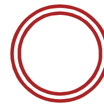
Diarrhea
&
Acute Gastero-Enteritis



DR PIYUSH TAILOR

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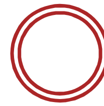

- to increased frequency of bowel movements
- increased stool liquidity
- sense of fecal urgency
- fecal incontinence

Acute = less than 7 - 14 days
Chronic = more than 2 - 3 weeks

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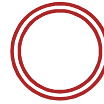
Causes of Acute infectious diarrhea



1. **Noninflammatory Diarrhea**
   A. **Viral** - **Rotavirus**
   B. **Protozoal** - **Giardia lamblia, Cryptosporidium**
   C. **Bacterial** - **Staphylococcus aureus,Clostridium perfringens**
   D. **Enterotoxin production**
      Enterotoxigenic E coli ,
      Vibrio cholerae
   E. **Medication**
      Over dose of Laxative

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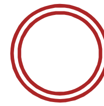
Causes of acute infectious diarrhea



2. Inflamatory Diarrhea
   - Viral – Cytomegalovirus
   - Protozoal - Entamoeba histolytica
   - Bacterial -
     - Cytotoxin production;
       - Enterohemorrhagic E coli,
       - Vibrio parahaemolyticus,
       - Clostridium difficile.
     - Mucosal invasion
       - Shigella,Salmonella

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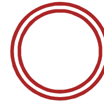
Causes of chronic diarrhea



- Osmotic diarrhea
- Secreatory diarrhea
- Inflamatory condition
- Motility disorder
- Malabsorption disorder
- Chronic infection

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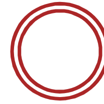
Causes of chronic diarrhea



Osmotic diarrhea

Stool volume decreases with fasting;

Increased stool osmotic gap

1. Medications: antacids, lactulose, sorbitol
2. Disaccharidase deficiency: lactose intolerance
3. Factitious diarrhea: magnesium (antacids, laxatives)

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Causes of chronic diarrhea

<u>Secretory diarrhea</u>

- Large volume (>1 L/d);

1. Hormonally mediated:
   - Carcinoid, medullary carcinoma of thyroid (calcitonin), Zollinger-Ellison syndrome (gastrin)
2. Factitious diarrhea (laxative abuse):
   - Cascara, senna
3. Bile salt malabsorption
   - Ileal resection
   - Crohn's ileitis
   - Post-cholecystectomy
4. Medications

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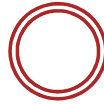
Causes of chronic diarrhea



Inflammatory conditions

- Fever, abdominal pain

1. Ulcerative colitis
2. Crohn's disease
3. Malignancy:

    lymphoma,

4. Radiation enteritis

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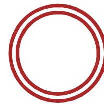
Causes of chronic diarrhea



Malabsorption syndromes

- Weight loss
- Fecal fat > 7-10 g/24 h

1. Tropical sprue, Crohn's disease, Small bowel resection
2. Lymphatic obstruction

   Lymphoma, carcinoid, infectious (TB,)
3. Pancreatic disease:

   Chronic pancreatitis, pancreatic carcinoma
4. Bacterial overgrowth:

   Motility disorders (Diabetes, Vagotomy), Fistulas, Small intestinal diverticula

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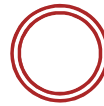
Causes of chronic diarrhea



<u>Motility disorders</u>

- Systemic disease or prior abdominal surgery

1. Postsurgical:

   Vagotomy, Partial gastrectomy

2. Systemic disorders:

   Diabetes mellitus, hyperthyroidism

3. Irritable bowel syndrome

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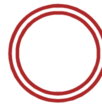
Causes of chronic diarrhea



Chronic infections

- Parasites:
  - Giardia lamblia, Entamoeba histolytica
- Viral:
  - Cytomegalovirus, HIV infection (?)
- Bacterial:
  - Clostridium difficile, Mycobacterium avium complex
- Protozoal:
  - Microsporida , Cryptosporidium, Isospora belli

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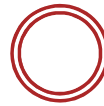
ACUTE DIARRHEA



- Diarrhea that is acute in onset and persists for less than 3 weeks is most commonly caused by
  - Food Poisoning
  - infectious agents
  - bacterial toxins (either ingested preformed in food or produced in the gut)
  - drugs

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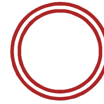
TRAVELER'S DIARRHEA



- particularly if the change involves a marked
  - difference in climate
  - social conditions
  - sanitation standards
  - facilities—diarrhea is likely to develop within 2–10 days

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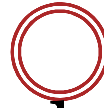
Noninflammatory Diarrhea



- Watery, nonbloody diarrhea
- Periumbilical cramps, bloating, nausea, or vomiting
- Dehydration
- Hypokalemia
- Metabolic acidosis due to loss of HCO_3^- in the stool (eg, cholera).
- Because tissue invasion does not occur, fecal leukocytes are not present.

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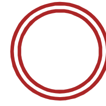
Inflammatory Diarrhea



- Fever
- Bloody diarrhea (dysentery)
- Diarrhea is small in volume (< 1 L/d) and associated with left lower quadrant cramps, urgency, and tenesmus.
- Fecal leukocytes

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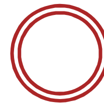
Evaluation



- Signs of inflammatory diarrhea
  - high fever (> 38.5 °C)
  - bloody diarrhea
  - abdominal pain
  - diarrhea not subsiding after 4–5 days.
- Signs of dehydration
  - Excessive thirst
  - Dry mouth
  - Decreased urination
  - Weakness
  - Lethargy)

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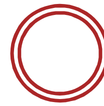
Treatment



- **Diet** :
  - Adequate oral fluids containing carbohydrates and electrolytes.
  - Avoiding high-fiber foods, fats, milk products and alcohol.
  - Frequent feedings of fruit drinks, tea, "flat" carbonated beverages, and soft, easily digested foods (eg, soups, crackers) are encouraged

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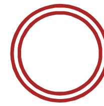
Rehydration



- Dehydration can occur quickly, especially in children.
- ORS containing glucose, Na+, K+, Cl–, and bicarbonate or citrate is preferred in most cases to intravenous fluids
- Fluids = 50–200 mL/kg/24 h (2-8 ml/kg/hr) depending on the hydration status.
- Intravenous fluids (lactated Ringer's solution)

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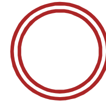
Antidiarrheal Agents



- Loperamide = 4 mg initially, followed by 2 mg after each loose stool
- Bismuth subsalicylate (Pepto-Bismol)
- **Contraindicated in acute diarrhea**

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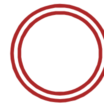
Antibiotic Therapy



- Fluoroquinolones (eg, Ciprofloxacin, 500 mg twice daily) for 5–7 days.
  - Provide good antibiotic coverage against Shigella, Salmonella.
- Trimethoprim-sulfamethoxazole, 160/800 mg twice daily
- Erythromycin, 250–500 mg four times daily
- **Replacement of Lactobacilli**

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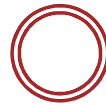
CHRONIC DIARRHEA



- **Etiology**

  The causes of chronic diarrhea may be grouped into six major pathophysiologic categories

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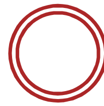
Evaluation



- Stool Analysis –
- Stool weight of more than 300 g/24 h confirms the presence of diarrhea, justifying further workup.
- Secretory = Weight greater than 1000–1500 g
- Malabsorption = fat > 10 g/24
- Stool osmolality– osmotic diarrhea.
- Fecal leukocytes– inflammatory diarrhea.
- Stool for ova and parasites–Giardia and E histolytica

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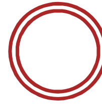
Blood Tests



- **Routine laboratory tests–**
  - **CBC**
  - **Serum electrolytes**
  - **Liver function tests**
  - **Calcium, Phosphorus, Albumin**
  - **TSH, total T4, beta-carotene and prothrombin time**
  - **Vitamin B12, folate, iron**
  - **Hypoalbuminemia is present in malabsorptio**

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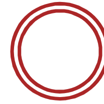
Other laboratory tests



- Gastrin (Zollinger-Ellison syndrome)
- Calcitonin (medullary thyroid carcinoma)
- Cortisol (Addison's disease)
- Urinary 5-HIAA (carcinoid syndrome)
- Proctosigmoidoscopy
  - Inflammatory bowel disease

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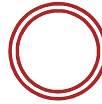
Imaging



USG Abdomen

- Chronic pancreatitis.
- Crohn's disease, lymphoma, or carcinoid syndrome.

Colonoscopy

  - inflammatory bowel disease.
  - malabsorption due to mucosal diseases.

Abdominal CT

- Chronic pancreatitis or pancreatic endocrine tumors.

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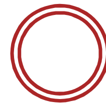
Treatment



- A. Loperamide: 4 mg initially, then 2 mg after each loose stool (maximum: 16 mg/d)
- Diphenoxylate With Atropine: One tablet three or four times daily
- Codeine, Paregoric:

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- Clonidine: a2-Adrenergic agonists inhibit intestinal electrolyte secretion.
- secretory diarrheas

. Octreotide: This somatostatin analog stimulates intestinal fluid and electrolyte absorption and inhibits secretion.

- Cholestyramine: This bile salt binding resin may be useful in patients with bile salt-induced diarrhea secondary to intestinal resection or ileal disease

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