CONCLUSIONS.

1. The guaiac or aloin test for invisible blood is, in spite of exceptions, the most valuable single clinical method recently developed for the recognition of latent cancer and ulcer of the digestive canal and as a guide in the treatment of peptic ulcer.

2. The method is very delicate and yet so simple it can be easily carried out by the practicing physician. It must invariably be used in conjunction with the other methods of physical examination.

3. The value of the test depends on the care with which other sources of bleeding are excluded. The interpretation of the results requires some experience.

4. The test in the stools has greater value. Both positive and negative results are significant. Positive results in gastric contents are often misleading, but negative results are significant.

5. Never be content with a single examination, no matter how well the result accords with the previous opinion of the case.

6. In gastric and duodenal ulcer the chief value of the test is: *a* In distinguishing ulcer from a neurosis or disease of the bile passages. *b* As a premonitory symptom of severe hemorrhage. *c* As a measure of the results of medical treatment and as an aid in deciding when surgical interference is needed. *d* In prognosis.

7. In gastric cancer, in diagnosis from anacid gastritis, achylia gastrica, pernicious anemia and similar conditions, and from chronic gastric ulcer.

8. In general, the test has great value in discovering or ruling out hemorrhage in a suspected case.

The majority of these observations were made at the Boston City Hospital. I am greatly indebted to the other members of the medical and surgical staff for the opportunity to study their patients.¹⁸

DIAGNOSIS BETWEEN DUODENAL ULCER AND GALLSTONE DISEASE.*

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In gallstone disease and ulcer of the duodenum we have two of the principal lesions of the upper abdomen. Because of their frequent occurrence, intimate relation and similar type of symptoms, they often lead into great difficulties in differentiation.

In our clinic 163 cases of duodenal ulcer have come to operation. I here consider 141 which have tabulated histories. Two-thirds of this number (67.4 per cent.) were fairly diagnosticated. One-tenth (10 per cent.) were called gallstones; one-seventh (14.3 per cent.) were thought to be either gallstones or duodenal ulcer. Of those remaining the diagnosis was not stated or they were variously diagnosed as one of three or four different ailments.

The gall-bladder cases have run a higher percentage of correct diagnoses; four-fifths (86.5 per cent.) we have met satisfactorily; about one-sixteenth (6.9 per cent.) were called either ulcer or gallstones, while the remainder were called gallstones or appendicitis (5.6 per cent.) or duodenal ulcer (1 per cent.). It is well to

notice here that in about seven-ninths of those cases in which ulcer of the stomach was seriously considered there was duct obstruction and adhesions or some form of chronic trouble. Despite the most painstaking care in history development and clinical observation there will yet remain a rather large number of ulcer cases that can not be differentiated from gallstone disease; while the same may be said of the gall-bladder, but in a less degree. More especially will this be true if the clinician is determined to meet surgical indications in both cases when most opportune for his patients.

It is the early gallstone and early acute type of ulcer, with spasm and perforating tendencies, whose histories are oftenest confounded. Some chronic gall-bladder patients, however, may so complain that stomach lesions seem positive. Still fewer chronic ulcer patients will present symptoms not to be differentiated from biliary calculi unless perforations repeat; that is, early ulcer of the duodenum is oftener mistaken for gallstone trouble than is early gallstone for acute ulcer of the duodenum, while in the chronic stage of both conditions gallstone trouble has oftener been diagnosed ulcer than has the reverse been done.

SYMPTOMATOLOGY.

The symptoms of these two conditions run very nearly the same as to kind, and the field of complaint is often identical. Pain and distress, gas, belching, eructations, vomiting, sour stomach (oftenest in ulcer), jaundice (much more frequent in gallstones), hemorrhage (much more frequent in ulcer), general weakness and nervous irritability. Condition of the bowels and state of nutrition are frequently determining factors. It is the interpretation of these symptoms as they appear singly or combined on which a differentiation depends.

Pain.—Pain in cholelithiasis is usually sudden of onset, with the mid-epigastrium as center. It may have a wide field of radiation, usually to the right costal arch and scapular region. It is severe and lancinating, and spasm of diaphragm is usually observed. The pain comes absolutely irregularly as to time, is independent of and not eased by food, nor often traced to it as a cause. Great anxiety and free perspiration accompany the severe attacks and chills and fever may be observed. Gas often troubles during the attack and gives the sensation of upward pressure often extreme. Vomiting is frequently present, but relief is not so certain to follow in gallstones as in ulcer; hot applications often give a certain amount of comfort, but only morphin or natural return to health stays the terrific pain. Fully as characteristic as is the onset is the rapid disappearance, even at the height of pain, with almost immediate return to normal health. When the above symptoms prevail and no complication has arisen, because of repeated attacks, gallstones may be reasonably considered as the cause of disturbance.

In duodenal ulcer the pain runs in decided periods of attack, lasting from a few days to several months, may, and often does, come suddenly, is usually daily, or several times a day during this period. It is burning and gnawing in character, and if perforation has not complicated affairs or spasm has not been marked it less often reaches the sharp lancinating type of gallstone colic. In the greater number of cases the pain is caused by the irritant action of the acid-acrid contents on the ulcer area of the duodenum (or stomach) itself, heightened by the accompanying spasm and gas formation. In the lesser number it is due to perforating peritonitis,

18. The following references not elsewhere referred to in the text are here appended: Steele: N. Y. Med. Jour., 1906, vol. lxxxiii, p. 125; von Torday: Wien. klin. Rundschau, 1905, vol. xix, pp. 453 and 471; Schumann and Westphal: Ztschr. f. physiol. Chemie., 1905, vol. xlvi, p. 510; Kozlczkowsky: Deutsche med. Wochschr., 1904, No. 33.

* Read in the Section on Practice of Medicine of the American Medical Association at the Fifty-seventh Annual Session, June, 1906.

a complication more frequent in duodenal than in stomach ulcer, because of the thinner walls of the duodenum. Pain is at its height from 2 to 5 hours after food or just preceding meal hour, and the field of radiation is usually limited to the stomach and duodenal areas. It entirely disappears or is quieted for a time by food, drink, alkalis, vomiting or irrigation; that is, anything that diverts, dilutes, neutralizes or removes this acid liquid brings relief to pain as well as to most of the other distressing symptoms. Until obstruction approaches the easiest moments are those immediately following a meal or when the stomach is wholly emptied by vomiting or irrigation. Continuous distress is rarely met unless motor power is decidedly lessened or large ulcers elsewhere add their baneful influence. In both conditions peritonitis often gives pronounced rigidity and great tenderness, but in (perforating) ulcer they are usually much more persistent. Spasm of the diaphragm is rarely caused by pain of ulcer.

Gas.—Gas as a factor in gall-bladder pathology is of little moment. It is often present during the intense spell, and some relief is usually experienced if eructed, but the bloated, distended, bursting sensation that so many experience is due to the character of the pain and its radiation rather than to gas, as is supposed by so many sufferers.

In duodenal ulcer the history of gas formation is almost as valuable as is that of pain, and frequently on this factor alone a diagnosis depends. This may be the first sign to call attention to a deranged digestion. It appears apparently before obstruction in any degree can be demonstrated, and it surely comes as soon as motor power is appreciably lessened. Few, indeed, are the patients in whom gas is not mentioned as a distressing feature. It is at its height when the pain is greatest, from 2 to 5 hours after meals, and may be the cause of the distress, the result of overdistension of the stomach. The same measures relieve gas that relieve pain—food, drink, alkalis, vomiting and irrigation. The greater the degree of acidity the greater the degree of discomfort from gas as well as pain, and it is only in those cases of ulcer in which acidity is not increased or is diminished and obstruction is absent that gas and pain are not complained of, because, first, the irritant to the membrane is then lacking, and, second, spasm is not induced.

Vomiting.—Vomiting is common to both troubles and should be of less importance than the two already considered, because in the early stage of each disease, when diagnosis should be made and treatment instituted, vomiting is not so frequently a significant factor. In gallstones it appears soon after the initial pain and may give more or less relief; it is profuse only if the attack comes on soon after a meal and then the normal food and normal acid condition will be recognized. Usually the intense nausea produces severe retching, followed by a greenish, bitter fluid and mucus.

A very different picture is present in ulcer. In the earlier stage nausea and eructation are oftener present than is vomiting, and when in the earlier history it is present it is rarely profuse, is acid-acrid, and bitter-burning. For a time relief follows the vomiting. As the trouble progresses the picture intensifies until vomiting may become not only distressing, but threatening. It varies in time, intensity and quantity. Rarely, indeed, does it come immediately after food, and only then, if there is much stasis and the meal has overburdened the remaining stomach capacity. Usually

vomiting begins from 2 to 4 hours after food, when pain and gas are greatest, and, unless hypersecretion is present, dilatation marked, or obstruction advanced, the amount is not great, but irritating. Just as often we get a history of daily vomiting, or every second or third day, a few hours after the evening meal; then the pain is marked, the quantity of vomit is large and frequently so eroding that the teeth suffer. Relief follows this copious amount, until added ingesta and stomach secretions again lead to a similar condition. These are the cases in which motor power is decreased either through dilatation, obstruction or other cause; that is, the train of vomiting varies as does the degree of dilatation, amount of obstruction and quantity and acidity of secretion. Also the kind and amount of food is a factor, acids (salts and less often sweets) are the ones most frequently left from the diet list. To the food the sufferer usually traces the complaint and, except there be obstruction or marked dilation, he too often fails to find relief through diet, though he may find amelioration.

Hemorrhage.—Hemorrhage in gallstones is rare and may be an accidental accompaniment. In ulcer it is not infrequent, but we must be ready to diagnose ulcer of the duodenum without hemorrhage, or many of our patients will suffer unto death. Blood varies from mere traces found while irrigating the stomach to huge quantities vomited or passed by the bowel. By this single manifestation of ulcer we must occasionally make our diagnosis, for blood from the stomach in an otherwise healthy person should be taken as evidence, even when all so-called dyspeptic symptoms are wanting. When passed by the bowel it is usually dark, tarry, granular and will rarely be mistaken for hemorrhage lower in the tract. Fainting and collapse with sudden anemia accompany decided hemorrhage of the stomach, and even when not in great amount the effect may be profound.

Jaundice.—Jaundice in gallstones, like hemorrhage in duodenal ulcer, ought not to be waited for. In duodenal ulcer it is rare, only following when the papillary area is invaded or, after perforation, when adhesions have formed and complicated the gall ducts. This condition, however, is not frequent. In neglected gall-bladder trouble jaundice follows, 1, the forcing of a stone into the common duct; 2, inflammation of the ducts; 3, pressure of stones within the gall bladder on the common and cystic ducts at their junction; 4, swelling of the pancreas and resultant pressure on common duct; 5, perforation and adhesions. When jaundice follows sudden and severe pain in the gastric or gall-bladder area with radiation backward, one can make no intelligent diagnosis save gallstones. If ulcer exists, nothing but a guess will make the differentiation, except surgical measures.

Condition of Bowels.—This is a distinct factor in the diagnosis of duodenal ulcer. Often the patient will complain of constipation early in ulcer history, even when the troublesome element (of digestion) can be diagnosed nothing more than hyperchlorhydria or hypersecretion, but as the disease progresses and motor power lessens either from obstruction, spasm or myasthenia, constipation increases and is at times the great complaint for which relief is sought. Constipation usually varies with the spells, and during the intermission the bowel may be tolerant if not normal. Late in the disease the bowels are usually obstinate, so also are the other symptoms. In gallstones the bowels play a much less important rôle. In jaundice we have the clay stools and

at times constipation, but rarely at any stage that obstinate condition so frequent in advanced ulcer.

Loss of Nutrition.—This is often seen in ulcer of the duodenum, more frequently, however, in the later stages. Early, the gain follows rapidly on the path of intermission or loss and gain may not be marked in degree either way. Simply, if the trouble developed during the period of natural growth, normal gain may never have been realized. Late, the nutrition usually suffers and at times so profoundly that the patient when he presents himself at the clinic is practically moribund.

In early gall-bladder trouble we rarely find nutrition affected. The attacks are short and widely separated, vomiting infrequent and if present there is little or no sacrifice of material ingested and, there being no food delay its nutritive value has not been changed or lessened. A poor state of nutrition is reserved, first, for the common-duct cases; second, those with more or less chronic jaundice from any cause; third, the chronic sufferers who have developed stomach symptoms through adhesions, ulceration or constant gall-bladder irritation. Pancreatic infection following this latter class of cases is a potent factor in nutrition.

Ulcer will often be closely simulated by, 1, duct obstruction; 2, some chronic forms of cholecystitis, and, 3, gallstone cases in which one or a few large stones are in a shrunken gall cyst.

Stomach Contents.—Analysis of the stomach contents has a degree of determining force. In uncomplicated gall-bladder disease the gastric contents will be normal. In ulcer the acidity runs above normal in the larger number of cases, being about that found in peptic ulcer elsewhere. Blood may be found in traces or in large quantities, not constant at all, unless large areas are involved, and obstruction, dilatation and myasthenia are marked.

CONCLUSION.

To sum up, we may say that pain in cholecystitis is sudden and severe, usually has a wide field of radiation, comes with no regularity as to time, is rarely caused by food and as rarely eased by it, nor does the patient often trace his distress to it. There is no stomach history between the short sharp attacks; spasm of the diaphragm with dyspnea is common, vomiting and gas, if present, are so only during the colic, and the relief from eructation and vomiting is not so marked as in ulcer. Nausea and intense retching may be followed by vomiting of a small amount of thin, yellowish, bitter liquid mixed with mucus.

In duodenal ulcer pain comes in periods of attack lasting for days or weeks, is often sudden, may be severe, yet usually not that intense type of pain met in gallstones, but rather gnawing and burning in character. It may be irregular as to time of the separate attacks, but regular during the period of the stomach disturbance. The pain is clearly related to food, the intensity often modified by kind and quantity taken. Food eases for a time, the pain returning from 2 to 4 hours later. Hot drinks, soda and irrigation give relief. Spasm of the diaphragm is rarely seen except in some cases of perforation.

The chronic gallstone case, with impacted stone, ulceration and adhesions in which no jaundice appears and the stomach symptoms as gas, vomiting, burning distress, sour eructation, impaired appetite and dilatation predominate, and the pain is moderate and follows food, will too often be diagnosticated ulcer; while the duodenal case, in whose early history we can elicit only

irregular attacks of sudden, sharp, intense pain of peritonitis or acute spasm (and with no obstruction or hyperacidity) we do not have gas, vomiting or sour eructations, will as surely be mistaken for gallstones.

To the conceits of surgery we shall too often be obliged to leave the differentiation of this class of cases and to its comprehensiveness the surety of relief.

DISCUSSION

ON PAPERS OF DRs. WHITE AND GRAHAM.

DR. GARRY DE N. HOUGH, New Bedford, Mass., said that in the diagnosis of gallstone disease one occasionally meets with an abnormally situated pain and would be exceedingly apt to be misled unless attention was called to this fact. In one case the pain simulated a renal colic on the left side. In three cases the pain was in a situation hitherto undescribed, viz., starting in the left sacroiliac synchondrosis and passing through to a point about an inch below the umbilicus and a little to the right of the median line. Tenderness in the gall-bladder region and the history of the case made the diagnosis possible.

DR. GEORGE W. McCASKEY, Fort Wayne, Ind., discussing Dr. White's paper, said that he knew of the difficulties in the way of diagnosis, especially in the way of excluding minute gastrointestinal hemorrhages, which was only equaled by their importance when present. It was true that this did not aid in diagnosis in the early stages of malignant disease; for, as all know, there is no tendency for ulcerative processes to occur in the early stages of malignant disease, while in ulcer it was different, and important help can be secured. Dr. McCaskey called attention to the importance of small hemorrhages as factors causing symptoms and influencing the prognosis, independent of their diagnostic aid. It was well known that minute quantities of blood lost from the system, covering periods of months possibly, might produce a grave type of anemia, such as was produced by ankylostomiasis, although a hemolytic toxin may here coöperate. But the general conclusion was that small quantities of blood removed from the body each day might finally produce grave types of anemia, and he believed it was important to draw attention to this kind of bleeding. He said he had seen several cases. He referred to the case of a man aged 65, with no other history than a gradually increasing anemia and asthenia. The physical examination revealed absolutely nothing. The surgeon who was called in could find no indication that would warrant or justify an exploratory procedure. The feces were examined for blood, but none was found. But a second examination, made a week or two later, revealed blood, and when continuous search was made larger quantities were found. The diagnosis of an ulcerative process in the colon was made, this conclusion being strengthened by finding small fecal masses which had apparently been forcibly detached from the mucosa. The patient was treated accordingly and a prompt recovery followed, the patient remaining well for a long time. Dr. McCaskey believed that a great many cases of progressive anemia and emaciation were due to occult hemorrhages as described by Dr. White.

Clinical Notes

A SIMPLE, EASY AND EFFICIENT METHOD OF ANCHORING A MOVABLE KIDNEY.

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Indications for the performance of this operation have long ago been elucidated and to the modern doctor, skilled in the interpretation of symptoms caused by injurious degrees of renal mobility, these indications are clear and positive. The hesitation, so often manifested by patients and shared by the family physician and in