

Clinical protocol

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GMCH, Chandigarh

Patient: K, 39yrs F, DOA:12/6/05; DOD: 14/6/05

PRESENTING COMPLAINTS

- ▶ Bloody diarrhea 6 weeks
- ▶ Pedal edema 3 days
- ▶ Abdominal distension 3 days
- ▶ Reduced urine output 3 days

Apparently well 6 weeks back

- ▶ Loose stools - bloody, predominantly watery, large volume, 10-12 times/ day with associated mucus
- ▶ Associated mild abdominal pain which was predominantly non-colicky (occasionally colicky).

- ▶ 3 days prior to hospitalization
 - ▶ she developed increased pain, abdominal distension, bilateral pedal edema and decreased urine output
 - ▶ 3 tablets of NSAIDS for headache prior to the onset of this illness
- ▶ Associated anorexia and weight loss
- ▶ No h/o joint pains/ fever/ rashes

- ▶ She was seen at a private clinic where she underwent a colonoscopy and a CT scan
- ▶ Colonoscopy - multiple colonic ulcers, diagnosed as ulcerative colitis
- ▶ Treatment - nature ?
- ▶ Subsequently, seen at GMCH
- ▶ Diagnosed - toxic megacolon
- ▶ Referred to PGI.

Past History:

- ▶ 6 years back had fresh bleeding PR with passage of stools
- ▶ Diagnosed as hemorrhoids
- ▶ Treated with ayurvedic medication with good response.

Personal History:

- ▶ No addictions, Married and having two children

Examination

- ▶ Conscious, oriented, afebrile,
- ▶ Dehydrated, looking sick with a puffy face
- ▶ PR 130/ min, BP 80/60 mm of Hg, RR 45/ min
- ▶ Peripheral pulses were feeble
- ▶ Pallor⁺ , B/L pitting pedal edema +
- ▶ No cyanosis, JVP elevation, clubbing, lymphadenopathy or icterus

Examination

- ▶ Abdomen:
 - ▶ Distended, tense
 - ▶ No tenderness, rebound tenderness, rigidity or guarding
 - ▶ Palpable bowel loops
 - ▶ Sluggish bowel sounds,
 - ▶ minimal free fluid.
- ▶ PR: Rectum empty, no bloody stool.
- ▶ Chest/ CVS/ CNS: WNL

Investigations

Date	12/6/05	13/6/05
Hb	15.4	9.5
TLC	13,000	48,000
DLC	P73L20M3E4	P94L4M1E1
P/S	N/N Plat ↓ ed	N/N Plat ↓ ed
Na	130	137
K	2.5	3.6
Urea	32	35
Creat	1.0	1.0
S Bil (T/C)	0.7	
RBS	68	
PTI	67%	50%
APTT	47(C30-40)	58(C30-40)
PT	15 (C-10)	20 (C-10)

Arterial Blood Gases

Date	12/6/05	13/6/05	13/6/05	13/6/05
pH	7.46	7.34	7.33	7.34
PO ₂	59	47	60	50
PCO ₂	28	30	40	29
SaO ₂	92%	81%	89%	85%
HCO ₃	19	16	21	15
BE	-3	-9	-5	-8.5

Initially respiratory alkalosis

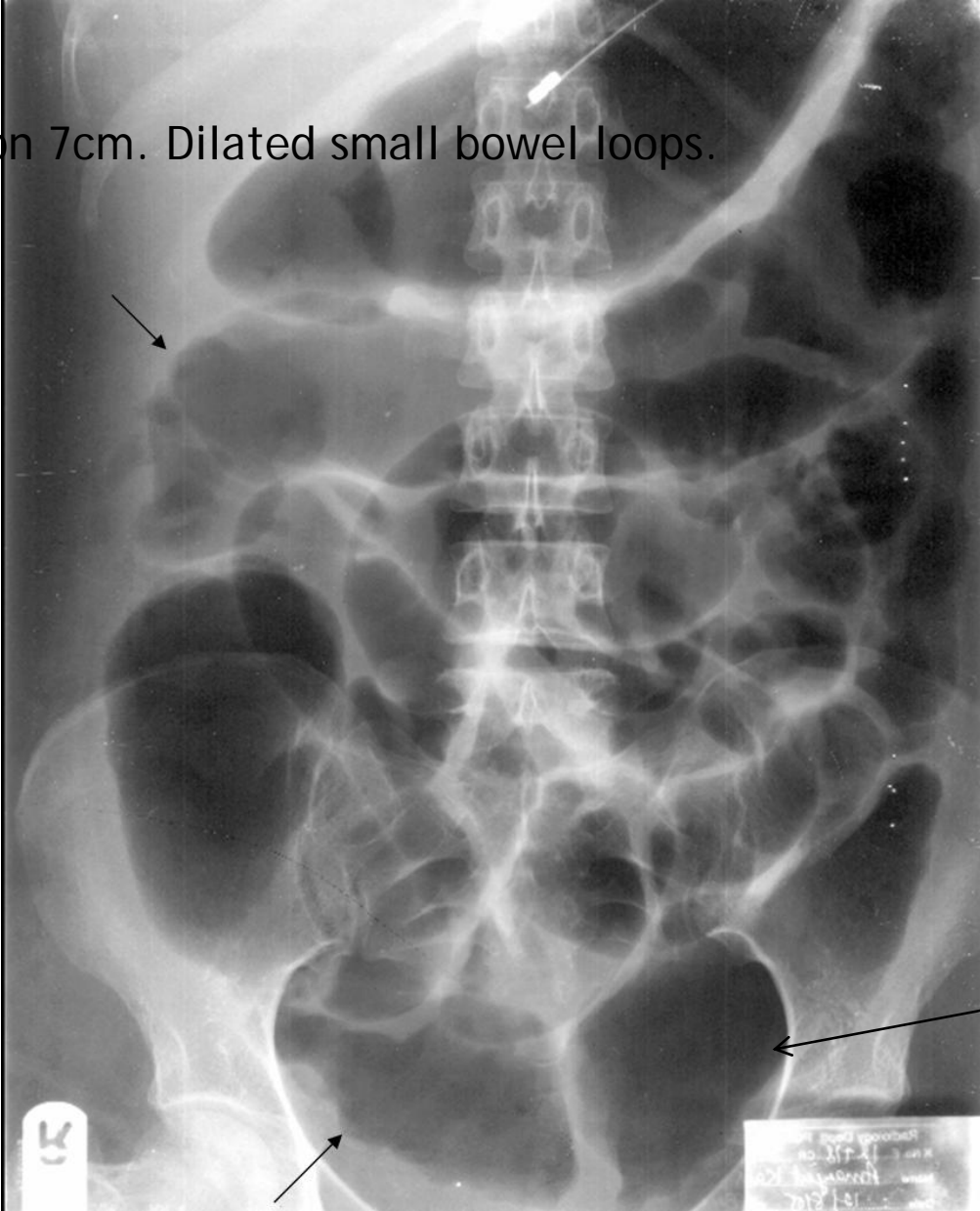
Later metabolic acidosis - partially compensated

Hypoxia

Investigations

- ▶ CPK MB: 96.5 IU/ lit (N<25 IU/lit)
- ▶ Ascitic fluid: Serous, Pro 850mg%, Sugar 76, WBC 400 (P95 L5)
- ▶ Blood C/S: sterile
- ▶ EKG: HR 100/ min, Junctional rhythm. Low voltage. ST ↓ T↓. Reversal on K⁺ R_x
- ▶ EKG: Terminally Ventricular tachycardia
- ▶ CXR: Normal ⇒ Bilateral pleural effusion ⇒ atelectasis ⇒ ARDS

Transverse colon 7cm. Dilated small bowel loops.



Dilated rectum

Dilated small bowel

Investigations

USG abdomen:

- ▶ Liver 17.5 cm, Increased echotexture, N hepatic veins
- ▶ Portal vein 15.5mm
- ▶ Intrahepatic biliary radicals not dilated
- ▶ Gallbladder sludge+ with normal walls
- ▶ Pancreas and retroperitoneum obscured by bowel gas
- ▶ Kidneys/ spleen normal
- ▶ Significant dilatation of bowel loops
- ▶ Ascites+ and bilateral pleural effusion

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Thickened colon

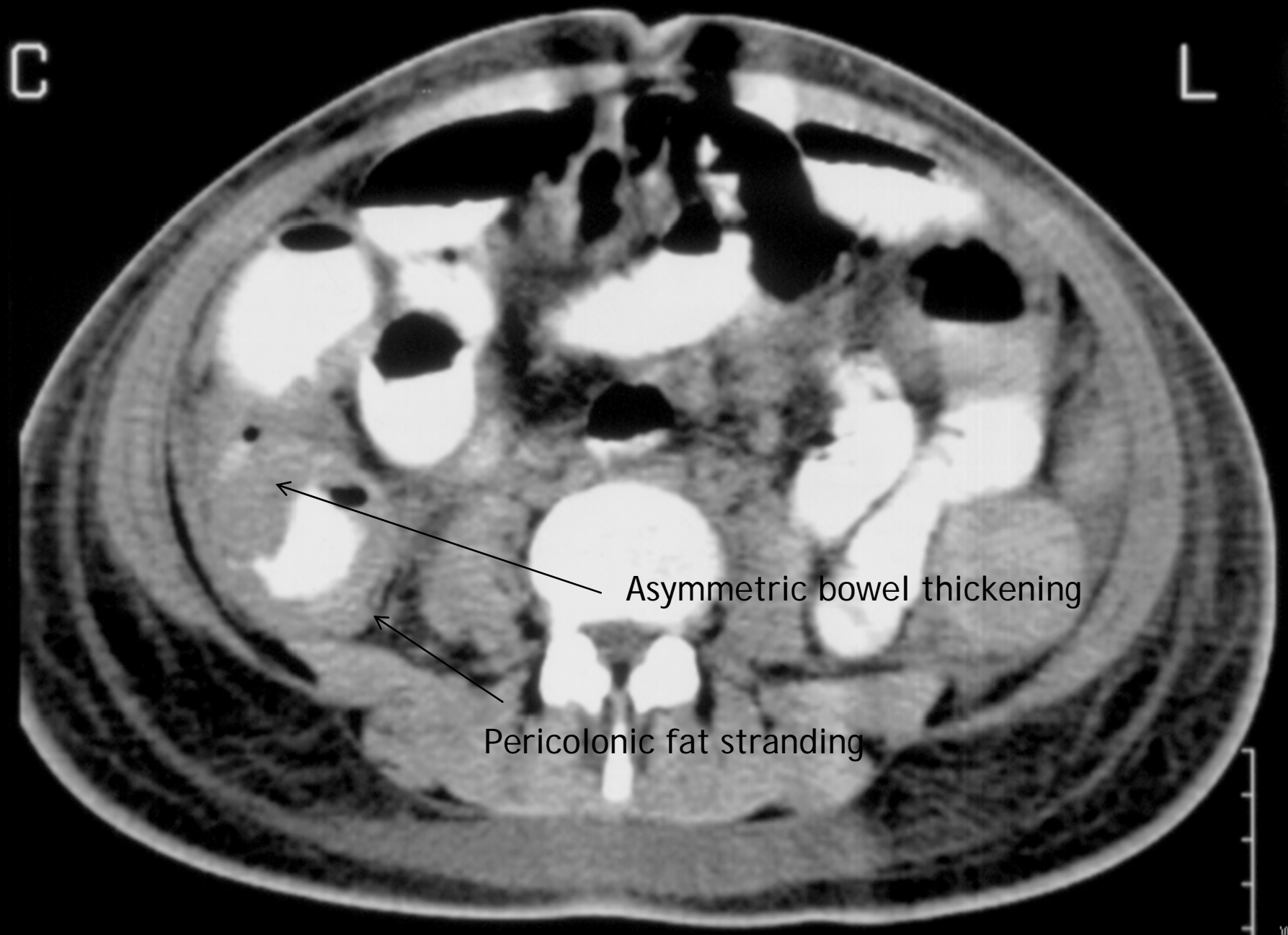
Air in colon wall

sqNo:
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Inst
Model



Asymmetric bowel thickening

Pericolonic fat stranding

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W : 0229
C : 0265
15

Investigations

CECT Abd

- ▶ Dilated ileal & large bowel loops
- ▶ Thickened walls
- ▶ No Lymphadenopathy
- ▶ B/L Pleural effusion
- ▶ Minimal ascites

- ▶ Diffuse involvement of rectum, sigmoid, ? transverse and ascending colon
- ▶ Thickening of all the above mentioned
- ▶ Asymmetric thickening in the ascending colon
- ▶ Presence of air in the wall of ascending colon
- ▶ Distended small bowel

Course and Management

- ▶ IV fluids, IV Cefipime, IV Ciprofloxacin, IV metronidazole, IV Hydrocortisone, blood transfusion and FFP with no significant response
- ▶ Hypokalemia - corrected with IV K⁺ infusion
- ▶ GE -1 Consultation
 - ▶ a diagnosis of ulcerative colitis with toxic megacolon
- ▶ Advised surgical consultation, intensive supportive care and addition of cyclosporine

Course and Management

- ▶ Surgical consultation (GS-III)
 - ▶ Continue conservative management - unfit for surgery, no evidence of perforation
- ▶ IV cyclosporine was added
- ▶ Intubated started on ambu ventilation
- ▶ Started on dopamine, noradrenaline and vasopressin infusions - remained hypotensive.
- ▶ Repeated ventricular arrhythmias
- ▶ Cardiac arrest from which she could not be revived

Unit's Final Diagnosis

- ▶ Ulcerative colitis with toxic megacolon
- ▶ Refractory septic shock
- ▶ ARDS
- ▶ Liver parenchymal disease
- ▶ Bilateral pleural effusion and ascites

- ▶ 39 F with bloody diarrhoea, mucus - 6 wks (colitis)
- ▶ 3 d worsening with pedal edema, reduced urine output and abdominal distension
- ▶ Tachypnoeic, tachycardia, hypotension, dehydrated
- ▶ Pale, pedal edema
- ▶ Abdominal distension with palpable bowel loops, sluggish bowel sounds, minimal ascites
- ▶ Colonoscopy - multiple ulcers
- ▶ Dilated colon - Toxic megacolon
- ▶ Involvement of the rectum and colon with presence of air in bowel wall and asymmetric thickening of right colon

Bleeding PR – common causes

- ▶ Haemorrhoids
- ▶ Anal fissure
- ▶ Rectal or colonic polyp/polyposis
- ▶ Rectal or colonic Carcinoma
- ▶ IBD - IUC, Crohn's disease
- ▶ Infectious causes
- ▶ Noninfectious causes

Bleeding PR – common causes

- ▶ Haemorrhoids
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Clinical presentation

Colonoscopy - multiple ulcers

CT findings - diffuse colonic involvement

Diagnosis	Frequency (%)
Diverticulosis	30
Haemorrhoids	14
Ischemic	12
IBD	9
Post polypectomy	8
Colon cancer	6
Rectal ulcer	6
Vascular ectasia	3
Radiation colitis	3
Other	6

UCLA CURE

Cause	Frequency (%)
IUC	19.3
Acute colitis	12
Polyps	10.2
Radiation colitis	9
SUR	7.8
Carcinoma colon	7.2
Colonic TB	4.2
Enteric fever	3
Unknown	15

Goenka et al IJG 1993

Differential diagnosis of colitis

Infectious causes

- ▶ *Aeromonas hydrophila*
- ▶ *Campylobacter jejuni*
- ▶ *Chlamydia* spp
- ▶ *C difficile*
- ▶ CMV
- ▶ *E histolytica*
- ▶ *E coli* O157:H7, EHEC
- ▶ HSV
- ▶ *L monocytogenes*
- ▶ *N gonorrhoeae*
- ▶ *Salmonella* spp
- ▶ *Shigella* spp
- ▶ *Y enterocolitica*
- ▶ TB

Noninfectious causes

- ▶ Idiopathic UC
- ▶ Crohn's colitis
- ▶ Behcet's disease
- ▶ Diversion colitis
- ▶ Diverticulitis
- ▶ Drugs - gold, chemotherapy, penicillamine, NSAIDs
- ▶ Eosinophilic colitis
- ▶ Graft Vs Host disease
- ▶ Ischemic colitis
- ▶ Microscopic (collagenous/lymphocytic)
- ▶ Neutropenic colitis
- ▶ Radiation colitis
- ▶ Solitary Rectal ulcer syndrome

Infectious causes

- ▶ **Shigella, EHEC, and Campylobacter spp** - exact colitis like IBD but acute onset, abdominal pain is marked, self limiting and settles in 7-10 days
- ▶ **Salmonella** - hematochezia, ileocaecal involvement, presentation different
- ▶ **Listeria** - milk consumption, acute short lasting and in epidemics
- ▶ **Yersinia , Aeromonas** - can cause chronic colitis, unusual
- ▶ **Amoebic colitis** - subacute onset, self limiting and rarely causes chronic colitis
- ▶ **N gonorrhoeae, Chlamydia** - STD, more like watery pus rather than colitis
- ▶ **HIV status ?**

Infectious causes

C difficile - generally follows usage of antibiotics but can occur in elderly people on PPI

- ▶ Prevalence higher in IUC in hospitalized patients
- ▶ Can cause severe colitis
- ▶ De novo severe colitis in a young female without any predisposing factors less likely
- ▶ Cause of exacerbation of underlying IUC cannot be excluded

CMV infection - colitis in immunocompetent patients presenting de novo unusual

- ▶ Patients of IUC on steroids or immunosuppressive can have a relapse due to CMV
- ▶ Cause of exacerbation of underlying IUC cannot be excluded

Differential diagnosis of colitis

Infectious causes

- ▶ Aeromonas hydrophila
- ▶ Campylobacter jejuni
- ▶ Chlamydia spp
- ▶ C difficile
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- ▶ L monocytogenes
- ▶ N gonorrhoeae
- ▶ Salmonella spp
- ▶ Shigella spp
- ▶ Y enterocolitica
- ▶ TB

Noninfectious causes

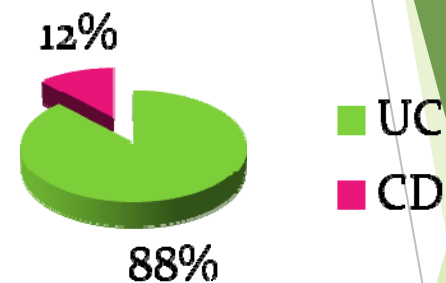
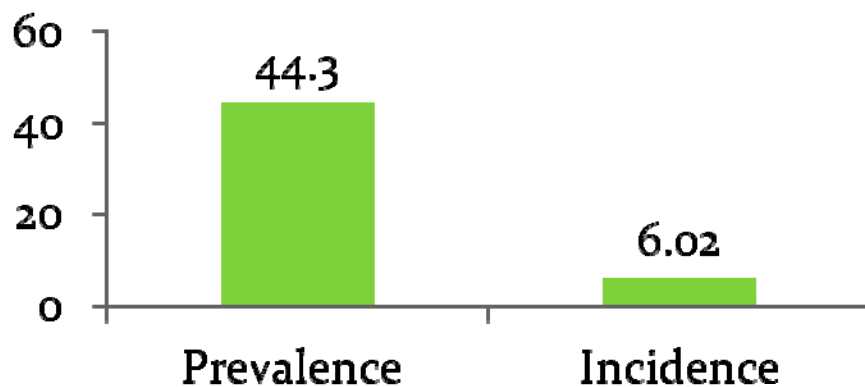
- ▶ Idiopathic UC ←
- ▶ Crohn's colitis ←
- ▶ Behcet's disease
- ▶ Diversion colitis
- ▶ Diverticulitis
- ▶ Drugs - gold, chemotherapy, penicillamine, NSAIDs
- ▶ Eosinophilic colitis
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- ▶ **Diverticulitis** typically involves sigmoid colon and unusually upper rectum
- ▶ **Ischemic colitis** - elderly, watershed areas around splenic flexure or sigmoid colon
- ▶ **No surgery/radiation/chemotherapy/bone marrow transplant /drug intake**
- ▶ Bloody diarrhoea - unlike **collagenous or lymphocytic**
- ▶ Diffuse colonic involvement - **SUR** unlikely
- ▶ No genital/oral ulcers - **behcet's**
- ▶ No hypereosinophilia

- ▶ Idiopathic ulcerative colitis
- ▶ Crohn's colitis
- ▶ Tubercular colitis

Indian data

UC/100000 population



UC: CD – 8: 1

North Indian data shows *incidence* and prevalence rates of UC- similar to the west

CD is more in South India and presents one decade later

Crohn's colitis is more common in India

Inflamm Bowel Dis 2010, Ind J Gastroenterol 2007

Idiopathic ulcerative colitis	Crohn's disease
Colon and terminal ileum	All parts of GIT
Mucosa and submucosa except in fulminant disease	All layers of the gut wall
Rectum involved in 95% pts	Rectum involved in 50% of colitis
Rectum to caecum to terminal ileum	Patchy involvement of GIT
Caecal patch present	May be absent
Contiguous involvement of colon	Discontinuous involvement
Generally no skip areas	Present
Terminal ileum involved - 15-20%	Terminal ileum involved in 75%
Perianal disease uncommon	Common - large anal tags, fissures, fistulas

CD is distinguished from UC by disease proximal to the colon, perineal disease, fistulas (25%), histologic non caseating granulomas (50%) and full thickness disease

- ▶ Rectum to caecum continuous involvement
- ▶ Incidence higher of IUC
- ▶ **Most probably IUC but CD colitis cannot be excluded**

What about colonic TB

Abdominal (16% of all extrapulmonary TB)

- ▶ GIT - 65-78%
- ▶ Commonest sites- ileum, ileocaecal region, followed by the colon and the jejunum
 - ▶ 196 pts - ileum in 102 & caecum in 100
 - ▶ 300 pts - ileocaecal region-162 & ileum - 89
- ▶ Isolated Colonic - 20%,
 - ▶ stricture, mass
 - ▶ Can present as colitis (unusual)

55-60%

Acute presentation (10-30%)

- ▶ Intestinal obstruction - acute or acute on chronic
- ▶ Peritonitis - with or without perforation
- ▶ Acute mesenteric lymphadenitis
- ▶ Acute tubercular appendicitis
- ▶ **Acute GI bleed - 2-3%**

Tandon Gastroenterol Jpn 1986;21:17-22.
Vij JC Indian J Tubercul 1992;39:213-20.

69 patients

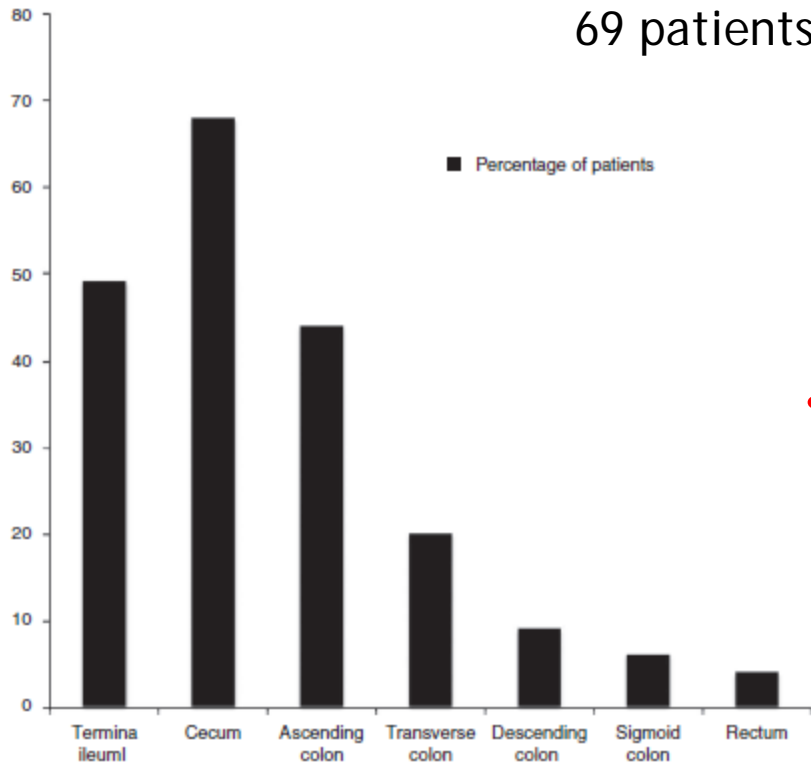
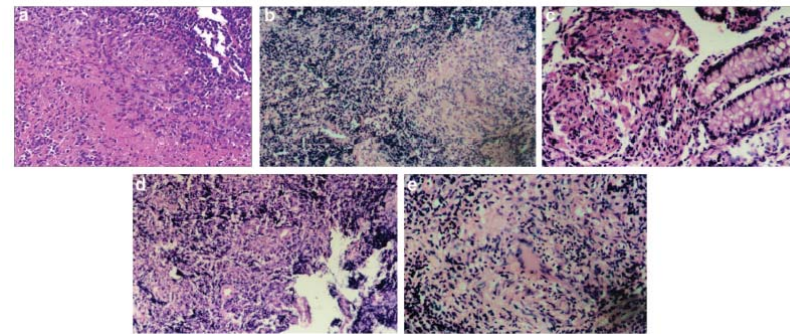


Table 1 Clinical features on presentation

	Number of patients	Percentage of patients (%)
<i>Symptoms</i>		
Abdominal pain	54	80.60
Weight loss	50	74.63
Appetite loss	42	62.69
Fever	27	40.30
Diarrhoea	11	16.42
Alternate diarrhoea and constipation	17	25.37
Bleeding per rectum	8	11.94
Abdominal mass	3	4.48
<i>Physical examination</i>		
Pallor	30	44.78
Fever	23	34.33
Abdominal tenderness	25	37.31
Abdominal mass	9	13.43
Lymphadenopathy	1	1.49

Type of lesion	Number of patients	Percentage of patients (%)
Ulcers	60	88.0
Nodules	34	50.7
Luminal narrowing	30	44.8
Polypoid lesion	7	10.4



- ▶ **Isolated colonic involvement and presentation as a diffuse colitis in TB is very unusual**

Precipitants

- ▶ Bacterial infections
 - ▶ *Clostridium difficile* (8 times higher in hospitalised IUC)
- ▶ Viral infections
 - ▶ *CMV infection*
- ▶ Drugs - NSAIDs
- ▶ Seasonality
- ▶ Psychosocial factors

Toxic megacolon

- ▶ Non destructive dilatation of colon >6 cm
- ▶ Best visible in transverse colon
- ▶ Occurs in 5% of all severe attacks of IUC
- ▶ Mostly occurs in extensive colitis

What precipitated it?

- ▶ NSAIDs
- ▶ Hypokalemia
- ▶ ? Colonoscopy

Toxic megacolon

- ▶ Tachycardia, hypotension, abdominal distension, and tenderness and decreased bowel sounds
- ▶ Leucocytosis
- ▶ Metabolic alkalosis
- ▶ Electrolyte disturbances

Associated

- ▶ DIC (low platelets and prolonged PT, APTT)
- ▶ Metabolic acidosis (later in disease)
- ▶ Refractory shock
- ▶ **Sepsis is a strong possibility in addition to ACS**

Abdominal
Compartment
Syndrome (ACS)

Perforation or associated malignancy

- ▶ Asymmetric thickening of the right colon
- ▶ Possibly 6 yrs history
- ▶ **Could it be an Interval colorectal cancer (5%)**

But

- ▶ Pericolonic exudates
- ▶ Air in bowel wall
- ▶ Ascites - TLC 400 polys
- ▶ **Perforation more likely**

Liver disease

- ▶ Hepatomegaly
- ▶ Increased echoes
- ▶ Dilated portal vein
- ▶ Normal IHBR

Common hepatobiliary manifestations

- ▶ Autoimmune hepatitis
- ▶ **Cholangiocarcinoma**
- ▶ Pericholangitis
- ▶ Primary sclerosing cholangitis
- ▶ Hepatic steatosis

Liver disease

- ▶ Absence of LFT
- ▶ No skin rash/ joint pain
- ▶ Hepatic steatosis (long standing disease, drugs)
- ▶ + sclerosing cholangitis ? Cirrhosis with portal hypertension

Terminal involvement

- ▶ Pre-terminally had repeated ventricular arrhythmias
- ▶ Persistent hypotension
- ▶ Irreversible septic shock and hypokalemia

In conclusion

- ▶ IBD - most likely IUC - pancolitis
- ▶ Toxic megacolon with abdominal compartment syndrome
- ▶ Perforation ? Ascending colon
- ▶ Peritonitis
- ▶ Sepsis - DIC, ARDS
- ▶ Septic shock
- ▶ Liver parenchymal disease - PSC ?
Cirrhosis with portal hypertension and steatosis

Infectious diseases mimicking IBD

Bacterial	Mycobacterial	Viral	Parasitic	Fungal
Salmonella	Tuberculosis	CMV	Amoebiasis	Histoplasmosis
Shigella	M avium intacellulare	Herpes simplex	Isospora	Candida
Toxigenic E coli		HIV	T trichiura	Aspergillus
Campylobacter			Hookworm	
Yersinia			Strongyloides	
C difficile				
Gonorhoea				
C trachomatis				

Non infectious diseases mimicking IBD

Inflammatory	Neoplastic	Drugs and chemicals
Appendicitis	Lymphoma	NSAIDs
Diverticulitis	Metastatic carcinoma	Phosphosoda
Diversion colitis	Carcinoma ileum	Cathartic colon
Collagenous/ lymphocytic colitis	Carcinoid	Gold
Ischemic colitis	Familial polyposis	Oral contraceptive
Radiation colitis		Cocaine
Solitary rectal ulcer syndrome		Chemotherapy
Eosinophilic gastroenteritis		
Neutropenic colitis		
Behcet's syndrome		
Graft vs Host disease		

Ulcerative colitis	Crohn's disease
Rectal bleeding or bloody diarrhoea	Bleeding only with colitis
Tenemus +	May be present if rectum involved
Lower abdominal cramps	Periumbilical cramps/right iliac fossa pain
Abdominal Mass uncommon	May be present in right iliac fossa
Intestinal obstruction uncommon - strictures suggest adenocarcinoma	Common with stenotic lesions
Malabsorption uncommon	Can present as malabsorption - isolated jejunoileitis
Presentation as PUO - uncommon	May present
Fistulas - external /internal uncommon except rectovaginal	Internal/external fistulas including perianal -25%

CD is distinguished from UC by disease proximal to the colon, perineal disease, fistulas (25%), histologic non caseating granulomas (50%) and full thickness disease

Mode of presentations

- ▶ Acute -10%
- ▶ **Chronic** - **70%**
- ▶ Acute on chronic - 20%

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Asia- Pacific

- ▶ UC incidence is increasing with some exceptions
 - ▶ ? True increase or increased awareness
- ▶ UC incidence is lower as compared to the west with a few exceptions
- ▶ **Incidence of UC is higher than CD**
- ▶ **Low prevalence areas of IBD have more of UC and CD follows**
- ▶ High prevalence areas have more of CD relatively