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LECTURE.

ACUTE CATARRHAL INFLAMMATION OF THE STOMACH.

A Clinical lecture delivered in Rush Medical College.

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The patient whom I place before you this morning is, you see, confined to his bed. He was brought to the hospital three days ago, in a state of alarming prostration, vomiting and purging, and unable to retain anything in his stomach. This condition had been induced by a prolonged debauch, in which the usual accessories—wine and women—had been combined with almost fatal effect. Being only 22 years of age, and of a delicate organization, his stock of vital energy was insufficient for the occasion. Though considerably relieved, he can not yet tolerate the sight or smell of food; and ever since his admission to the hospital, he has been fed with nutritious enemata, and his stomach has been given perfect rest. His tongue is thickly coated; his breath is offensive; there is a small patch of herpes on his lower lip; his bowels, which were quite loose, on admission, are now only moved twice a day; his urine was scanty, high-colored, and acid. This specimen was passed shortly before leaving his ward; it is more copious than previously, and, now that it is cool, has deposited a copious brick-dust sediment that is composed chiefly of urates. The matters that were vomited when the patient first entered the hospital were very acid, slimy, and latterly of a greenish color and bitter taste. The acidity of the vomitus was found to be consequent upon the presence of lactic and butyric acids. Free hydrochloric acid was entirely absent. After the subsidence of vomiting there were frequent paroxysms of hiccough interspersed with belching of gas and the ascent of acrid fluids into the pharynx and mouth. These evidences of gastric uneasiness have now ceased to occasion any considerable annoyance, and will soon disappear, but the patient still complains of frontal headache with a feeling of intra-cranial fulness that is aggravated during each systolic impulse from the heart. On raising his head from the pillow, there is an overpowering sensation of dizziness. The special senses are painfully exalted, and there is tenderness all over the epigastric region when pressure is made below the xiphoid cartilage. The whole abdominal wall is morbidly sensitive to pressure, but the epigastrium is more susceptible than any other part. There is complaint of burning pain felt at intervals between the scapulæ, especially after an attempt to take food of any kind. When admitted to the hospital the bodily temperature was 102 degrees F., and the feeble pulse-beat was 118 per minute. This morning, however, the temperature is 98.2 degrees F., and the pulse

is quite normal, though rather weak and easily excited.

Since we can not open this man's stomach, and look into its cavity, I must tell you what would have been found had he died two or three days ago. The mucous lining of the organ would have been covered with mucus, and through its translucent layer would have been visible the reddened membrane itself. The pyloric extremity of the stomach is the seat of severest inflammation in such cases; and there the color is deepest, and the swelling of the mucosa is greatest. Some day Professor Hektoen will have the opportunity to show you such a stomach, and I ask you then to observe the manner in which the evidences of inflammation, redness and swelling, are intensified in the vicinity of the pylorus, where it is not unusual to discover actual ruptures of the small vessels in the mucosa, with general deep staining of the membranous surface, while in the cardiac extremity of the viscus the vessels are only slightly prominent, giving them an appearance of arborization upon a comparatively pallid background of nearly normal mucous membrane. In many instances the surface presents a patchy appearance, indicating local variations in the intensity of the inflammatory process. This local variation differentiates the appearances caused by inflammation from the uniformly diffused hyperemia that flushes the mucosa during the act of digestion. Microscopic examination shows that the active proliferation of cells that occurs during inflammation differs from what takes place during digestion chiefly in the tumultuous and excessive character of the process, and in the substitution of mucus for gastric juice as the final outcome of glandular action. The connective tissue also exhibits the results of exudation and inordinate multiplication of its elements. The blood and lymphatic capillaries present the usual changes that are witnessed in connection with inflammation in other parts of the body.

The history of this case refers the disease to excessive drinking of alcoholic liquor. But in many cases no alcohol has been taken. Some of the most violent cases of acute gastritis are excited by the use of tainted meats or sweets that have been accidentally transformed into culture media for the growth of poisonous bacteria. Several times I have been called to treat whole families who had been violently attacked with vomiting and collapse within a few hours after eating ice-cream or "floating island," which had been kept in a damp and moldy cellar. A few years ago nearly one hundred persons in the State of Iowa were thus prostrated on one of the hottest days in summer at a wedding feast at which the company had been regaled with chicken-meat in a condition of incipient putrefaction. In like manner, the disease is often induced by eating unripe fruit and coarse vegetables that produce mechanical irritation of the stomach. It is sometimes produced by accidental swallowing of coins or other objects which jugglers are wont to conceal in

their mouths. When occasionally by over-eating, it is not so much the result of excessive distention of the stomach as of the fermentations that are set up within the gastric cavity. The products of fermentation and decomposition irritate the mucous surface, and in that manner excite inflammation.

Acute inflammation of the stomach is frequently due to disturbances of the nervous system. To this cause must be referred the effect of sudden cooling of the body when overheated, either by exposure to cold air or by copious draughts of ice-water. Anxiety, lack of sleep, and inordinate sexual excitement are frequent causes of acute catarrh among neurotic and arthritic subjects. The disease is sometimes caused by disorganization of the mucous membrane through the introduction into the stomach of over-heated liquids, or chemical corrosives like acids, alkalies, corrosive sublimate, tartar emetic, alcohol, croton oil, colchicum, etc. Inflammation is also sometimes excited by the poison of gout, uremia and cholemia. It is a common incident in the course of the infective diseases, such as measles, scarlet fever, typhoid fever, erysipelas, etc. Among young children it is often noted in connection with acute intestinal catarrh as the result of bad feeding and exposure to various infections. After adult life has been reached it is observed among males more frequently than among females, and is often associated with ill health that is caused by tuberculosis, syphilis, cancer, chlorosis, hysteria, and chronic obstruction of the portal circulation dependent upon hepatic, pulmonary or cardiac diseases. It is sometimes due to infection with discharges that are swallowed from diseased oral, nasal, or pharyngeal cavities, such as are encountered in cases of salivation, syphilis, tuberculosis, and gangrene of the respiratory organs. Occasionally, it accompanies peritonitis; and it may result from an ascending inflammation of the small intestine.

Excepting the cases of young children and of violent toxic catarrh, the disease tends to recovery. Sometimes its duration is very brief, as after an occasional temporary excess in eating and drinking; but the duration is usually about one week. Relapses are frequent; and there is always danger that the disorder may be thus prolonged, and gradually subside into a condition of chronic gastric catarrh.

The treatment of these cases should begin with thorough evacuation of the stomach, so as to remove all local causes of irritation, and to procure rest for the wearied organ. Our predecessors, when called to treat a brawny rustic who was brimful of beer and cabbage, were in the habit of giving an emetic containing ten grains of ipecacuanha, ten grains of zinc sulphate, and half a grain of tartarized antimony. This was usually effectual, but the resulting commotion was extraordinary, and was sometimes productive of coolness toward the prescriber. For such a patient as you have before you, a hypodermic injection of one-tenth of a grain of apomorphia would be quite sufficient, and would have the additional advantage of avoiding all irritation of the gastric mucosa. If the stomach be distended with gas, so as to produce discomfort, and to be noticeable on percussion, it may be expelled by the aid of alkalies. To children and delicate females may be given dram doses of the milk of magnesia, or tablespoonful doses of Sir James Murray's fluid magnesia, frequently repeated until relief is procured. To more vigorous patients should be given five grain doses of sodium bicarbonate, or a

tablet of purified sodium salicylate, or a grain or two of resorcin, either singly or altogether, according to the severity of the case. These drugs should be administered in wafers or capsules, and may be washed down with copious draughts of Vichy water, or Selters water, or carbonated lithia water or plain diluted lime water.

If there be diarrhea or intestinal rumbling, indicative of the passage of irritating substances into the bowels, a cathartic should be administered. Drastic purgatives must be avoided, and the choice should fall upon mild cathartics, such as ten grains of calomel laid upon the tongue and followed by a five grain tablet of sodium bicarbonate—the ordinary soda-mint tablet of the shops. Or a teaspoonful of calcined magnesia, thoroughly moistened with mint water may be given every two hours until an operation of the bowels is procured. These remedies may be aided by a large enema, and, after the subsidence of vomiting, by the administration of an ounce of castor oil floating upon a mouthful of hot tea or lemonade, or disguised by the froth of fresh beer. It should not be given with whisky or other distilled liquor, for the reason that catarrhal inflammation of the gastric mucosa is always aggravated by alcohol.

For the relief of pain the abdomen should be covered with a large hot poultice of flaxseed meal into which have been stirred a dram each of chloroform and tincture of opium. If there be repeated vomiting and pain that is unrelieved by external application, a hypodermic injection, containing one quarter of a grain of the sulphate of morphia with the one hundred and twentieth of a grain of atropin, should be administered. If the patient finds the weight of a poultice disagreeable, it may be exchanged for light flannels wrung out of hot water and covered with oiled silk, or a large piece of spongio-piline similarly moistened may be applied to the abdominal surface. In this way the patient before you has been relieved of the most distressing symptoms of his disease. He now takes a little hot chicken broth every two hours, and is allowed rice-water, toast water or barley water for drink. Tomorrow, he will be allowed to take hot milk in addition to these liquids. As he is not suffering with diarrhea, the milk need not be boiled, but only heated to a temperature of 160 F. This will be sufficient to destroy all ordinary germs without detracting from its appetizing and nutrient qualities. He will also receive ten drops of dilute hydrochloric acid in four ounces of water after meals three times a day, for the purpose of stimulating the excretory organs of the body to effect the complete removal of the products of inflammation, and, incidentally, to replace the free hydrochloric acid which is absent from the gastric juice during an inflammatory attack.

ORIGINAL ARTICLES.

IS THE INJECTION OF AIR IN HYPODERMIC MEDICATION A SOURCE OF DANGER?

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In concluding a paper on "The Cause of Sudden Death after Antitoxin," Seibert and Schwyzer (*American Pediatric Society*, May 24, 1896) say: "We here express our firm opinion that the sudden deaths reported after antitoxin injections were caused by