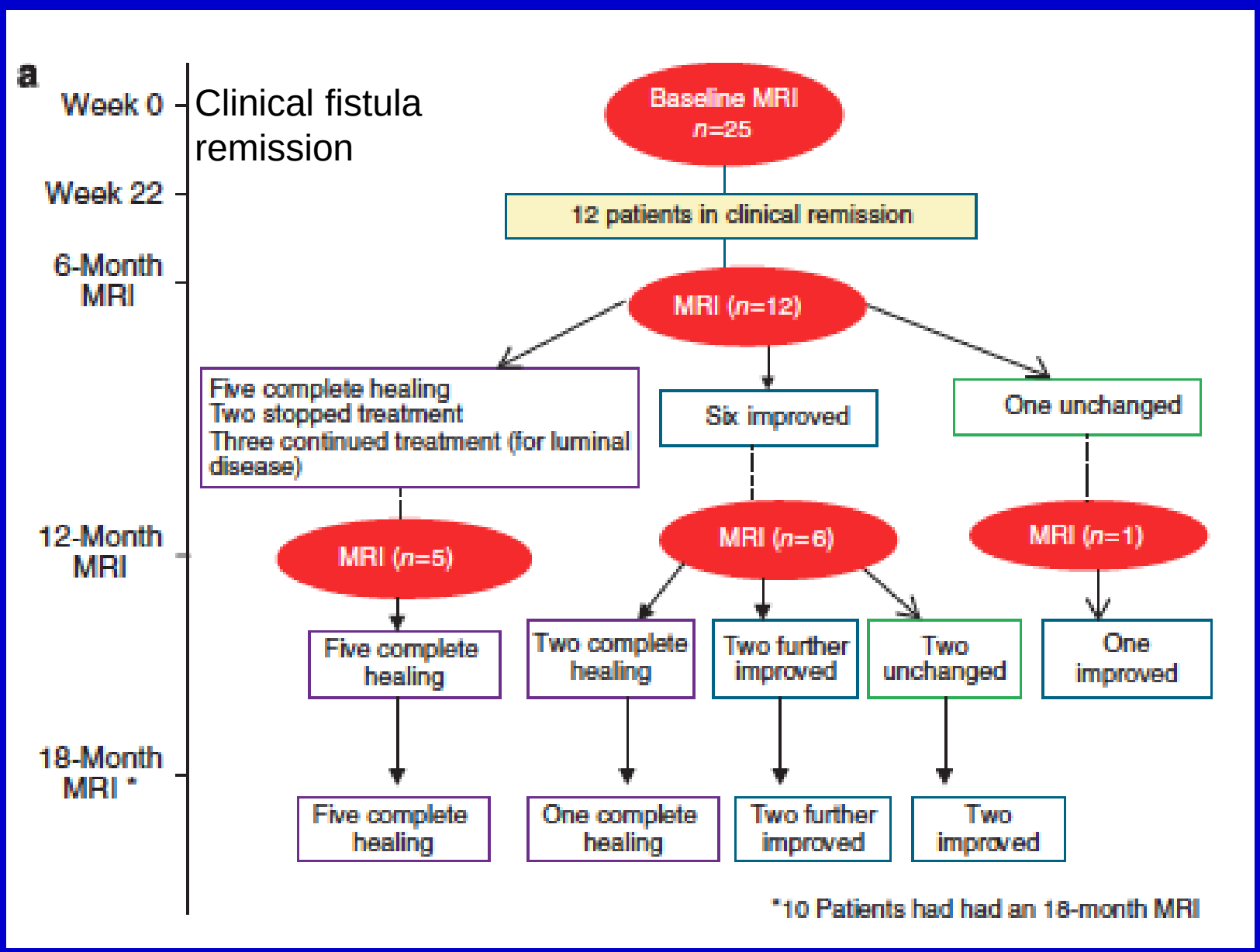


Figure 1. (**a**) Treatment algorithm for intravenous infliximab. MP, mercaptopurine; MRI, magnetic resonance imaging.



MRI fistula resolution was variable and slower than clinical healing. Prolonged treatment is often required for internal track resolution. Preliminary data suggest once MRI healing has occurred fistulas remain healed, while remaining on, or stopping anti-TNFα therapy. The use of a second antibody is clinically valuable. *Ng et al., AJG 2009*



Ng et al., AJG 2009

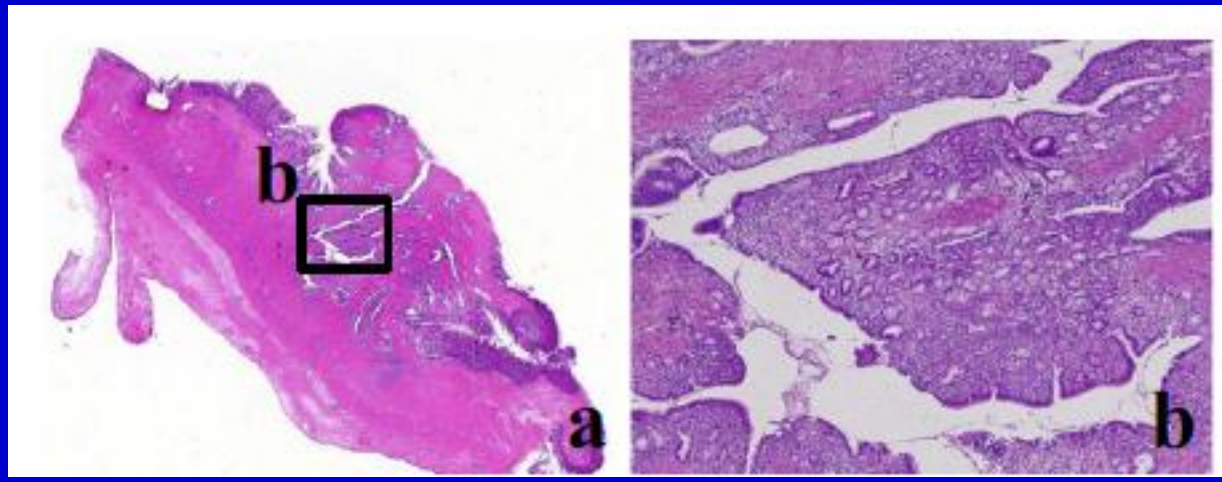
ECCO Statement 9N

In the event of anti-TNF failure, the use of azathioprine/mercaptopurine or methotrexate, with antibiotics as adjunctive treatment, is the first therapeutic choice [EL5, RG D]. Depending on the severity of the disease, a diverting ostomy can be performed and can rapidly restore quality of life, or proctectomy as the last resort [EL5, RG D].

van Asche et al., JCC 2010

Malignant transformation of perianal and enterocutaneous fistula is rare: results of 17 years followup of The Netherlands

4 of 6058 CD pts
developed fistula associated adenocarcinoma



Baars et al., Scand J Gastroenterol 2011

Sogawa et al., Internal Medicine 2013