DIAGNOSIS AND TREATMENT OF DISEASES OF THE STOMACH BY THE STOMACH TUBE.

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The diagnosis and treatment of diseases of the stomach, which had been so uncertain, has during the last few years become as satisfactory by the employment of modern means of investigation as that of any important organ. The use of the stomach tube and improved chemic methods of testing the stomach contents dates historically back only about fifteen years, yet it is within the last five or six years become popular.

Most disorders of the stomach depend chiefly for their painful symptoms and consecutive disorder of nutrition on fermentations, or abnormal accumulations in quantity or quality of the stomach contents. These fermentations may be the acetic, lactic, butyric, cellulose and others less known, which last produce various lately discovered poisonous alkaloids or so-called ptomaines.

In health the so far known conditions for normal gastric digestion are: Gastric juice containing 14 to 24 parts for 1000 of hydrochloric acid; an active peristaltic motion of the stomach; a proper amount of pepsin; a temperature of about 100 degrees F.; a complete emptying of the stomach within six or seven hours.

An absence or deficiency of any of these conditions disorders digestion to some extent and leads to fermentation.

The germs of the acetic, lactic, butyric and cellulose fermentations are always present in the gastric contents, but the above named conditions for normal gastric digestion do not favor their rapid development, except the lactic, which develops normally during the first fifteen to thirty minutes of gastric digestion, and it is then arrested and kept with the other germs from increasing by the augmenting hydrochloric acidity of the gastric contents.

A deficiency of some of these is frequent, but produces no disease for a long time, for these functions are largely complementary and failure of one may for a long period be compensated by greater activity of another. Digestion of albuminoids in the stomach may be absent for months by total want of hydrochloric acid, without failure of nutrition. The acetic and butyric fermentations, which take place in the absence of hydrochloric acid, are prevented by a more active peristalsis, and quicker emptying of the stomach.

USE OF THE STOMACH TUBE IN DIAGNOSIS.

By means of the stomach tube we remove portions of stomach contents at any period of digestion, and determine the amounts of hydrochloric acid, pepsin, starch, dextrin, pepsin, mucus and of abnormal products, by appropriate chemic tests.

By the stomach tube we alternately fill and empty the stomach with air, to determine dilations and displacements by percussion.

The introduction of the stomach tube is generally easy, but sometimes impossible from the production of a spasm of the glottis. I have had cases where the tube introduced with great ease, seemed to be in

the larynx, although no air came through it. I was only certain it was not, when I found the same spasm of the glottis and suffocation was caused by touching the back of the pharynx with my finger. The use of cocain locally, of ice, and chloral by the mouth will often not present the spasm. I find it a good test where use of the tube is indicated to touch the back of pharynx with the finger; if this can be borne without suffocative symptoms, the use of the tube is possible.

The too frequent use of the stomach tube often produces a sense of soreness lasting several hours. I find that its use every three or four days is sufficient in most cases where indicated. In the intervals of lavage, an antifermentative is useful, and for this purpose I prefer resorcin in 5 grain doses immediately after meals. It is a derivative of phenol, has a pleasant taste, is caustic in very strong solutions, is a local sedative and antiseptic. It is usually given in 5 grain doses but 30 grain doses are not dangerous. It does not interfere with the conversion of starch into sugar by the ptyalin of the saliva, or the digestion of coagulated albumen by the gastric juice. This I have found by its action in a mixture of saliva and boiled starch containing 1 part per 1000 of resorcin, and also in an artificial gastric juice containing the same proportion of resorcin acting on boiled egg; 1 part per 1000 is three times the strength which would exist in the stomach, taking 5 grain doses after meals.

In the diagnosis of ulcer and cancer of the stomach, the stomach tube has great value, but the conclusions are not positive. In simple ulcer the amount of hydrochloric acid is increased above the highest norm of .24 of 1 per cent. In cancer the hydrochloric is absent or below .14 of 1 per cent. the lowest norm.

The mere presence of a cancer in any part of the stomach does not stop the formation of hydrochloric; it is only when besides the cancer tumor there is an infiltration of the greater part of the stomach walls with cancer elements that atrophy of the secreting cells occurs.

The treatment, by the stomach tube, of emptying and washing out the stomach gives better and quick results than any other in the following diseases: Acute gastric catarrh; so-called bilious attacks; chronic gastric catarrh; cancer of the stomach; obstinate hiccough; vomiting persistent; the various fermentations in the stomach; dilatation of the stomach.

Attacks of acute gastric catarrh, which from one to four days, are shortened to a few hours by lavage of the stomach.

Chronic gastric catarrh yields the most brilliant results to lavage; it is almost incurable otherwise. Relief is immediate; cure usual in a few weeks.

Obstinate hiccough threatening death by exhaustion is cured immediately.

The various fermentations in the stomach causing severe headache, epigastric and intercostal pains, lumbago, ecchyma, are promptly relieved and usually soon cured with their consequences.

Dilatation not depending on pyloric structure is usually the result of fermentations; occasionally after a severe acute disease it may be a cause of fermentation. It is only curable by the use of the tube. In cancer, lavage two or three times weekly gives great relief.