

# DIARRHOEA

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The term diarrhoea translated from the Greek means flowing through. It implies, therefore, elimination of a non-solid i.e. liquid or semi-solid stool. Confronted with a patient complaining of diarrhoea, we want to know whether it is *acute* or *chronic*, in the latter case whether *continuous* or *intermittent*, furthermore, whether or not it is accompanied by *pain* and what kind of pain, by *fever*, and by *nausea* or *vomiting*. This first information from the history considerably restricts the larger number of possible morbid conditions that could account for the diarrhoea of the patient.

## Acute Diarrhoea.

Acute diarrhoea in adults without fever and at first painless is most commonly due to *dietary indiscretion* (unripe fruit, spoiled food, poisonous mushrooms) or specific *food allergy*. In the case of alimentary origin, nausea and vomiting may accompany the diarrhoea. Colicky pain and tenesmus set in if very frequent bowel movement occur for some length of time. *Poisoning*, chiefly with arsenic, mercurial derivatives, carbon tetrachloride or excessive dose of laxatives should be kept in mind as possible aetiology.

Acute diarrhoea with febrile onset indicates an infectious cause. If the history suggests alimentary origin, acute enteritis, or gastro-enteritis, or enterocolitis due to food infection will be presumed (*Salmonella group*).

A typhoid-like clinical picture and course, especially enlargement of the spleen and leucopenia are highly suggestive of infection with *Salmonella paratyphosa*.

*Bacillary dysentery* (*Shigella Flexner* or *Sonne*) is another frequent type of food infection. It shows leucocytosis. Only bacteriological examination of the stool and blood at the beginning of the disease,

and agglutination tests with the blood serum not before the second week of the illness can yield definite aetiological diagnosis.

*Staphylococcic toxins* will be suspected particularly if milk or milk products are apparently involved in mass outbreaks of food poisoning, and if the incubation period had been not more than 2-3 hours. Inadequately sterilised or contaminated canned vegetables are the most frequent source of *Botulism* which may begin as acute gastro-enteritis before the severe cerebral manifestations, usually first visual disturbances, become apparent.

Acute diarrhoea may be the main or initial symptom of a great many infectious diseases — bacterial, viral, protozoan or metazoan. Besides the previously mentioned bacterial infections, *typhoid fever*, *bacillary dysentery* of the Shiga type and *cholera* are those epidemiologically most important.

Not only the clinical symptomatology but also the gross appearance of the diarrheic stool is of diagnostic importance. The high yellow appearance in typhoid fever, the pink, watery elimination without any faecal masses in dysentery, and the rice-water like stool containing mucus and cellular debris in cholera are characteristic.

The most important protozoan disease causing diarrhoea is *amoebic dysentery*. *Ballantidium coli*, may in some persons produce the symptoms of true dysentery. Whether *Giardia intestinalis* is actually pathogenic and capable of producing severe diarrhoea is still a matter of debate.

Diarrhoea may occur as one of the symptoms of a localised or otherwise well-deprived acute abdominal disease other than enterocolitis. It may occur in *acute appendicitis*, in *mesenteric thrombosis* or *embolism*, or in *intussusception*, or *pneumococcic peritonitis*. Diarrhoea stool con-

taining blood and mucus and accompanied by violent colic may also occur in *Henoch's purpura*.

### Causes of Acute Diarrhoea.

- (a) *Food indiscretion* e.g. unripe or over-ripe fruit and poisonous mushrooms.
- (b) *Poisoning* Arsenic, Mercury, Zinc, Lead, Carbon tetrachloride
- (c) *Purgatives* Overdosage.
- (d) *Allergy*
- (e) *Infections* Acute fever of childhood  
 Infective Salmonella  
 Staphylococcus  
 C. Botulinus  
 Typhoid and paratyphoid  
 Cholera  
 Bacillary dysentery  
 Amoebic dysentery  
 Lambliasis  
 Balantidium Coli.

### Investigations in cases of Acute Diarrhoea.

- (a) *History* — Duration; pain; nausea and vomiting; fever; occupation; kind of food ate; whether other persons affected.
- (b) *Physical examination*
- (c) *Laboratory Tests* — White cell count.  
 Examination of the faeces for parasites.  
 Culture of faeces.  
 Blood culture.  
 B.S.R.  
 Examination of gastric contents.  
 Urine for nephritis and mercury.

### Causes of Chronic Diarrhoea.

- (a) *Accompanying chronic intestinal disease* :—
  - i. Ulcerative colitis
  - ii. Regional ileitis
  - iii. T.B. enteritis
  - iv. Actinomycosis
  - v. N.G. colon
  - vi. N.G. rectum
  - vii. Papilloma rectum
  - viii. Granuloma venereum (Frei test)

ix. Proctitis (gonococci, T.B., syphilitic, dysenteric)

x. Faecal impaction.

(b) *Due to deficient gastric digestion* :

- i. Hypochloridia and Achloridia
- ii. Pernicious anaemia
- iii. Addison's disease
- iv. Chronic alcoholism
- v. Gastro-enterostomy

(c) *Due to deficient Carbohydrate metabolism.*

i. Fermentation diarrhoea

(d) *Due to defective fat absorption* :

- i. Biliary and pancreatic disease
- ii. Coeliac disease
- iii. Sprue

(e) *Due to nutritional deficiency* :-

- i. Pellagra
- ii. Sprue
- iii. Hill Diarrhoea
- iv. Avitaminosis
- v. Tropical macrocytic anaemia.

(f) *Due to neurogenic defects* (parasympathetic overstimulation)

- i. Anxiety neurosis
- vii. Post — prandial
- iii. Thyrotoxicosis
- iv. Irritable spastic colon
- v. Mucous colitis

### Diagnosis of Chronic Diarrhoea.

1. *Chronic enterocolitis.* This can be caused by various infections and is often the aftermath of acute dysentery. Diarrhoea often alternates with constipation. Sensation of fullness and floating, tenderness and anorexia are frequent symptoms.

2. *Catarrhal colitis.* Here there is no evidence of poorly digested food but grossly visible mucus is usually found in the liquid or semi-solid stool. The differentiation of a chronic catarrhal colitis from an allergic or neurogenic type of an irritable colon is not always easy. An anatomical lesion of the colon can be substantiated only by a visible catarrhal condition of the pelvic colon by sigmoidoscopy or by signs of mucosal defects on good X-Ray pictures.

3. *Allergic mucous colitis.* Large amount of glairy mucus frequently covering hard stools and white membranes floating in the stool, often with numerous eosinophilia both in the stool and in the blood, and the general clinical picture of the nervous patient will clear the diagnosis.

4. *Catarrhal ileitis and jejunitis.* This can be suspected if there is evidence of insufficient digestion and absorption of food. The rapid passage through the small intestine does not permit a normal utilisation of the food, and striated muscle fibres, fat and undigested remnants of carbohydrate may be found in the diarrhoeic stool after a standard test meal. X-Ray gives valuable information. The barium meal frequently reaches the colon within 1-2 hours instead of at least double that time. Fluid levels in the small intestine may indicate exudation in the lumen or abnormal fermentation.

5. *Fermentation diarrhoea.* The stool has an acid reaction, smells sour, and gas bubbles give it a frothy appearance. Restriction of carbohydrates in the food may produce a change from fermentation into a putrefactive stool, restriction of proteins may do the opposite.

6. *Sprue Syndrome.* This consists of an impairment of the intestinal absorption of fat, fat-soluble vitamins, and some carbohydrates. The stools, therefore, are liquid or semi-solid, frothy, of light colour, rancid odour, acid reaction, and contain large amount of fatty acids and soaps as well as small quantities of neutral fat. Contrasting with the much less marked steatorrhea of chronic enteritis there is no blood or pus in the stools. The considerable nutritional deficiency caused by the impaired intestinal absorption results in weight loss, general weakness, anaemia usually of the hyperchromic macrocytic variety, hypoproteinaemia and painful lesions of the mouth and tongue. Deficient absorption accounts for hypocalcaemia and consequently for the frequent association of sprue with tetany and decalcification of

bones. Serum phosphorus is usually low, too. Dextrose tolerance test shows flow curves if dextrose is administered orally; the curves are, as a rule, normal if the dextrose is given i.v.i. In some instances of the sprue syndrome, the liver is enlarged and its function impaired. On X-Ray examination, disturbed motility, segmentation and flocculation of barium, and alternation of the mucosal pattern of the small intestine are to be found (so called 'deficiency pattern'). Aetiologically different varieties of sprue syndrome may be encountered. Distinction between tropical and non-tropical sprue is not justified in any way. Idiopathic steatorrhea and coeliac disease of early childhood are clinically identical sprue syndromes. In these cases of idiopathic or primary sprue no specific or significant anatomical alterations have been found at necropsy.

7. *Pancreatic disease.* Here also we get bulky stools but we find chiefly unsplit neutral fat (as compared with fatty acids and soaps in sprue) and striated muscle fibres. Pancreatic ferments are present in the duodenal content in sprue as contrasted with pancreatic insufficiency.

8. *Pernicious anaemia.* The blood picture and the findings of the test meal are diagnostic.

9. *Achylia gastrica.* It is questionable whether achlorhydria, per se, causes diarrhoea.

10. *Pellagra.* The deep red colour of the tongue and the association with dermatological and neurological manifestations of pellagra are of diagnostic importance.

11. *Hyperthyroidism.* This causes diarrhoea by increasing nervous stimulation of intestinal motility. The signs and symptoms of thyrotoxicosis usually clinch the diagnosis.

12. *Addison's disease.* Repeated severe attacks of diarrhoea, after alternating with periods of obstructive constipation, and accompanied with colicky pain and vomitus are a typical occurrence in Addison's disease.

13. *Anxiety neurosis*. Diarrhoea is a common expression of fear and anxiety. It is usually associated with other features of the anxiety state.

14. *Ulcerative colitis*. The patients may have up to 15 or more bowel movements per day. The stools contain mucus, pus and blood. Cramps, borborygmi, and tenesmus are quite common. There are usually moderate fever, tachycardia, leucocytosis and increased E.S.R. The diagnosis will be ascertained by procto-sigmoidoscopy and X-Ray. The former shows haemorrhagic spots and ulceration of the mucosa, the latter reveals a tight, ribbon-like spastic colon without haustration and a frizzy, irregular marmorisation of the mucosal pattern.

15. *Regional ileitis*. Diarrhoea, colicky pain, low grade fever, anaemia, and in some cases an ill-defined palpable mass are the clinical manifestations. X-Rays show a 'string-sign' deformity of the terminal ileum which appears as narrow irregular cord, devoid of its normal mucosal markings. Irregularly constricted and dilated loops with localised barium residues may be seen if higher intestinal segments are involved. It may be confused with appendicitis, T.B., or actinomycosis of the ileo-caecal region, neoplasms of lymphomatous processes.

16. *Intestinal tuberculosis*. This can cause persistent diarrhoea. It will be suspected in persons with pulmonary or other localisations of T.B. Occasionally it may appear as a palpable, chronic inflammatory mass in the right lower abdominal quadrant. Diarrhoea in tuberculous patients, however, is no proof of intestinal localisation of the process, not even if Koch's bacilli are found in the stools. They may be eliminated with the stool if infective sputum is being swallowed. Occult blood in the stools of such patients, however, may be an important sign.

17. *Actinomycosis*. This has a predilection for the ileo-caecal valve region. It has a particular tendency to form sinuses and fistulate penetrating the skin. Microscopic

examination of the purulent discharge will reveal the characteristic fungi.

18. *N. G. colon*. Clinical and X-Ray diagnosis.

19. *N. G. rectum*. Rectal examination. Procto-sigmoidoscopy examination. If high up, X-Ray.

20. *Granuloma venereum*. Frei test diagnostic.

### Laboratory examinations of value in chronic diarrhoea.

1. *Recto-sigmoidoscopy*—
  - (a) Culture the material directly from involved colon.
  - (b) Examination for amoeba and bacilli of dysentery.
2. *Examination for occult blood*.
3. *Carmini test*. The use of the carmini capsule may be of value in estimating gastro-intestinal motor function. The patient is asked to note the time interval between taking the capsule and first staining of the faeces.
4. *Gastric content*. Test meal.
5. *X-Ray chest and sputum for T.B.*
6. *Urine*. To exclude chronic nephritis.
7. *Blood*. To exclude pernicious anaemia, leukemia and lead poisoning.
8. *B.S.R.* Against B. Shiga (at least 1:50)  
 „ B. Flexner (at least 1:300)  
 „ B. Sonne (at least 1:100)
9. *Frei test*. Should be done in all cases with a history of venereal disease.
10. *X-Ray examination*.

### References.—

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