

PHYSIOLOGY AND MEDICINE.

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DISEASES OF THE ALIMENTARY SYSTEM.

GASTRO-INTESTINAL TRACT.

DYSPEPSIA is a clinical term applied to various groups of symptoms associated with faulty chemical transformation of the food (failure of digestion). These symptoms may be (a) due to grave *organic* changes (actual disease) in the walls of stomach or intestine (1) inflammatory (acute and chronic catarrh), (2) ulcerative (gastric or duodenal ulcer), (3) neoplastic (particularly cancer), or (4) of the nature of the dilatation of the stomach; or (b) due to *functional* alterations of the secretory or motor action of the gastro-intestinal tract and unaccompanied by any actual disease in its walls. This functional dyspepsia is due to a change of the innervation of the gastro-intestinal tract resulting in increased or diminished secretion and peristalsis.

It must be borne in mind that there are numerous conditions which simulate dyspepsia. This is due to the intimate *reflex* connection between the stomach and distant organs. Thus severe vomiting may occur in connection with certain states of the uterus (pregnancy), of the kidneys (uraemia), of the urinary bladder (retention), of the eye (glaucoma), of the ear (Ménière's disease), of the nervous system (cerebral tumour, meningitis, gastric crises of tabes, hysteria). Again, the pain which sometimes results from the presence of gall-stones in the gall-bladder may closely simulate that of gastric or duodenal ulcer; and the same may be said regarding the pain of tabes mesenterica and chronic appendicitis. A great controversy has been raging recently in England over this last condition under the name of *appendix dyspepsia*. There may be, undoubtedly, concomitant organic disease of some region of the gastro-intestinal tract in some of the above mentioned conditions, but the dyspeptic symptoms are, for the most part, *reflex*.

From the above it will be observed that the causes of dyspepsia are very numerous and require wide knowledge and skill for differentiation.

Appropriate treatment requires a precise diagnosis ; but, in all cases, diet and times of feeding should be carefully regulated and articles of food known to disagree should be avoided, *e. g.*, sugar, pastry, vegetables, cheese and tea ; sometimes predigested foods are necessary.

Besides pain and vomiting, other symptoms of dyspepsia—not necessarily all present in every case—are deficient or otherwise altered appetite, dryness of the mouth and thirst, discomfort in the epigastric region, flatulence, heartburn, acidity, waterbrash, eructations, nausea, constipation and sometimes diarrhoea.

Appetite may be affected in one of three ways: it may be excessive (bulimia) from habit or organic disease, *e.g.*, tabes mesenterica and diabetes mellitus; it may be lost (anorexia) as occurs typically in dyspepsia; it may be perverted, depraved or unnatural (pica) as in chlorosis, pregnancy and hysteria.

Flatulence (accumulation of wind) is due chiefly to gas generated by the fermentation of food-stuffs, but may be partly due to air swallowed with food. If the stomach be unduly distended with "wind," the heart may be injuriously pressed upon and *palpitation* result.

Heartburn is a term applied to a burning sensation in the chest in the region of the heart—often not referred to the stomach by the patient: it is due to excessive acidity of the gastric contents. This *acidity* may be due (*a*) to excessive gastric secretion of hydrochloric acid, or (*b*) more usually to abnormal fermentation of starchy food owing to feeble slow digestion resulting in the formation of acetic, lactic and butyric acids. The presence of butyric acid in vomited matter may be detected by its characteristic smell, resembling that of rancid butter.

Sometimes, particularly after such articles of diet as porridge and in individuals who cannot digest it well, a tasteless watery fluid may rise suddenly from the lower end of the gullet rather than from the stomach, into the mouth: this is called *waterbrash*. The fluid consists of saliva and mucus which have accumulated in the gullet, probably owing to some spasm of the cardiac orifice of the stomach.

The term *eructation* is applied to any sudden burst of "wind" or liquid, *e. g.*, partially digested food from the stomach into the mouth, causing generally some irritation in the throat in its passage.

Nausea must be distinguished from actual vomiting. The vomiting which is characteristic of disease in the brain occurs with little or no nausea; it is sometimes described as a "welling up" of the contents of the stomach since the contents of that organ are expelled without any apparent effort. In *cerebral vomiting* the stomach alone contracts to expel its contents; in the ordinary form of vomiting, the abdominal wall also contracts and helps the stomach to empty itself. When the stomach alone contracts the vomiting is ominous.

The vomiting of blood is called *haematemesis*. The colour of vomited blood is usually dark red or dark brown—aptly described as "Coffee grounds" in

character—and is due to the action of the gastric juice on the blood. As vomited blood comes from the stomach, it is frequently mixed with some food-particles. Blood which has been acted upon by gastric juice and, instead of being vomited, passes down through the intestines gives the motions a black “tarry” colour, a condition to which the term, *melæna*, is applied. In this connection it should be remembered that certain medicines, *e. g.*, *iron* and *bismuth*, colour the motions black. Blood which has come from the intestinal wall of the lower part of the small intestine or upper part of the large intestine is usually reddish in colour and is intimately mixed with the fæces; blood from the lowest part of the large intestine, *e. g.*, from piles, is bright red in colour and smeared on the surface of the fæces if the stools are formed; it is never intimately mixed with the fæces.

Jaundice is characterised by a yellow colouration of the skin and white of the eye (conjunctiva). A slight form accompanies certain fevers and occasionally even pneumonia; an intense variety occurs in several diseases of the alimentary system, particularly of the liver and bile ducts. Where there is marked jaundice, the urine and sweat contain bile; the urine is high-coloured, dark green or brown, and the sweat may be yellow and stain linen. Constipation is the rule, and the motions are light clay or drab coloured and very offensive. There is great itching of the skin, due to irritation of the nerves of the skin by the bile, and this is aggravated by warmth in bed. A slow pulse, muscular weakness and great depression of spirits accompany jaundice.

Intestinal colic or griping is due to irregular contractions of the intestines. The pain is relieved by pressure or warmth and generally disappears after a free evacuation of the bowels. There is no rise of temperature unless there is some complication. Colic may be a symptom in certain diseases, *e. g.*, obstruction of the bowels or appendicitis, where the administration of a purgative would be dangerous. When in doubt, therefore, as to the cause of colic, give an enema instead of a purgative.

Hepatic colic is due to gall-stones: but gall-stones do not necessarily produce colic; many who have gall-stones go through life without ever having experienced any colic or other disability due to their presence. It is when a stone becomes dislodged and impacted in the bile passages that the characteristic symptoms of hepatic colic occur. The agony during an attack is intense; there is violent retching and an acute twisting pain about the navel and other parts of the abdomen. Gall-stones occur most frequently in middle aged women; sedentary habits favour their formation. The attack may subside suddenly and be followed by jaundice. The stone should be looked for in the motions, the search being facilitated by diluting and stirring up the fæces with plenty of water. If the stone is found faceted, there has been more than one present and a recurrence of the colic is probable.

Acute intestinal obstruction is a formidable and fatal condition. The causes are generally classified as, (1) mural, *e. g.*, stricture of lumen of gut

from cancer or other cause, (2) intra-mural, *e.g.*, an intestinal concretion blocking the intestinal canal, and (3) extra-mural, *e.g.*, strangulated hernia. The last mentioned is the commonest and most curable cause of acute intestinal obstruction and should therefore be looked for first. The symptoms are constipation, more or less complete; abdominal distension and tenderness; pain, local or general; vomiting,—at first, of food and other contents of the stomach; later, of bile and other fluids, generally offensive; afterwards of faecal matter. In very acute cases, collapse is profound. Purgatives must be strictly avoided; even enemata have to be given cautiously, lest the bowels should rupture. The nurse is expected to report not only on how long the enema is retained and its effect as regards faecal matter, but also regarding the passage of "wind" or flatus by the bowels. The application of hot fomentations or stupes over the abdomen relieves the discomfort; but, as soon as the condition is recognised, surgical aid should be summoned without delay.

Acute general peritonitis occurs typically as a result of perforation of the gastro-intestinal tract, *e.g.*, perforated gastric or duodenal ulcer. Prominent symptoms are severe pain, vomiting and hiccough. The knees are generally drawn up in bed to relax the abdominal muscles; and even the weight of the bed clothes cannot be borne by the patient. The abdomen is kept rigid and quiet, the chest alone moving during respiration. The expression of the patient is anxious, the temperature elevated and the pulse rapid. If perforation has been the cause of the peritonitis, nothing should be given by the mouth; all nourishment, including brandy—which may be required if there is much collapse—should be given by the rectum. A cradle should always be placed over the patient to remove the weight of the bed clothes and a pillow under the knees adds to the patient's comfort: hot light local applications, especially turpentine stupes, give some relief. Nothing, however, brings such comfort to the patient as does morphia, which gives rest to the bowels by checking peristalsis, allays pain and produces sleep: but until a definite diagnosis has been made and a definite course of action decided upon, this remedy should be withheld, as it obscures the symptoms so necessary for diagnosis. Early surgical interference may save the patient's life.

Abdominal emergencies.—In certain abdominal conditions—gastric and duodenal ulcer, acute intestinal obstruction, appendicitis and ectopic gestation being much the commonest—a sudden catastrophe, signalled by sudden agonising abdominal pain and severe vomiting, may occur at any moment. This is due to perforation of the gastro-intestinal tract, or rupture of the gestation sac and a consequent acute general peritonitis. The only hope lies in early surgical interference. Every nurse should therefore bear in mind the possibility of such a calamity, particularly when attending patients suffering from the conditions mentioned, and, on recognising the signal, send for surgical aid as soon as possible. With regard to vomiting, the points a nurse should note

are—the time and frequency of occurrence, the type of vomiting (effortless “welling up” or retching attended with abdominal contraction), and the amount and character of the vomit, *e. g.*, colour, smell, and presence of froth and special recognisable constituents, such as blood, bile, undigested or partially digested food, worms, fæces, etc : as to the *stools*, the chief points to be noted are—the amount, colour, odour, consistence, and the presence of scybala (hard, roundish lumps of fæces), froth and special constituents such as blood, slime, undigested food, worms, and foreign bodies.

(*To be continued*).

MALARIA.

BY CAPTAIN GEORGE FOWLER, I.M.S.

(*Continued from page 96.*)

THE second experiment of allowing infected mosquitoes to bite healthy persons is also interesting. Several mosquitoes infected with Benign Tertian Parasites were sent from Italy to London and two persons, who had never been abroad and who were perfectly healthy, allowed themselves to be bitten. These two persons developed malarial fever and malarial parasites were found in their blood. This goes to prove that without the mosquito the disease cannot be spread.

The use of Fish.—If collections of water cannot be dealt with by the kerosine oil method, small fish should be placed in the water. These are great enemies of the larvæ and devour them greedily. In the West Indies the small fish known as “Millions” are utilized for the purpose of exterminating larvæ from large collections of water. Frogs do not readily devour larvæ. Recently Dr. Bentley has shown that the wells in Bombay contain Anopheline larvæ.

Segregation of Infected Persons.—Patients suffering from Malarial fever should be segregated, and they should be put under mosquito nets, as they will be the means of infecting the mosquitoes in the locality and thus the disease will be spread.

Quinine as a Prophylactic.—Quinine is the drug which has a specific effect on the malarial parasite, and may be used as a prophylactic by those so circumstanced that they are unable to protect themselves from the bites of mosquitoes. It may be given in the form of Sulphate or Hydrochloride for adults and as the Tannate for children. The sulphate is cheap and is universally used. In large communities quinine should be given from the 1st of July to the end of October in places where malarial fever is prevalent during these months. In other places, *e. g.*, the Terai, the drug should be given all the year round, as the disease is endemic and exists throughout the year. Heroic