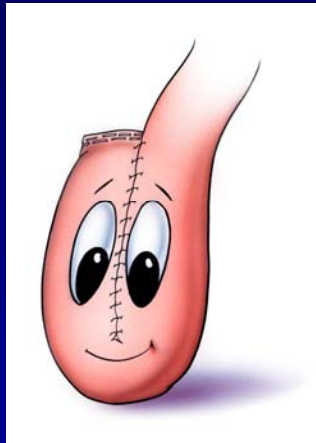
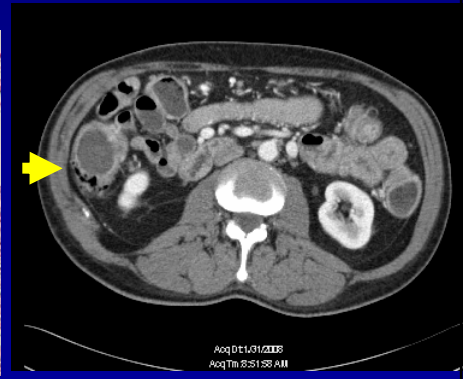
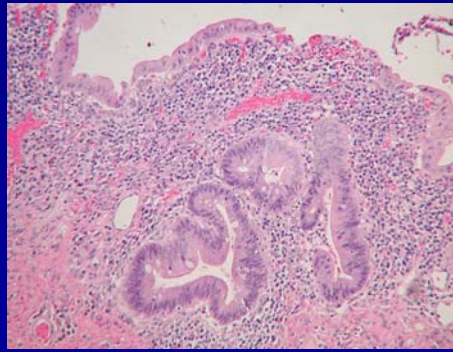
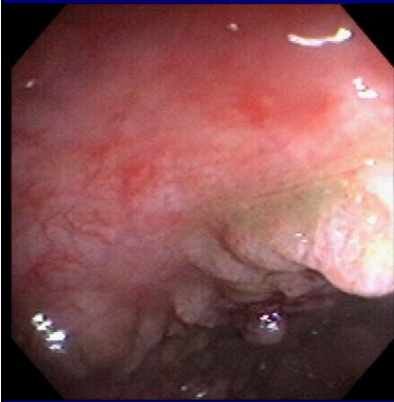


# Diagnosis and Management of Crohn's Disease of the Ileal Pouch

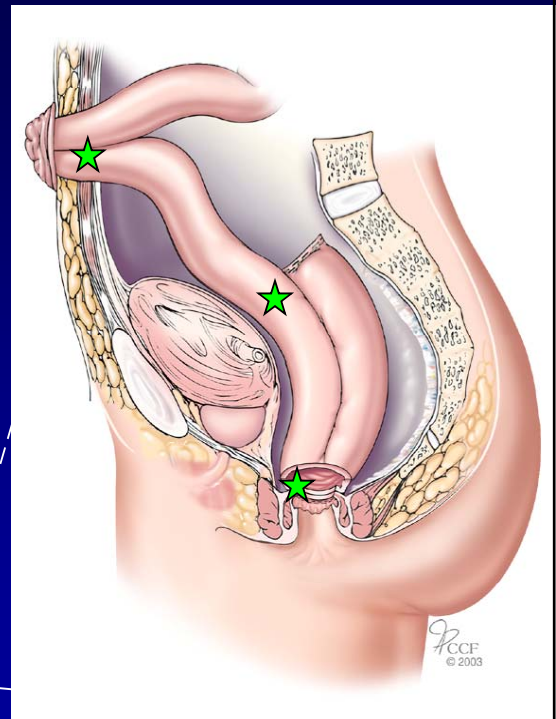
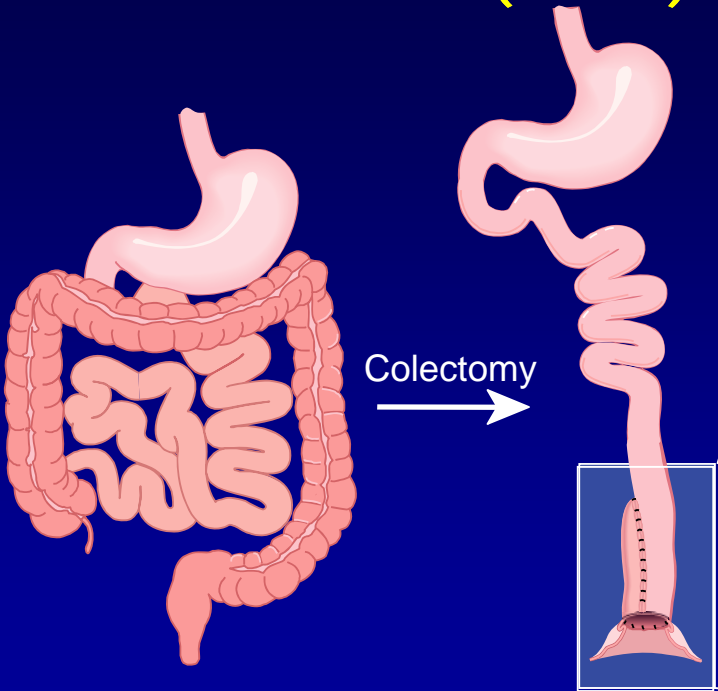


Bo Shen, MD  
Cleveland Clinic  
December 5, 2008

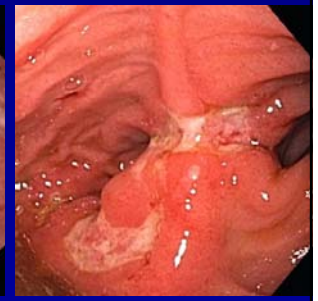
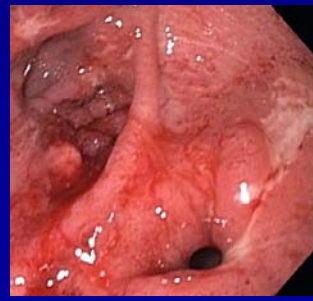
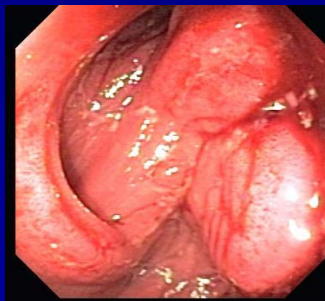
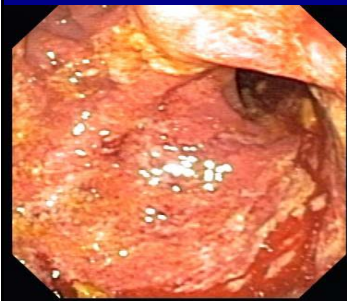
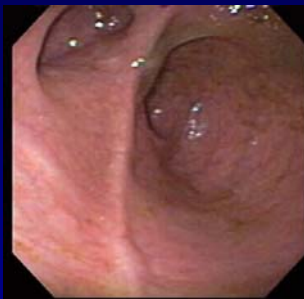
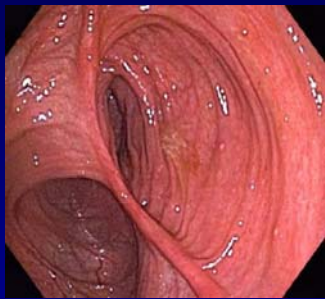
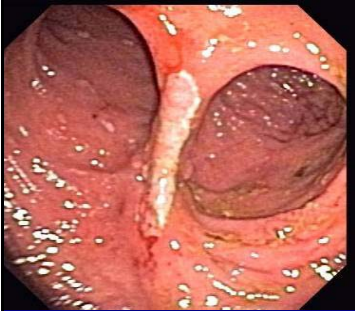
# Indications for Colectomy



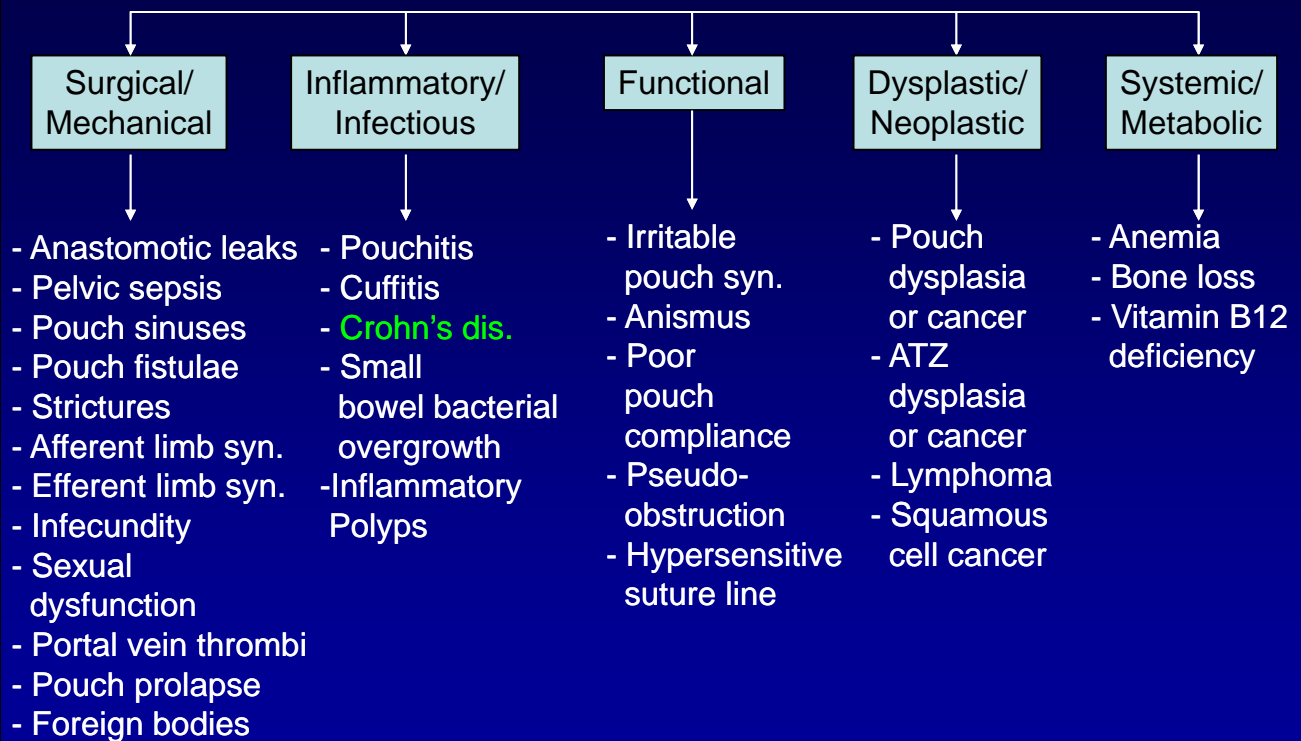
# Ileal Pouch-anal Anastomosis (IPAA)



# Owl's Eyes



## Ileal Pouch Disorders and Associated Complications



# Crohn's Disease in Patients with IPAA



## Risk Factors for Crohn's Disease of the Pouch

- Younger age
- Female
- Smoker
- Family history of Crohn's disease
- Preoperative diagnosis of indeterminate colitis
- Sero-positive anti-*Saccharomyces cerevisiae*-IgA

(different risk factors for clinical phenotypes)

Melmed GY, et al. *DCR* 2008

Delaney CP, et al. *Ann Surg* 2002

Shen B, et al. *AJG* 2006

Shen B, et al. *CGH* 2006

Shen B, et al. *IBDJ* 2008

# Phenotypic Classification

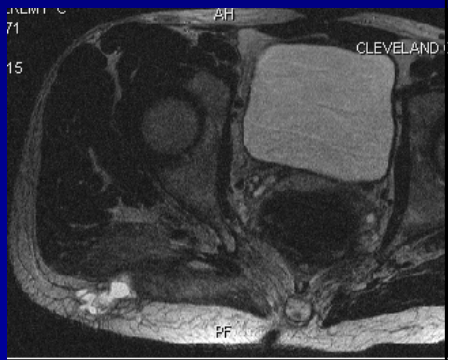
Inflammatory



Fibrostenotic



Fistulizing



Shen B, CGH 2008



# Diagnosis

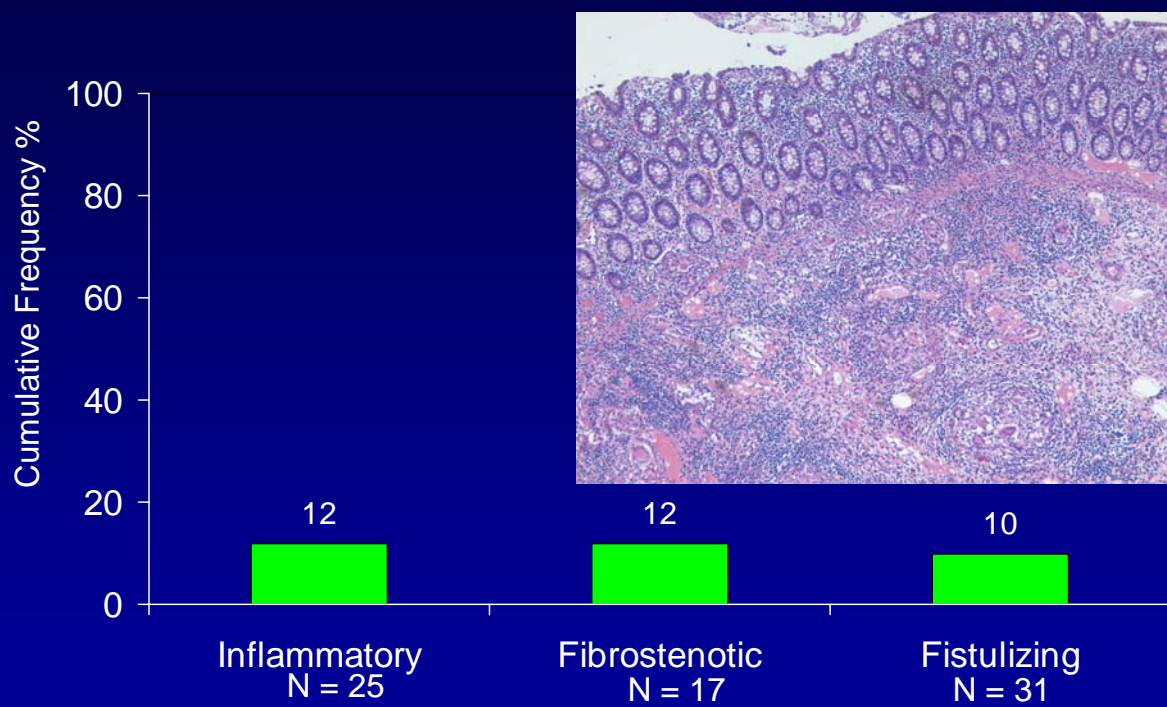
# Terminology

- Crohn's disease
- Crohn's disease of the pouch ✓
- Crohn's-like
- Or a totally "unknown" disease entity

## “Hallmarks” of Crohn’s Disease

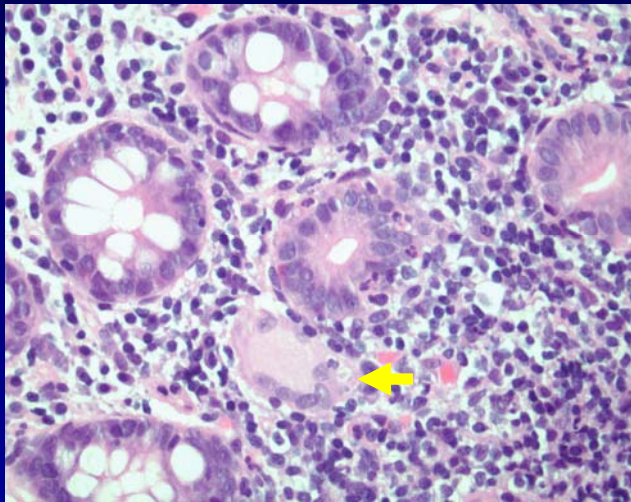
- Granulomas
- Skip lesions
- Transmural inflammation
- Fistula
- pseudogranulomas
- ischemia
- chronic pouchitis
- Surgery-related

# Granulomas in Crohn's Disease of IPAA

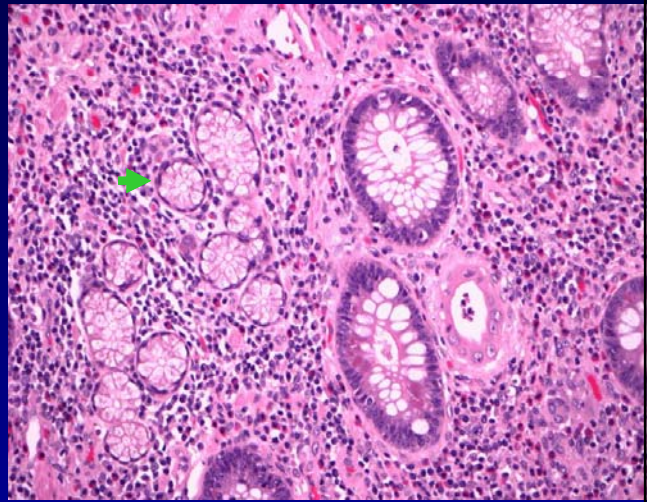
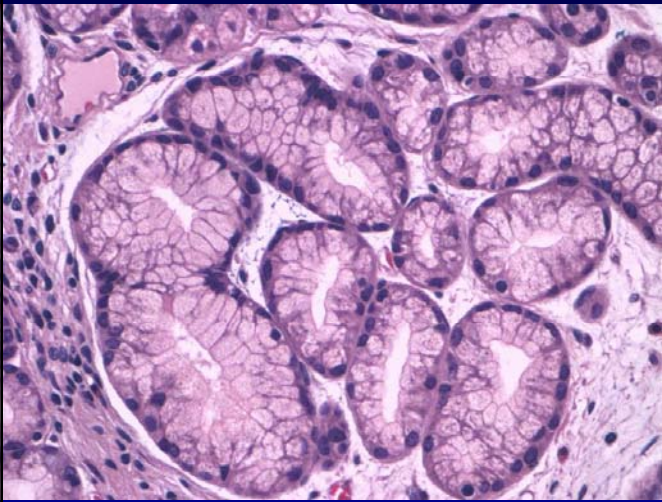


Shen B, et al AJG 2006

## Foreign-body Granulomas



## Pyloric Glands and Pyloric Gland Metaplasia



N = 110

Sensitivity = 63.8% ; Specificity = 96.2%

Likelihood ratio = 16.7

Pouch failure: 12.8% in PGM+ vs. 1.4% in PGM- (P = 0.02)

Kariv R. *et al* DDW 2007

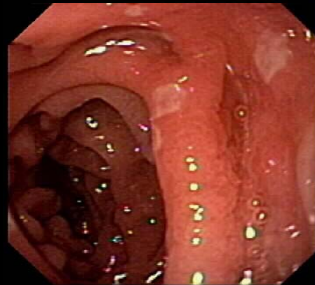
## Causes of Afferent Limb Inflammation (Ileitis)

- NSAID induced
- Backwash ileitis from diffuse pouchitis
- Surgery-related ischemia or ischemic ileitis
- Crohn's ileitis

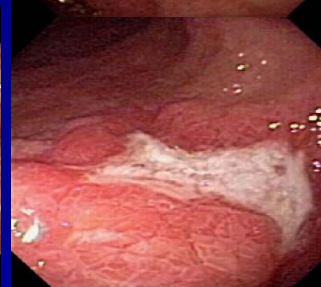
# Differential Diagnosis of Distal Ileitis



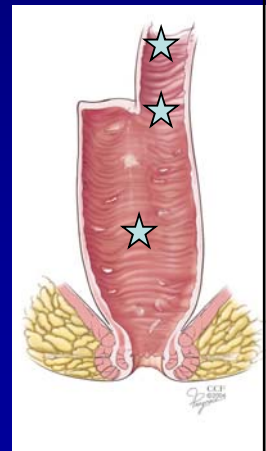
Backwash  
Ileitis from  
diffuse  
pouchitis



NSAID  
induced



CD



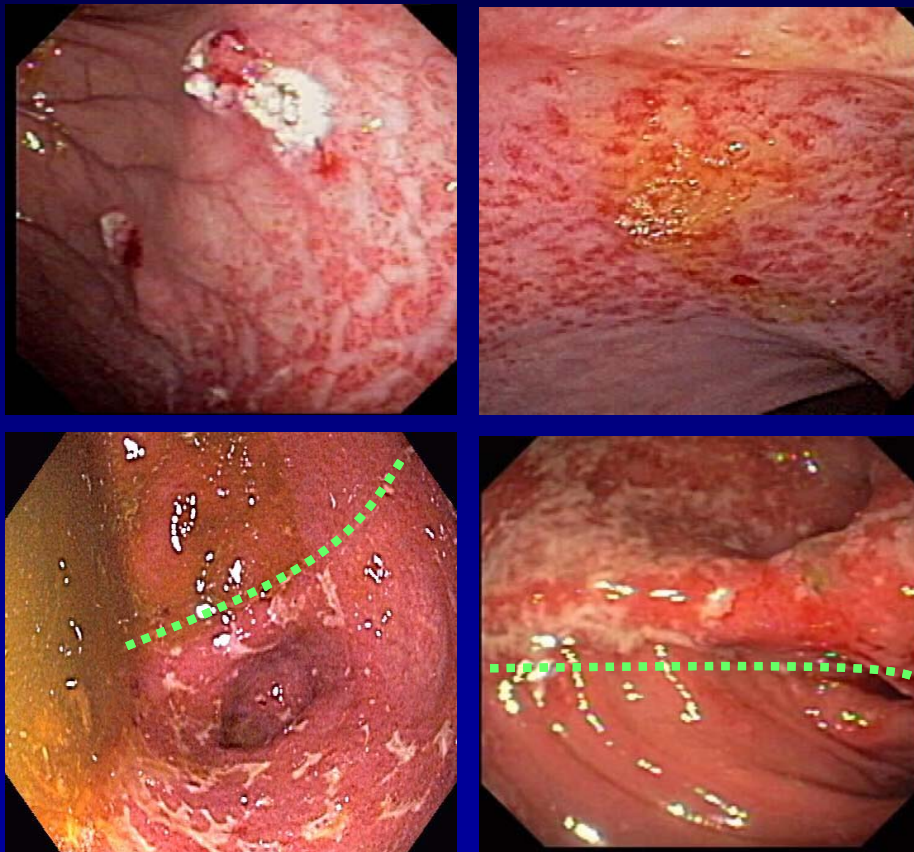
Afferent Limb

Pouch Inlet

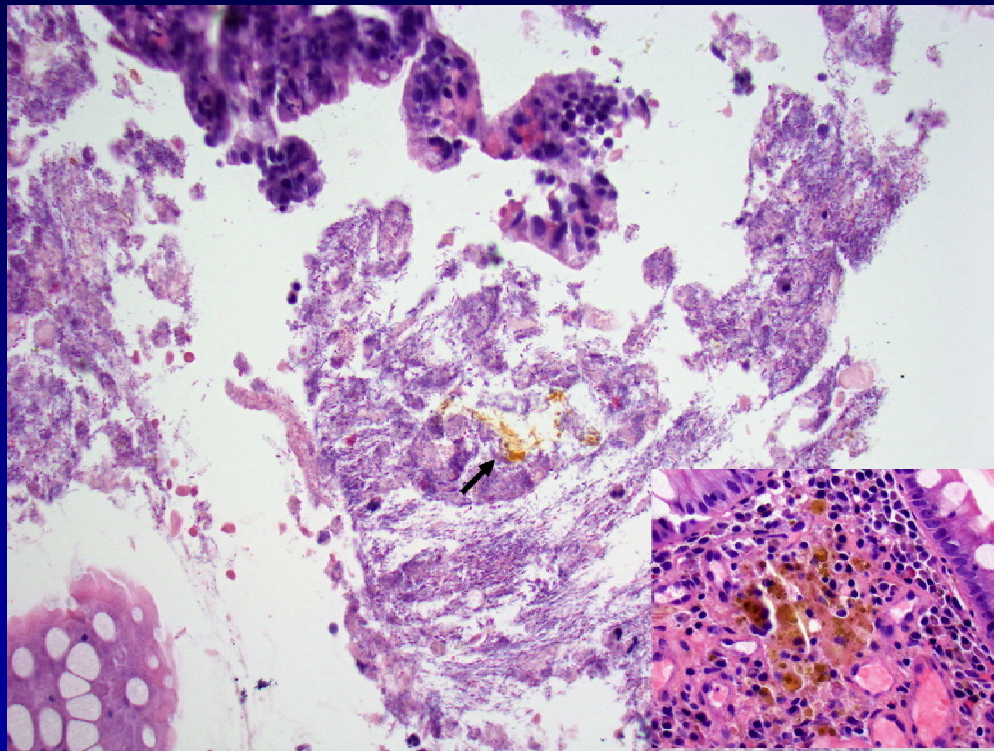
Pouch Body



# Segmental Pouchitis-Pattern of Ischemic Injury



## Extracellular Pigments in Ischemic Pouchitis



Shen B, et al. *DDW* 2009

## Features of Ischemic Pouchitis

	Ischemic Pouchitis (N = 10)	CD Pouch (N = 15)	Antibiotic-responsive Pouchitis (N = 15)	P value
Symptom score	3 (0, 5)	3 (2, 4)	4 (2, 4)	0.66
Pouch endoscopy score	2.5 (2, 4)	1 (0, 3)	4 (3, 5)	0.014
A-limb endoscopy score	0 (0, 0)	2 (0, 3)	0 (0, 0)	0.001
Cuff endoscopy score	0 (0, 2)	0.5 (0, 3)	0 (0, 2)	0.78
Any response to antibiotics	2 (20.0%)	13 (86.7%)	15 (100%)	0.001
Granulomas	0	2 (15.4%)	0	0.17
Pyloric gland metaplasia	0	3 (23.1%)	2 (13.3%)	0.34
Histologic ulcers	4 (40.0%)	2 (15.4%)	3 (20.0%)	0.4
Extracellular pigment	8 (80.0%)	4 (30.8%)	2 (13.3%)	0.003

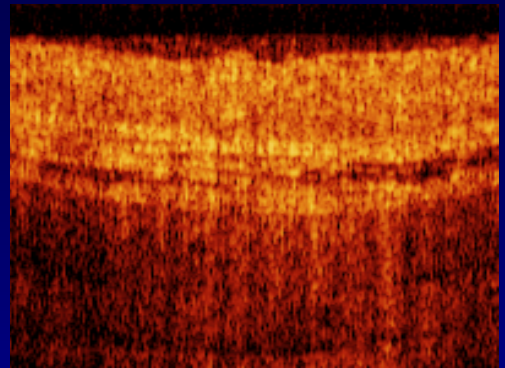
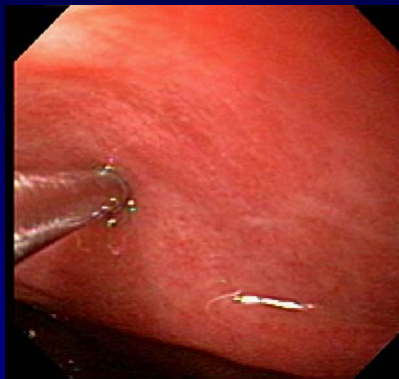
Shen B, et al. *DDW* 2009

## Distinction between Ischemic and Crohn's Stricture

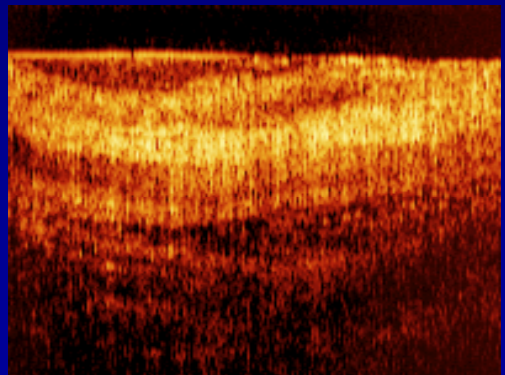
	Ischemia	CD Pouch
Location of strictures	Ileostomy site, inlet/outlet	Anywhere
Fistula	-	+
Granulomas	-	+
Pyloric gland metaplasia	-	+
Extracellular pigment	+	+/-
Response to medicines	-	+/-
Response to endoscopic tx	+	+/-

# Optical Coherence Tomography for Transmural Inflammation

Normal Pouch



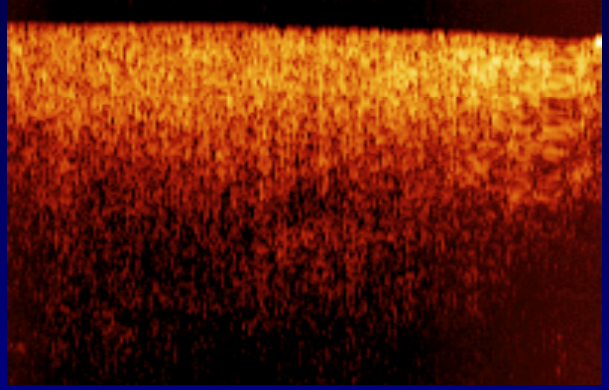
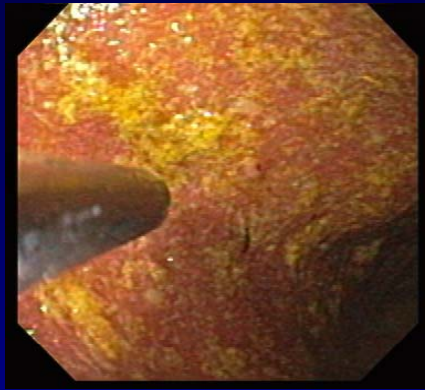
Acute Pouchitis



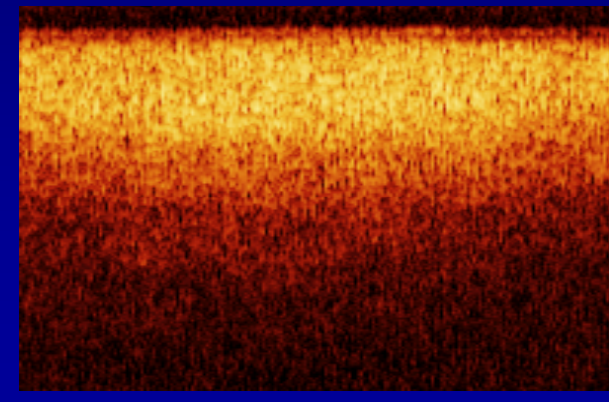
Shen B. *DDW* 2009

# Optical Coherence Tomography for Transmural Inflammation

Chronic Pouchitis

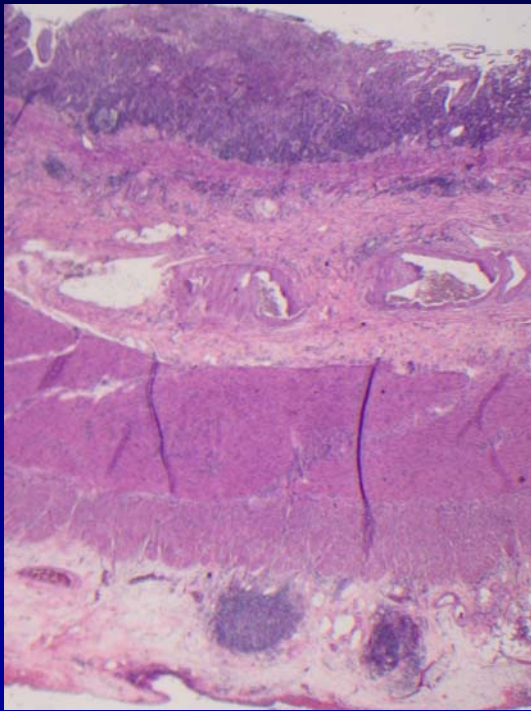


Crohn's Pouch

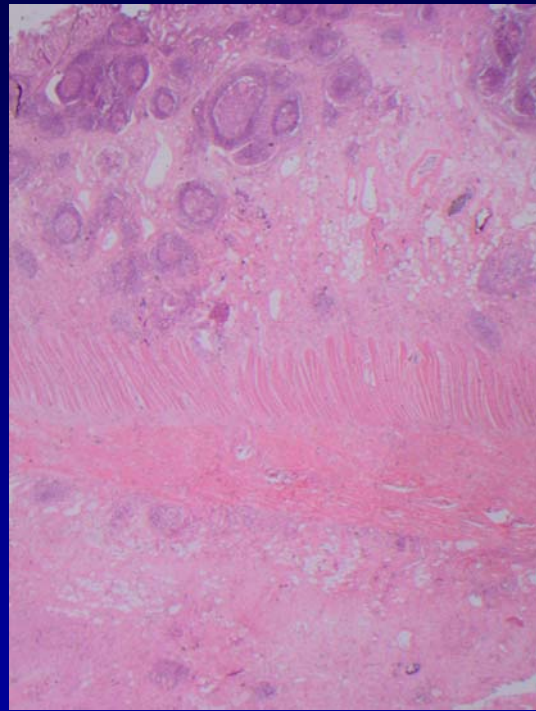


Shen B. *DDW* 2009

## Transmural Inflammation-A Sign of Crohn's?



Chronic Pouchitis



Crohn's Disease of Pouch

Shen B. *DDW* 2009

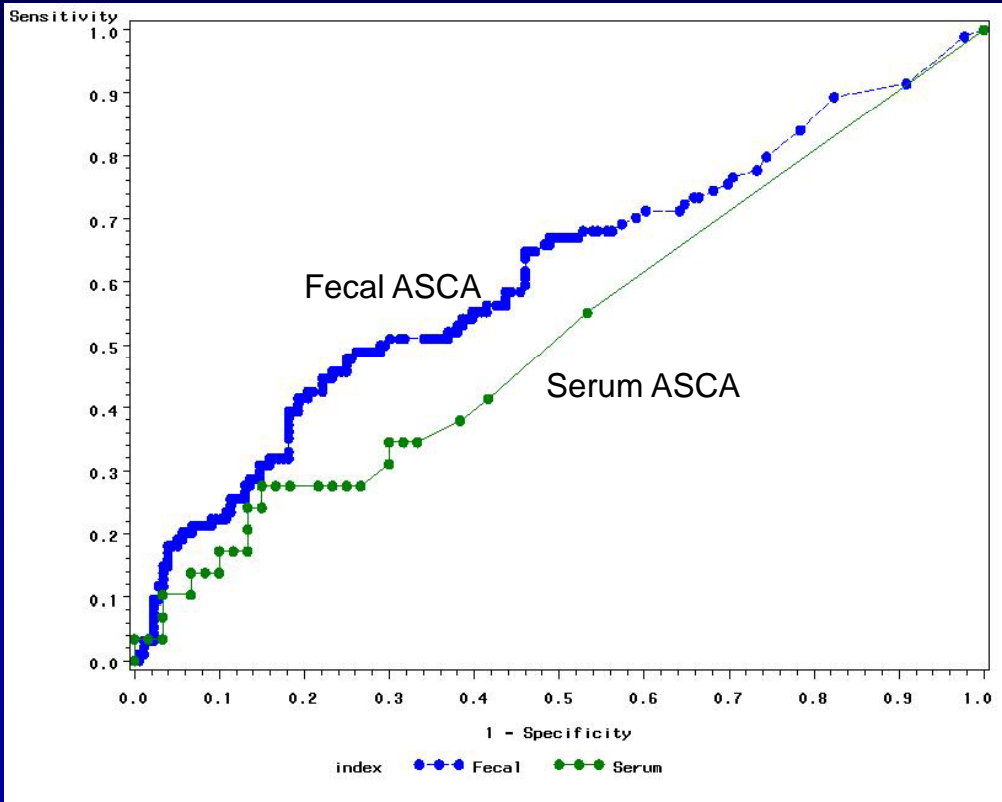
## Histopathology of Pouch Resection Specimens

	Crohn's (N =16)	Chronic Pouchitis (N = 10)	<i>P</i> value
Granulomas	19%	0	0.14
Pyloric gland metaplasia	50%	50%	1.0
Intraepithelial lymphocytosis	0	0	NA
Transmural inflammation	13%	35%	0.27
Dysplasia	0	10%	NA
Fistula	38%	0	0.049

Shen B. *DDW* 2009



# Fecal and Serum ASCA in Distinction of CD from Other Pouch Conditions ROC Curve

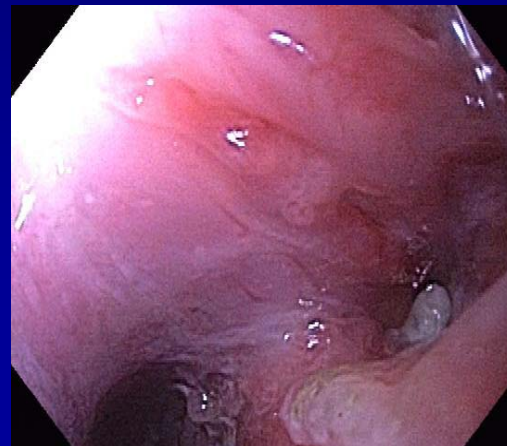
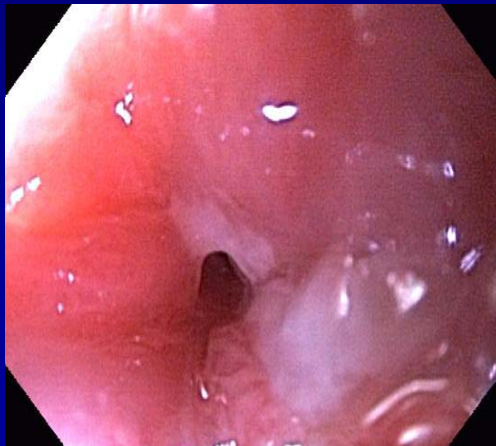
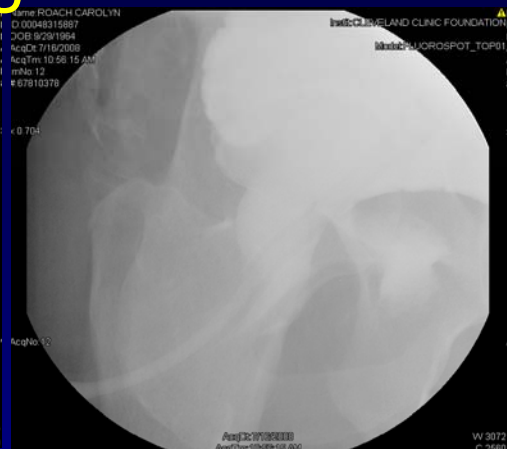


Tang L, et al. CCFM Miami 2008

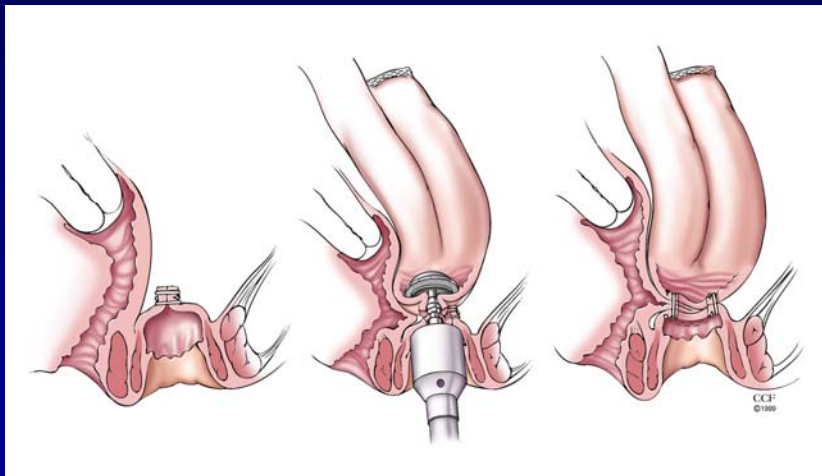
## Causes of Fistula/Sinus

- Surgical leaks
- Cryptoglandular abscess
- Iatrogenic
- Crohn's disease

# Pouch Vaginal Fistula

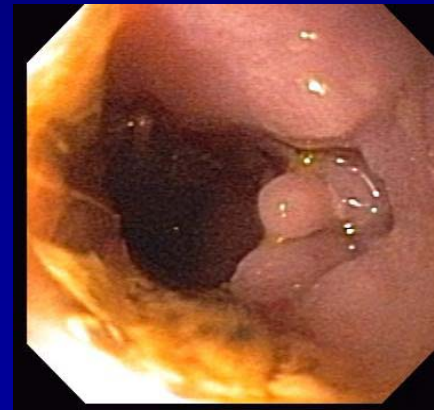
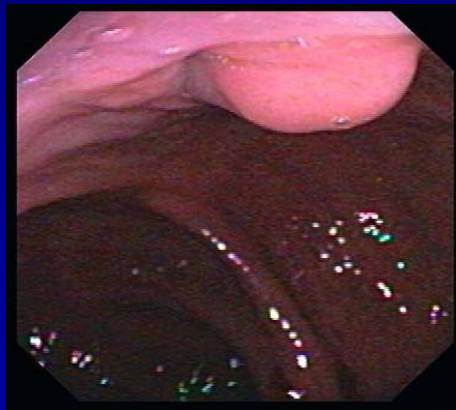
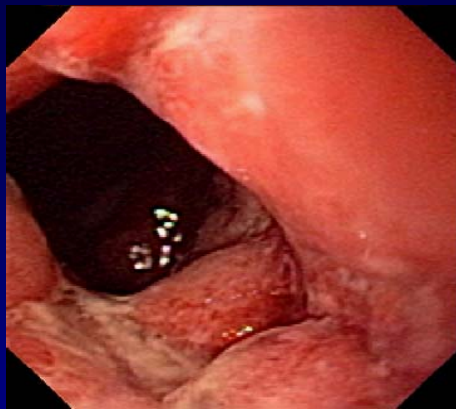


## Not All Pouch-vaginal Fistulae Are From Crohn's

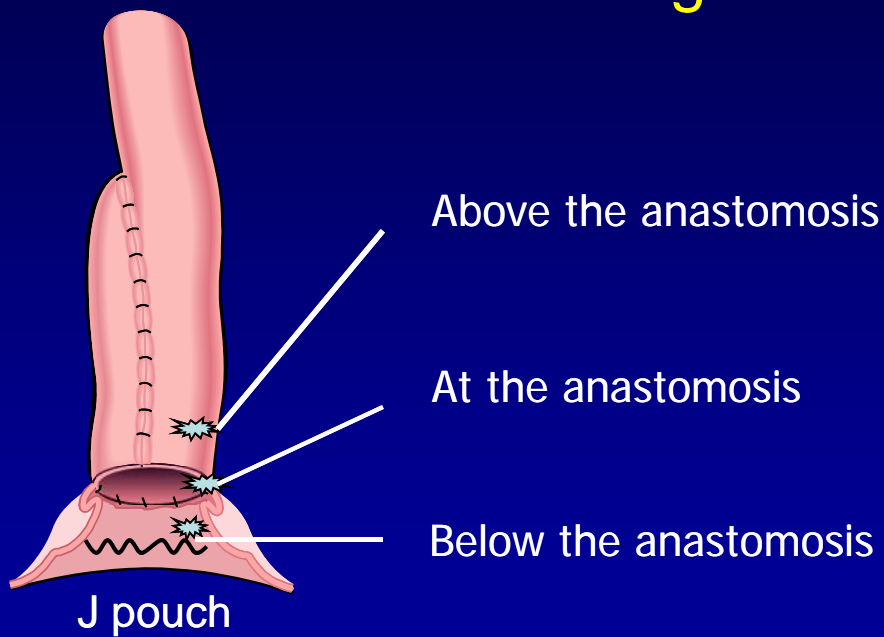


Courtesy of Dr. Victor Fazio

## Identification of Internal Os of Fistula

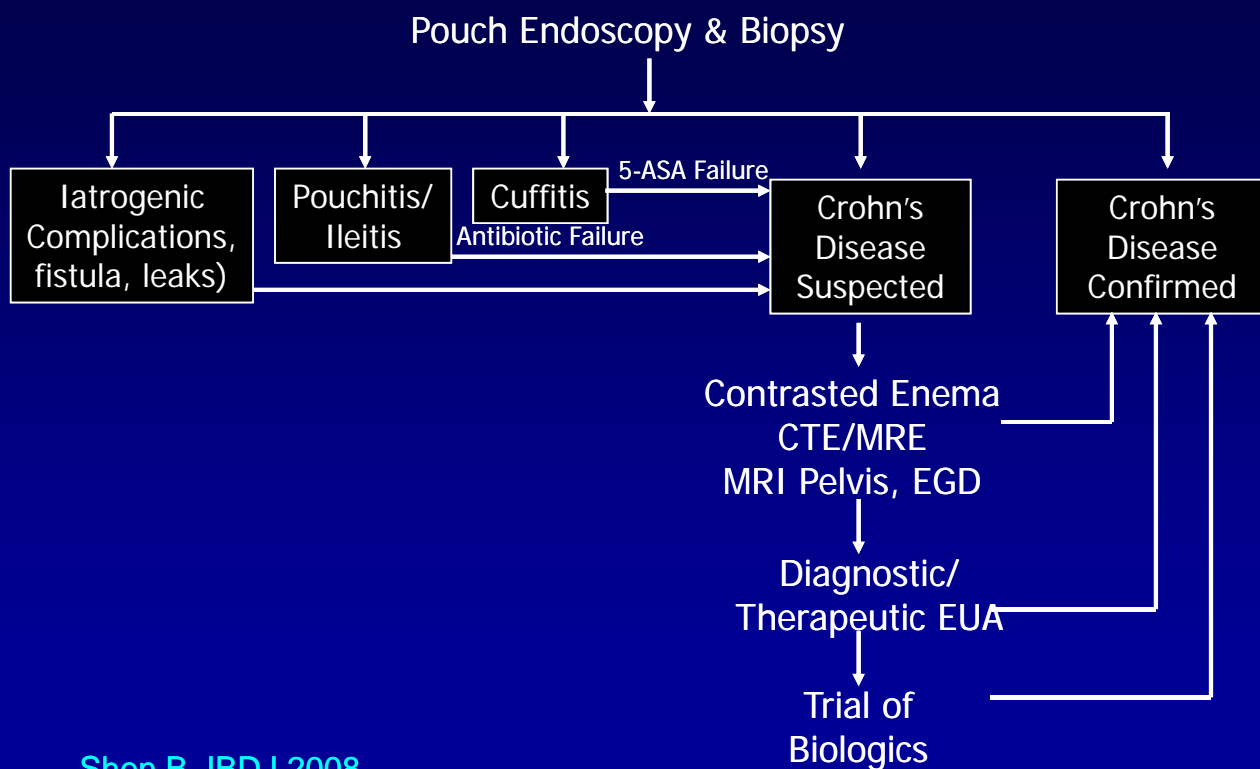


# Perianal Fistula / Pouch-vaginal Fistula A Sign of Crohn's Disease? Location and Timing Are the Key



Cut-off: 6 – 12 months after ileostomy take-down

# Diagnostic Algorithm

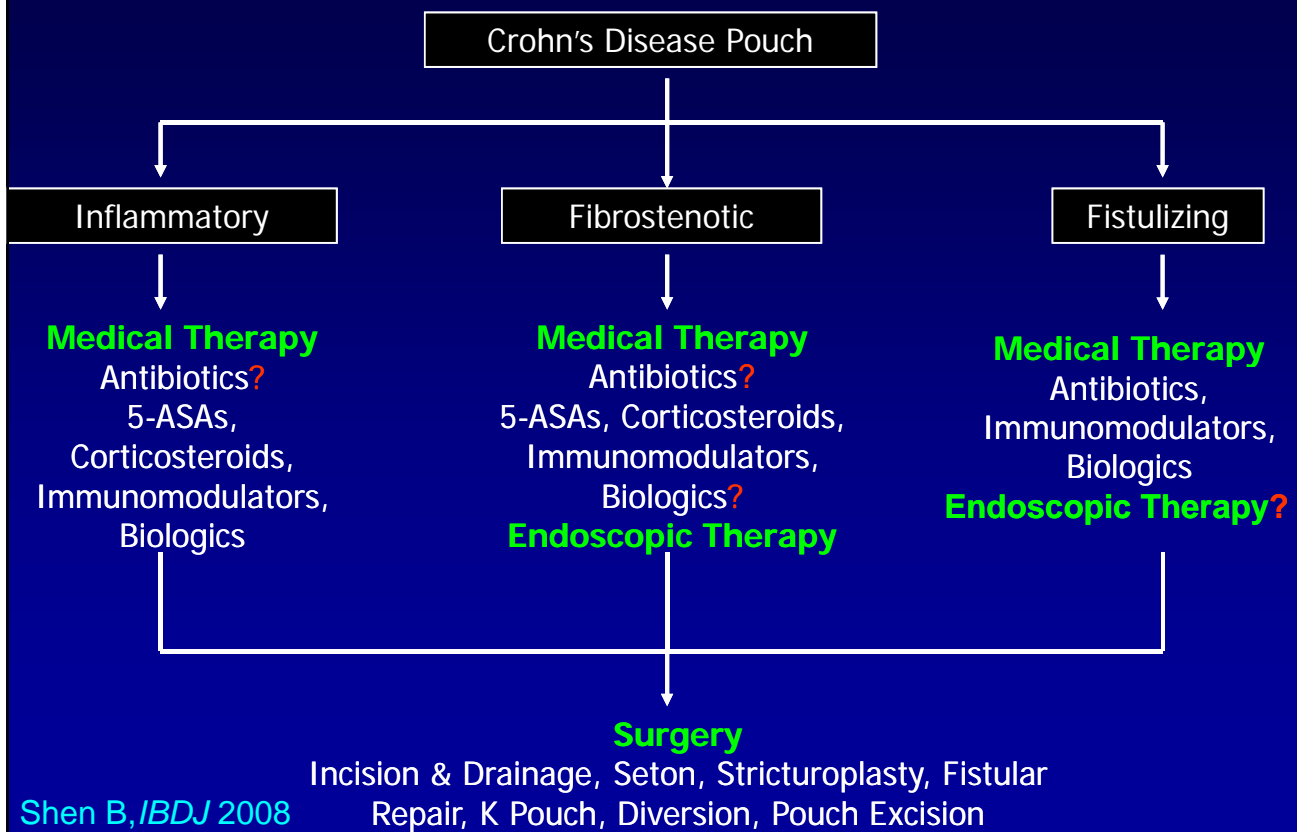


Shen B. IBDJ 2008

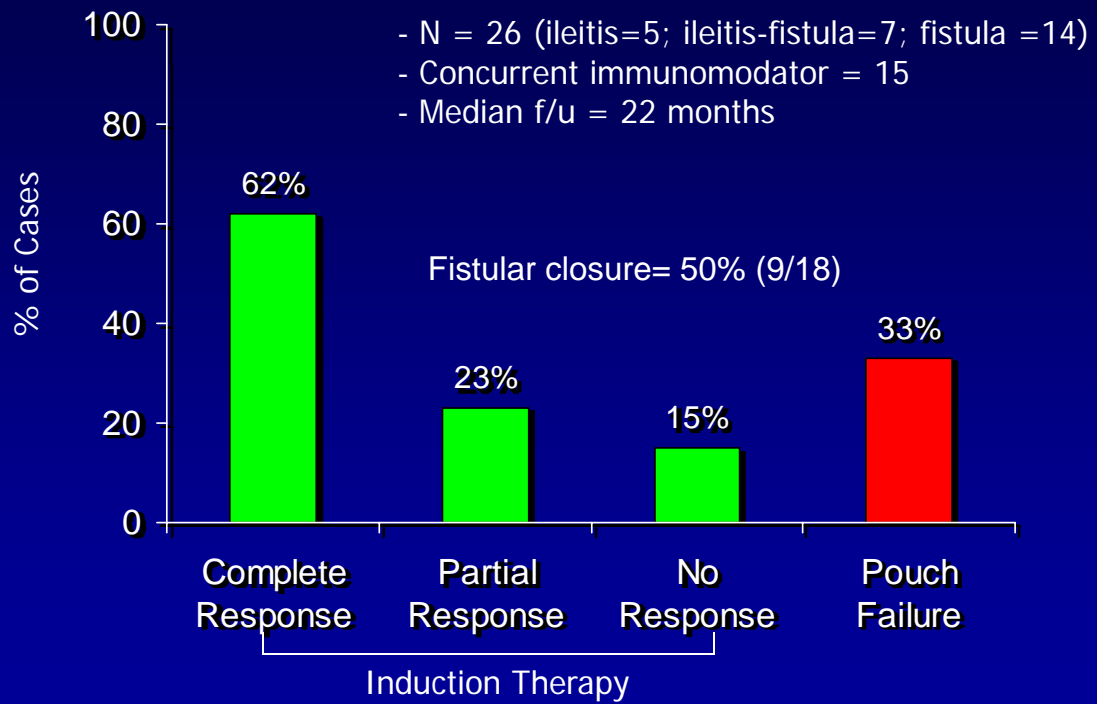
# Treatment



# Management Algorithm for Crohn's Pouch



# Infliximab for CD of the Pouch



Colombel JF, et al. *AJG* 2003

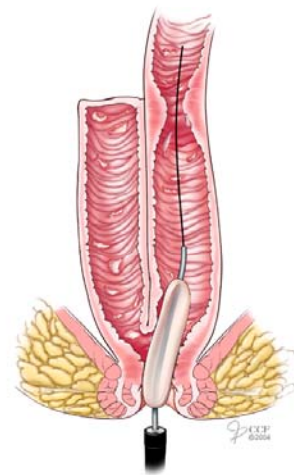
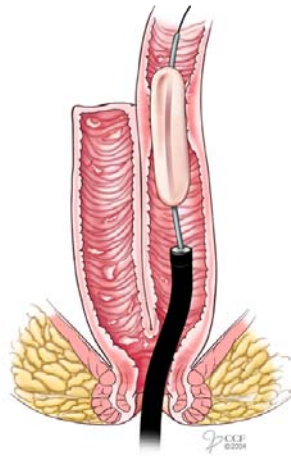
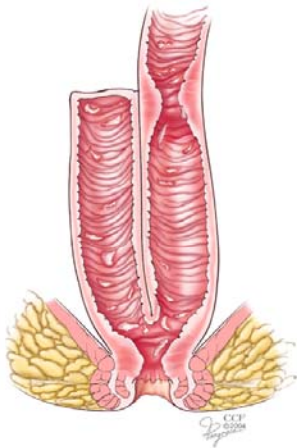
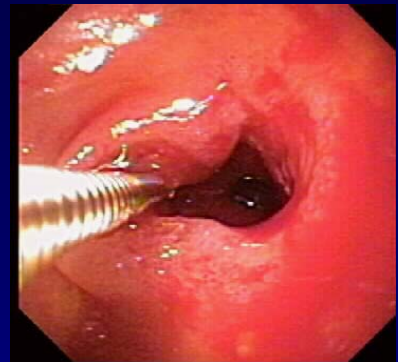
## Adalimumab for Crohn's Disease of Pouch

Factor	All
Symptom Improvement	
Partial	6 (35.3)
Complete	7 (41.2)
Endoscopic Inflammation Improvement	
Partial	4 (28.6)
Complete	7 (50.0)
Fistular Response (N=5)	
Partial	1 (20.0)
Complete	1 (20.0)
Adverse Effect	
Headache	3 (17.7)
Injection Site Reaction	1 (5.9)
Pouch Failure	3 (17.7)

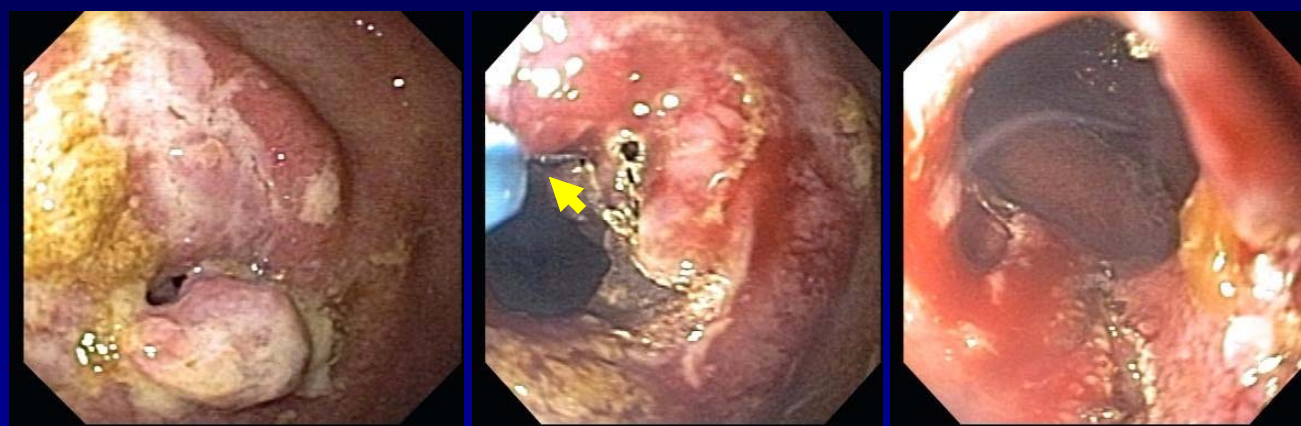
N = 17; 4 wk induction therapy

Shen B, *et al* APT 2009

# Stricture Dilations

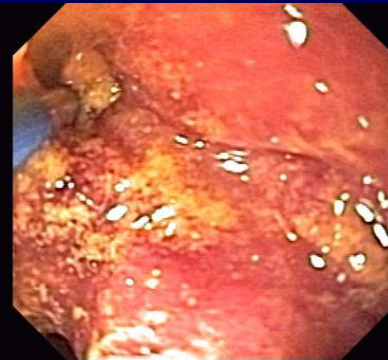


## Needle Knife “Strictureplasty”

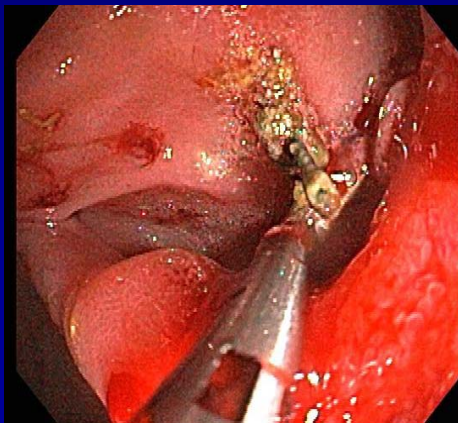
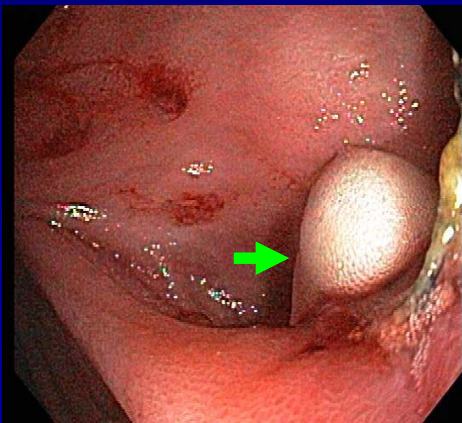
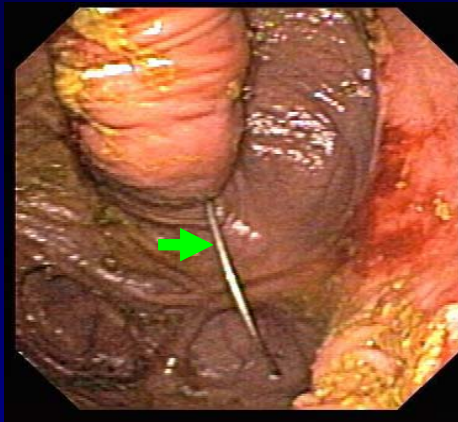
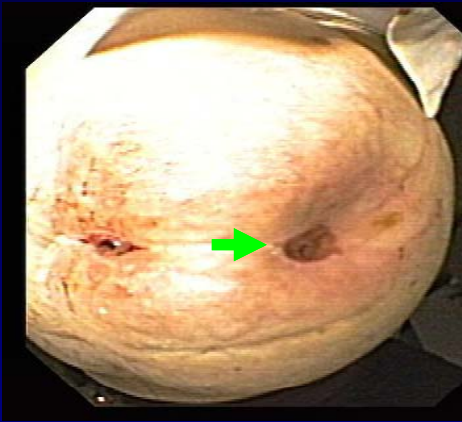


Shen B. *IBDJ* 2008

## Needle Knife "Fistulotomy"



# Pouch-cutaneous Fistula: EndoClip



# Natural History and Prognosis

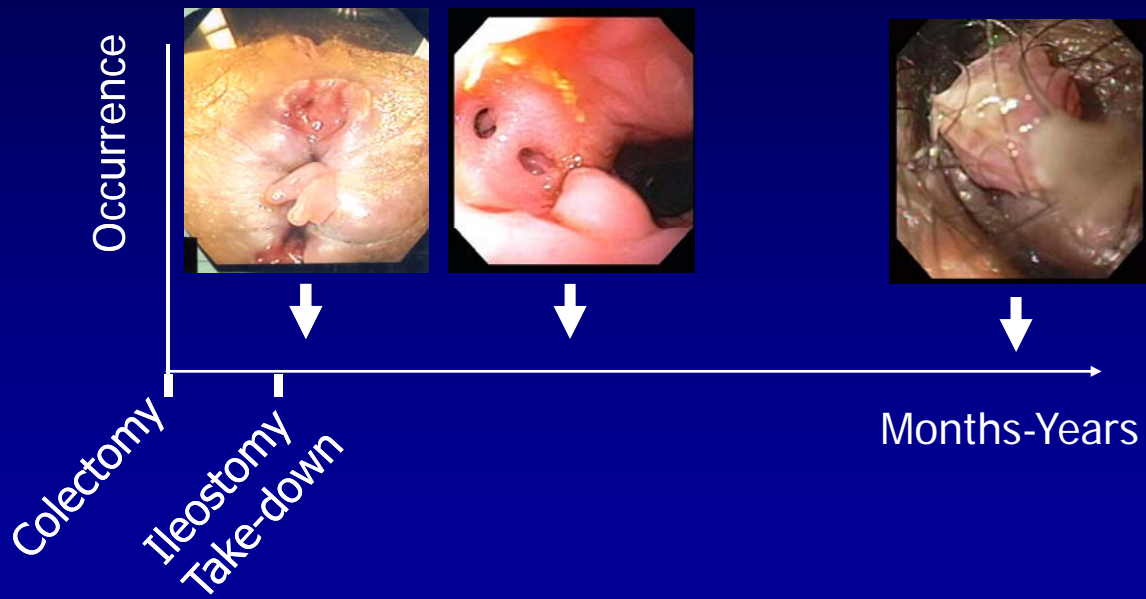


## Clinical Setting of Crohn's Disease of Pouch

- *Intentional CD pouch*: in a selected group of patients with a preop diagnosis of Crohn's colitis
- *Incidental CD pouch*: in patients with a missed diagnosis of Crohn's disease
- *De novo CD pouch*

(Diagnosis of pouch conditions can change over time)

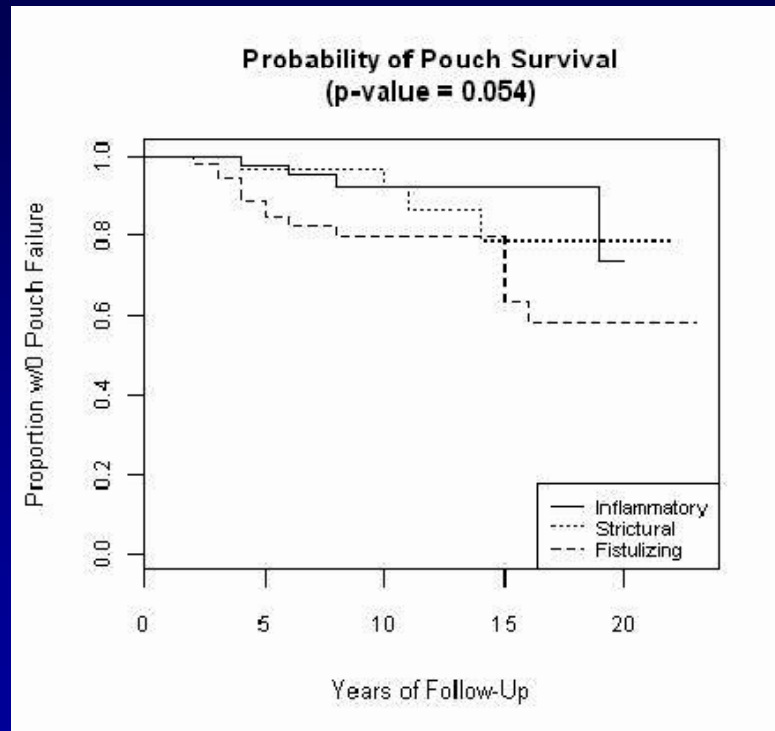
# Early vs. Late-onset of Crohn's Disease of the Pouch



## Pouch Failure in Patients with Crohn's Disease

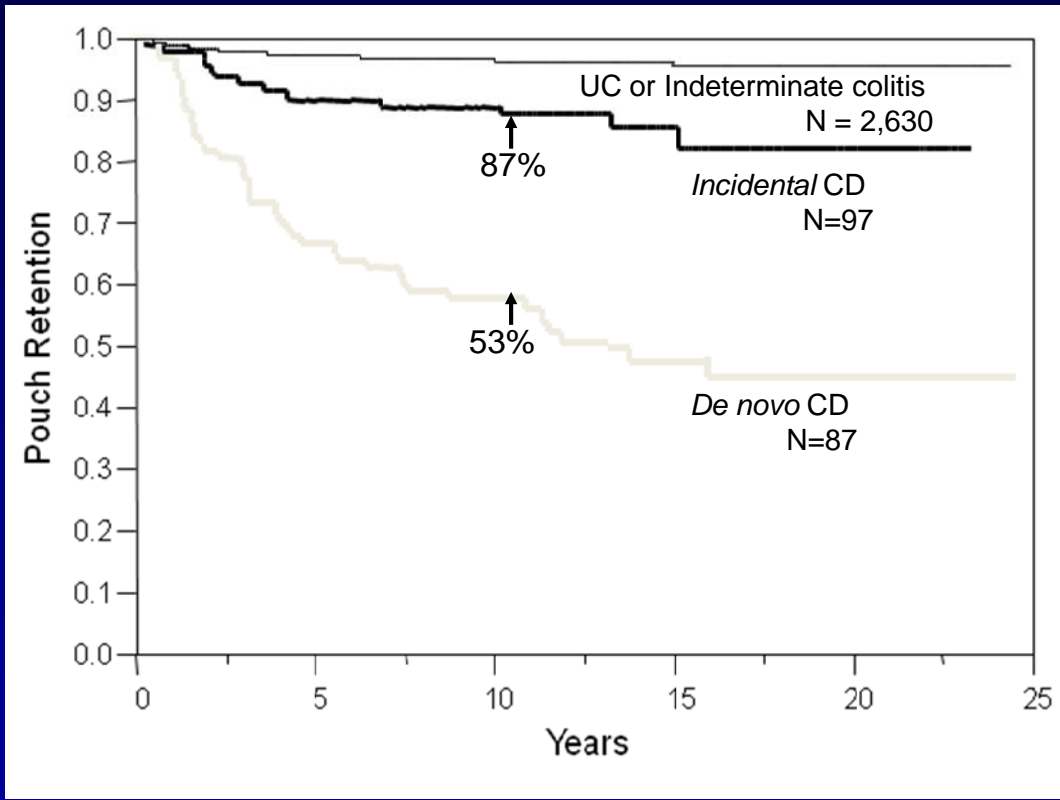


# Phenotypes of Crohn's Disease and Pouch Survival



Shen B, et al. *IBDJ* 2008

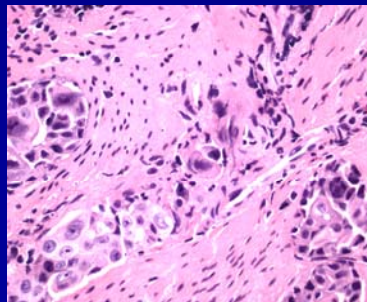
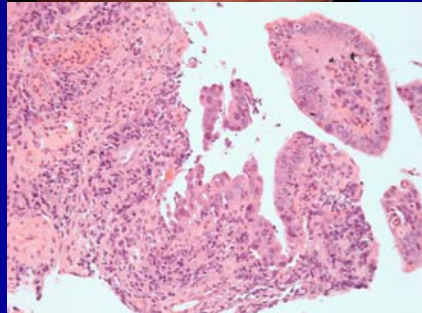
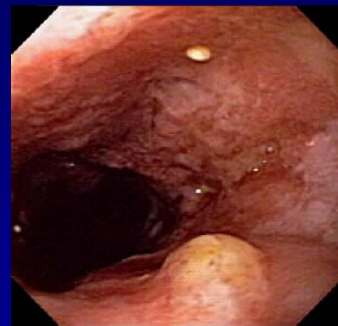
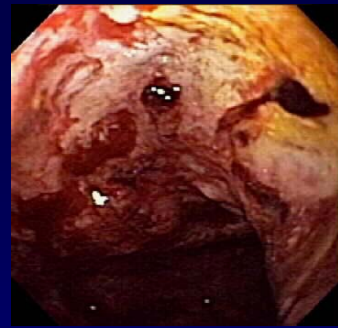
# Pouch Survival in Different Settings



Melton GB, et al. *Ann Surg* 2008



7 months



## Crohn's Disease and Cancer Risk

- Prevalence: 10/2700 with IPAA underlying UC
- Poorly-differentiated cancer: 4
- Concurrent **Crohn's disease**: 6
- Precolectomy dysplasia: 7
- Mucosectomy not necessarily protective: 3
- "Missed dysplasia" in routine surveillance: 3/7
- 1-year mortality: 40%

## Conclusions

- CD of the pouch can occur in patients with a preoperative diagnosis of UC or IC.
- Natural history varies.
- Diagnosis and differential diagnosis can be challenging, and a combined assessment of clinical, endoscopic, imaging, and histologic features is often needed.
- Phenotypic classification may be useful for “targeted” therapy and prognosis.



**THE  
INFLAMED  
POUCH**



# Anatomy of Pelvic Pouch

Afferent limb  
(neo-terminal  
ileum)

“J”

“S”

“W”

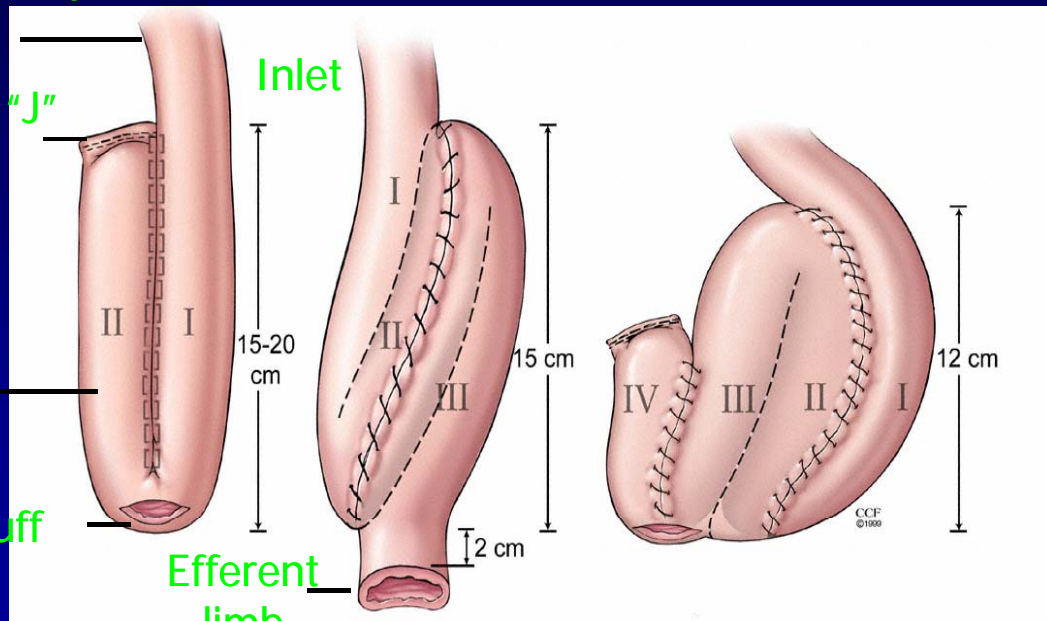
Tip of “J”

Inlet

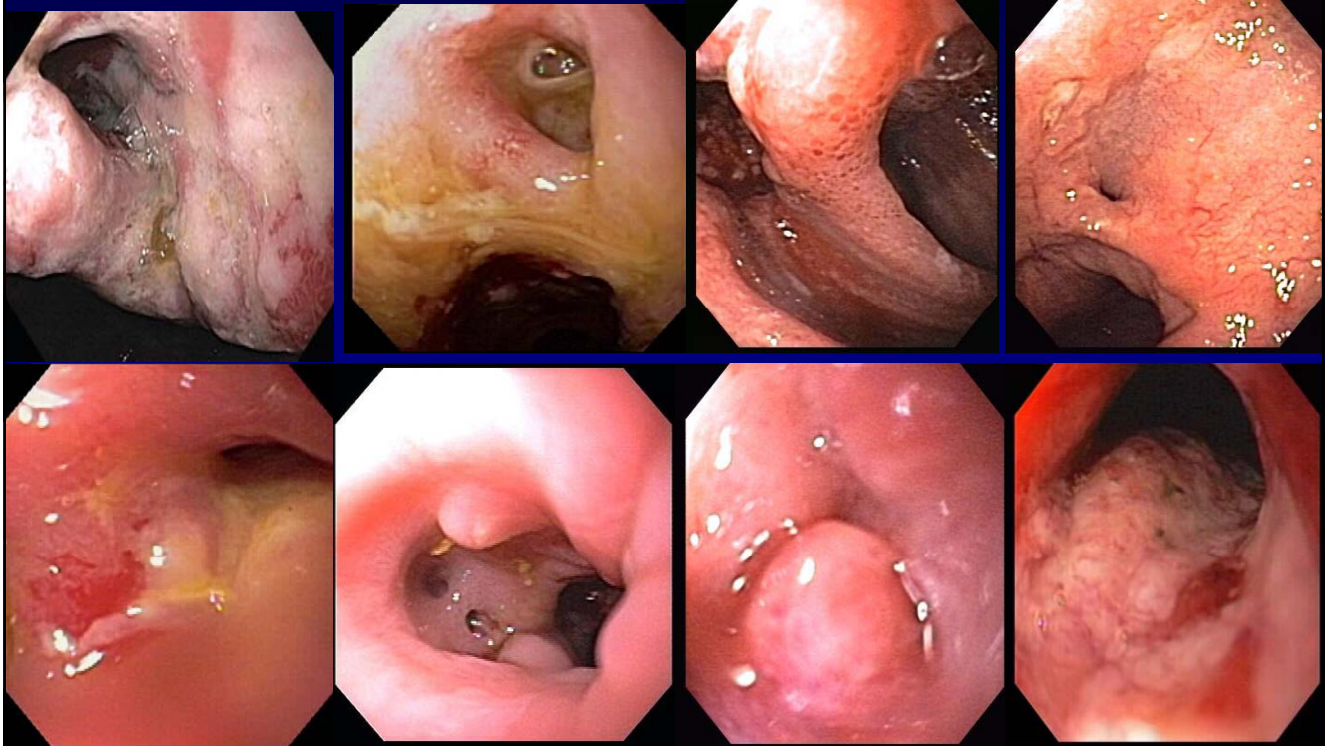
Efferent  
limb

Outlet/cuff

Efferent  
limb



# Sinus vs. Crohn's Fistula



Carolyn Roach, PVF

# Setons

