

# APPROACH TO PATIENTS WITH CHRONIC LARGE BOWEL DIARRHEA

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## DEFINITION

Diarrhea can be defined based on frequency, consistency, and/or weight.<sup>1</sup> Diarrhea is conventionally defined as more than three stools, which are of abnormal liquidity per day.<sup>2</sup> Some authors, however, suggested that daily fecal weight is the feature most useful in defining diarrhea.<sup>3</sup> However, such definitions have major limitations particularly in Indian context. Definition of diarrhea considering stool frequency was based on the data from West, where stool frequency as low as three per week is considered to be normal in older studies.<sup>4,5</sup> These definitions has problem Indian population as 9% of healthy Indian population pass 3 or more stools per day and 90% pass 1-2 stools per day.<sup>6</sup> Furthermore, many patients with constipation may repeatedly visit toilet due to feeling of incomplete evacuation. Definition based on stool weight would also have problem as it would vary from country to country. Average stool weight in healthy Indian adults is 311 g/d.<sup>7</sup> Similar observations have been reported from Africa and have been attributed to high intake of dietary fiber and rapid gut transit.<sup>8,9</sup> In fact, in the recent Rome III classification used in the diagnosis of irritable bowel syndrome (IBS), stool frequency has been used only as a supportive diagnostic criterion rather than an important criterion as proposed in the previous Rome II classification.<sup>10</sup> Therefore, there is need to have consensus on definition of diarrhea in Indian context. In practice, we consider a patient having diarrhea if he or she passes more than three liquid or semi-liquid stools per day. Presence of diarrhea longer than 4 weeks is diagnostic of chronic diarrhea. It is important to remember that sometimes patients with fecal incontinence may be misdiagnosed as having diarrhea due to abnormally high frequency, a condition known as pseudo-diarrhea.

## APPROACH TO A PATIENT WITH CHRONIC DIARRHEA

Clinical evaluation of patients is of utmost importance.<sup>11</sup> A good clinical history and physical examination usually help to decide whether diarrhea is organic or functional (Table 1),<sup>12</sup> and whether it is of large bowel or small bowel origin (Table 2)? This helps the clinicians to decide strategy for investigations, whether to evaluate small bowel or large bowel first? This is important considering the costs and time involved in various investigations. However, one needs to remember that at times, some patients with large bowel diseases causing chronic diarrhea, clinical features may mimic small

**Table 1: Differentiation between organic and functional diarrhea**

	<b>Organic</b>	<b>Functional</b>
Volume	Large	Small
Nocturnal stool	Yes	No
Blood	May be present	No
Fecal incontinence	May be present	No
Weight loss	Yes	Excludes
Frequency	Daily	Intermittently
Onset	Acute suggests	Insidious
History of dehydration, hypokalemia	Suggests	Excludes

**Table 2: Differentiation between small bowel and large bowel diarrhea**

Features	Small bowel	Large bowel
Volume	Large	Small
Blood	No	Usually present
Rectal symptoms	No	Yes
Steatorrhea (greasy stools)	Yes	No
Excessive flatulence (due to carbohydrate malabsorption)	Yes	No
Protein malabsorption	Pedal edema	Usually absent
Pain (if any)	Periumbilical No ↓ after stool	Hypogastric ↓ after stool
Color of stool	Pale	Normal
Smell of stool	Unusually offensive	Normal
Vitamin deficiency	Frequent	Infrequent

**Table 3: Differentiation between ulcerative colitis and Crohn’s disease**

	Ulcerative colitis	Crohn’s disease
Bleeding per rectum	Yes	Occasional
Mucus	Yes	May be
Systemic symptoms	Occasional	Frequent
Pain	Occasional	Frequent
Abdominal mass	Rarely	Frequently
Perineal disease	Rare	More often
Fistula	Rare	More often
Small bowel and colonic obstruction	Rare	Frequently
Recurrence after surgery	No	Yes
ANCA positive	Frequent	Rare
Rectal sparing	Rare	Frequent
Continuous disease	Yes	Less often
Cobble stoning	No	Yes
Granuloma on biopsy	No	Occasionally
Small bowel abnormality on imaging	No	Yes
Segmental colitis	No	Yes
Asymmetric colitis	No	Yes
Stricture	Occasional	Frequent

Abbreviation used: ANCA: antinuclear cytoplasmic antibody

bowel diarrhea such as microscopic or collagenous colitis.<sup>13</sup> Common causes of large bowel diarrhea include ulcerative colitis, Crohn disease with colonic involvement and intestinal tuberculosis. Tables 3 and 4 outline features differentiating between ulcerative colitis and Crohn disease and the latter and intestinal tuberculosis.<sup>14</sup>

**INVESTIGATING PATIENTS WITH CHRONIC LARGE BOWEL DIARRHEA**

A practical approach to investigate patients with chronic large

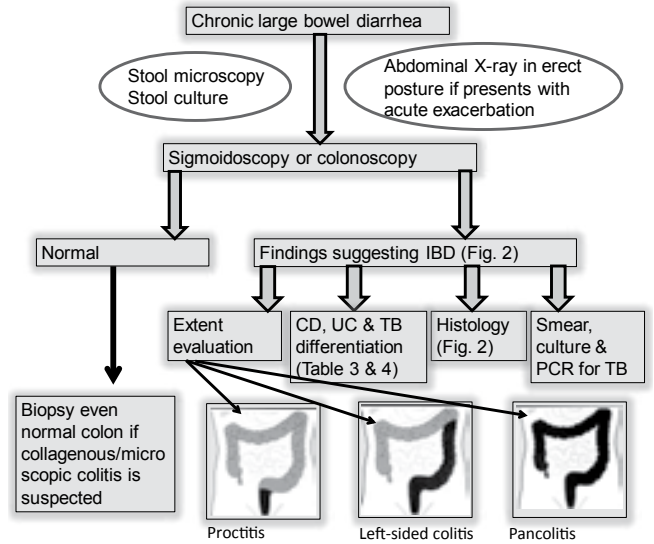


Fig. 1: Outline of clinical approach to patients with chronic large bowel diarrhea. Abbreviations used: IBD: inflammatory bowel disease, CD: Crohn’s disease, UC: ulcerative colitis, TB: tuberculosis, PCR: polymerase chain reaction.

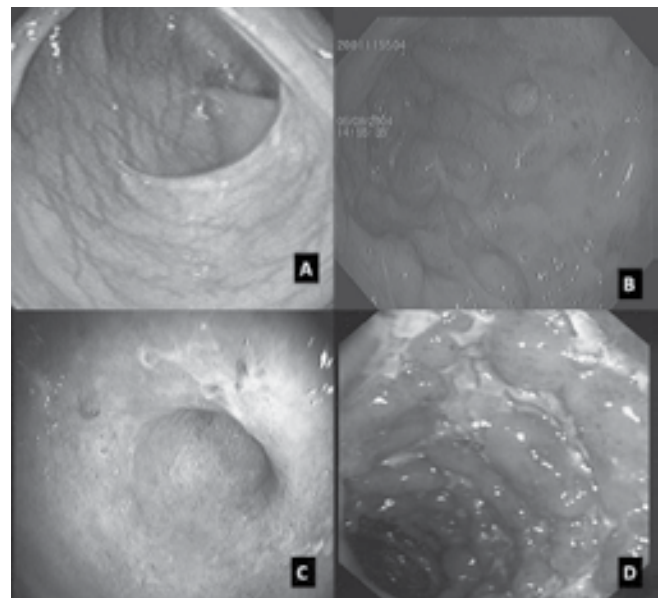


Fig. 2: Shows representative colonoscopic pictures. (A) Normal colonoscopy, (B) a patient with Crohn’s disease showing ulceration and cobblestones, (C) A patient with ulcerative colitis with hyperemia, loss of vascular pattern, friability and occasional ulceration, and (D) another patient with large deep ulcerations.

bowel diarrhea is outlined in Figure 1. Once the common infective causes of large bowel diarrhea are excluded by stool microscopy and culture, colonoscopy is the most important investigation. Multiple biopsies from the colonic lesions should be obtained for histology if colonoscopy shows features of inflammatory bowel disease (Crohn disease or ulcerative colitis, Table 3 and Figure 2). Cryptitis, crypt abscess, crypt

**Table 4: Differentiation between intestinal tuberculosis and Crohn's disease**

	Tuberculosis	Crohn's disease
Anal lesion	Rare	Common
Length of stricture	Usually <3 cm	Usually long
Internal fistula	Rare	Common
Ulcers	Transverse, circumferential	Longitudinal, along mesenteric border
Granuloma	More often in lymph nodes	Usually in bowel
Size of granuloma	Large	Small
Caseation	May be present	Absent
Shape	Often confluent	Usually discrete
Surrounding fibrosis	Common	Rare
Amyloid deposit	Common	Rare
Submucosal widening	Usually absent	Usually present
Fissures	Uncommon, not through muscles	Common, through muscles
Transmural follicular hyperplasia	Absent	Present
Muscularis propria	No fibrosis	Often present
Pyloric gland metaplasia	Common, extensive	Rare, patchy

branching, crypt loss and muscularis mucosa thickening on histology are features of ulcerative colitis on histology though cryptitis and crypt abscess can also be found in acute infective colitis even early in the course.<sup>15</sup> If colonic tuberculosis is suspected (see Table 4), in addition to histology, colonic biopsies should be obtained for smear and culture for *Mycobacterium tuberculosis* along with polymerase chain reaction for its DNA.<sup>16</sup> Acid fast bacillus may also be uncommonly found on histology of colonic biopsy.<sup>16</sup> Caseating granuloma on histology is suggestive of intestinal tuberculosis. In contrast, non-caseating granuloma on histology suggests diagnosis of Crohn disease. However, such granuloma is found only in 10-20% patients with Crohn disease.<sup>14</sup> It is important to note here that *Saccharomyces cerevisiae* antibodies do help in differentiation between intestinal tuberculosis and Crohn disease.<sup>17,18</sup> Differentiation between Crohn disease and intestinal tuberculosis may sometime be difficult. Effect of empirical anti-tubercular treatment may help in diagnosis during follow-up.<sup>19</sup> Microscopic colitis and collagenous colitis, though rare, can cause large bowel diarrhea without presence of blood.<sup>13</sup> If these diseases are suspected, colonic biopsy should be obtained even in absence of endoscopically visible lesions in the colon. Other uncommon causes of chronic large bowel diarrhea include pseudomembranous colitis, ischemia, radiation colitis, neoplasia and unusual infection such as Cytomegalovirus infection in immune-compromised patients. If patients present with acute exacerbation of chronic disease, a plain abdominal radiograph in erect posture is

**Table 5: Truelove and Witts severity index of ulcerative colitis**

	Mild	Severe	Fulminant
Frequency of stool	<4/day	4-6/day	>6/day
Blood in stools	<25%	25-50	100%
Fever (mean temperature)	No fever	<37.8°C	>38.8°C
Pulse/minute	<90	>90	>90
Hb (g/dl)	Normal	10.5	Transfusion required
ESR (mm/h)	<30	>30	>30
Abdominal examination	Normal	Tender	Reduced bowel sound distended ± rebound
X-ray			Bowel wall edema or colonic dilation

Abbreviation used: Erythrocyte sedimentation rate

useful as it may show toxic megacolon (transverse colon diameter  $\geq 6$  cm), paralytic ileus and gas under diaphragm due to perforation.<sup>20</sup> Patients with ulcerative colitis should be clinically assessed for its severity using Truelove and Witts severity index (Table 5).<sup>21</sup>

## SUMMARY AND CONCLUSIONS

More than three liquid or semi-liquid stools per day lasting longer than 4 weeks is diagnostic of chronic diarrhea. It is important to clinically attempt differentiating between organic and functional diarrhea. If the diarrhea is organic and appears clinically of large bowel in origin, colonoscopy with biopsy is the most important investigation that helps in diagnosis.

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