

# The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. LXI, No. 15

CHICAGO, ILLINOIS

OCTOBER 11, 1913

## GASTROSCOPY \*

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It is unnecessary, in a paper attempting to enlist interest in gastroscopy, to emphasize the frequency of cancer of the stomach and how rarely this disease is diagnosed in an early stage. Only one question presents itself for discussion. Is gastroscopy an efficient and practical method of viewing the interior of the stomach? By an efficient method is meant one which permits the details of the mucous membrane of a sufficient portion of the stomach to be seen clearly. By a practical method is meant one which is not dangerous and does not entail too much inconvenience or suffering on the part of the patient, and, perhaps, one which furnishes more information than other existing methods of objective examination.

No one, for instance, would question the value of inspecting the interior of the stomach or the obligation which rested on the physician of insisting that patients with new gastric symptoms should submit to an examination of this character if he believed that the procedure was really efficient and practical in the sense just defined.

It is the object of this paper to show to the members of this Section how much of the interior of the stomach can be seen, how clearly it can be seen, and with what little inconvenience in the normally formed person.

Although I believe that anyone who witnesses this demonstration would be forced to admit that on this patient, at least, gastroscopy is an efficient and practical method of viewing the interior of the stomach, the fact nevertheless remains that for more than thirty years numerous attempts have been made to improve the technic of gastroscopy without gaining for this method of examination even a small part of that recognition which cystoscopy has acquired. This consideration naturally reflects some doubt on any claim to improvement which would place gastroscopy on a new plane of efficiency.

Figure 1 represents the cardiac sphincter. Figures 2 and 3 represent the entrance to the pyloric region of the stomach at the place of transition from the vertical portion of the stomach to the horizontal portion. Figure 4 represents a view in the opposite direction toward the

fundus or cardiac region. It illustrates the anterior and posterior walls of the stomach separated by a central cleft-like cavity. Figures 2, 3 and 4 are seen through an indirect telescope viewing the mucous membrane at right angles to the direction of the instrument. Figure 5 represents the stomach in the direction of the greater curvature viewed directly. It must be quite evident to anyone that, if views of such a degree of clearness can be obtained within the stomach, the method of examination is not only of positive, but also of negative diagnostic value. The character of these views depends alone on efficient illumination. I have tried four other types of telescopes, but have been unable to obtain the satisfactory view of the interior of the stomach here demonstrated until I had constructed the lamp and lens system of the instrument used in this demonstration. The lamp is as large as the caliber of the sheath of the instrument and furnishes sufficient light to illuminate the whole of the distended stomach.

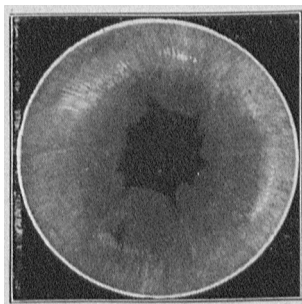


Fig. 1.—Cardiac sphincter—direct view.

The use of so large a lamp is made possible by the device for pressing it to one side after it has been introduced into the stomach. I have compared its degree of illumination and the views possible by it with those obtained by the indirect type of instruments made on the plan of the indirect cystoscopes and am convinced that the latter type of instrument will not enable one to see distinctly within the stomach. The lens system does not afford a view through a wide angle, but enables the eye to see clearly up to within 4 inches from its surface.

When suspicious appearances are found the direct view telescope may be focused on the area, as illustrated in Figure 5, and a piece removed for microscopic examination. Up to the present I have made a positive diagnosis by one or the other of these methods in twenty cases of cancer of the stomach. The roentgenoscopic examination was negative in two of these cases. The field of usefulness of the Roentgen examination of the stomach and of gastroscopy are not quite the same. But the two methods complete each other well. Roentgenoscopy furnishes accurate information regarding the condition of the pylorus. This is, of course, the most important region of the stomach in which the largest number of ulcers and carcinomas originate. On the other hand, gastroscopy furnishes exact information, both positive and negative, about the condition of the vertical portion of the stomach. This includes by far the largest portion of the stomach and the region of the lesser curvature, but not the region, perhaps, in which the majority of ulcers and cancers originate. It does, however, include a region occupied by a large proportion of cancers and those which

\* Read in the Section on Practice of Medicine of the American Medical Association, at the Sixty-Fourth Annual Session, held at Minneapolis, June, 1913.

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are particularly difficult to recognize clinically or by any other method of objective examination, even including Roentgen cinematography. One can, therefore, see inside the stomach with a degree of clearness which completes in a needed manner other existing objective methods of examination. It is possible, moreover, in the normally formed person, to make the examination without undue discomfort and with safety.

I am convinced that, if proper gentleness and carefulness of technic are exercised, it is possible to diagnose cancer of the cardia simply with the aid of cocaine-ization of the pharynx and without causing pain or an amount of discomfort to which a normal person would object.

Some discomfort, except in rare persons, is experienced and the nervous apprehension of the average patient at the thought of having a rigid instrument inserted into the stomach is such that I have concluded that the examination in a large percentage of patients is more satisfactorily conducted under a general anesthetic. For this purpose we have in intratracheal anesthesia, a new method which makes possible in gastroscopy that which previously has not been possible. For gastroscopy it is superior to intravenous or rectal anesthesia because it prevents any obstruction to the elimination of the ether which may be caused by pressure of the gastroscope on the trachea. It is possible, moreover, to conduct the whole examination after the administration of a small amount of ether under nitrous oxid and oxygen by a method perfected for this purpose and about to be described. I believe that the possibility of conducting gastroscopy under nitrous oxid and oxygen anesthesia introduces a new consideration in gastroscopy which, if it proves uniformly successful, will remove the last objection to the routine use of this method of examination on the ground of discomfort to the patient. Certainly, if it is possible to examine the interior of the stomach in a patient anesthetized



Fig. 2.—Entrance to the pyloric region of the stomach at the place of transition from the vertical to the horizontal portion—Indirect view.



Fig. 3.—Entrance to the pyloric region of the stomach at the place of transition from the vertical to the horizontal portion—Indirect view.

with an anesthetic associated with so few unpleasant after-effects as those which follow nitrous oxid anesthesia, there should be no objection to the routine application of a gastroscopic examination when what it reveals may mean so much to the patient.

As regards the safety of gastroscopy, are there any dangers connected with passing a rigid tube into the stomach? Dr. Chevalier Jackson long ago proved that the procedure is devoid of danger; and how can it be otherwise if the eye of the observer is always kept on the distal end of the instrument? If the end of an instrument which is inserted into the esophagus and then into the stomach is never allowed to progress

except where the folds of mucous membrane fall away before it by air distention in its passage down the esophagus, how can any injurious trauma be caused? Except in the case of one patient at the very beginning of the work when my technic was faulty, I have never had any unpleasant consequences.

The late diagnosis of gastric cancer, particularly of cardiac cancer, has long been a blot on the reputation of medicine. I believe that we now have two methods, Roentgen cinematography and gastroscopy, which do not cover the same field, but which complement each other, and by which it is possible to make the diagnosis of carcinoma of the stomach when the presence of this disease is suspected. It is no longer a question of

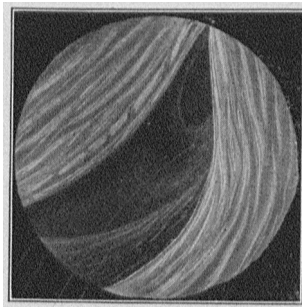


Fig. 4.—View toward the fundus or cardiac region:—Indirect view.

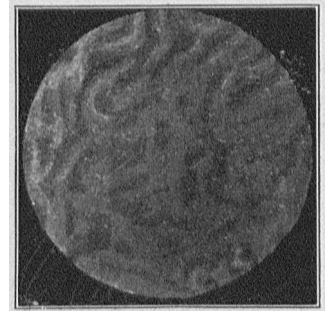


Fig. 5.—The stomach in the direction of the greater curvature, viewed directly.

inability to make the diagnosis, but, in the words of Dr. Jackson, of "looking and seeing."

It may perhaps be a question of the patient's complaining of symptoms early enough, but if gastroscopy and roentgenoscopy are made a routine in cases in which the diagnosis of cancer is among the possibilities, a large proportion of carcinomas of the stomach will be found in a stage in which it is possible to do something for them. Of not less importance, perhaps, is the consideration that we shall be discharging an obligation which we owe these patients.

It is surely desirable to be in possession of the information afforded by these two methods of examination before resorting to exploratory incision. If this rule is followed the exploratory operation may prove unnecessary, or, if this is indicated, the surgeon will be in a better position to proceed with a radical operation.

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## ONE HUNDRED CASES OF WATER-TRAP STOMACH\*

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In the examination of a patient with an apparently severe digestive condition, the first essential point is to determine which part of the digestive tract is particularly to blame for the symptoms. This can be accurately ascertained only by means of a most searching roentgenologic examination. Diagnosis by symptoms, as well

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