

Original Articles.

GALLSTONES WITHOUT SYMPTOMS AND SYMPTOMS WITHOUT GALLSTONES.*

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MEASURED by the percentage of correct deductions, the evidence upon which most diagnoses of gallstones are made is reliable — more reliable perhaps than the evidence upon which the diagnosis of any other deeply-seated and impalpable lesion is based.

Measured by the percentage of correct deductions, the evidence upon which some diagnoses are based is almost indisputable. Brief attacks of pain and jaundice with a tender and perceptible gall bladder make a group of symptoms so unmistakable that the deduction of gallstones is inevitable; in fact, any other deduction would be unreasonable. Brief attacks of pain with a tender and perceptible gall bladder, even without jaundice, will point almost indisputably to a gall bladder origin and to gallstones. In the great majority of cases the diagnosis of gallstones is easy. Indeed, the diagnosis in the typical case needs no further comment.

In the atypical and obscure case the diagnosis is much more difficult. Fortunately, the increasing frequency of explorations in the right upper quadrant has demonstrated so often the connection between these obscure and atypical symptoms and their pathological cause, that we can already in the great majority of cases make a correct inference, if not of gallstones, at least of a mechanical condition which for its relief demands mechanical measures.

The history and physical examination before exploration, with the anatomical demonstration of the biliary tract and adjacent viscera, afford both the physician and the surgeon indisputable control over their diagnosis. Such an opportunity as surgery now affords of studying the pathology of the whole abdomen in general, and of the right upper quadrant and epigastrium in particular, is not as yet appreciated by either physician or surgeon. The importance to the physician of a personal observation of the truth or error of his diagnosis, as demonstrated at operation, appeals to but few medical diagnosticians. And yet the opportunity of renewed physical examination under complete anesthesia is not one to be lightly thrown away. The importance to the surgeon of a thorough study of anatomical appearances during life is vital, for upon a correct interpretation of the anatomical changes depends the choice of operation and its success.

With such opportunities as are now afforded, a careful study is indicated of all symptoms which even remotely suggest gallstones, and especially atypical and obscure symptoms of the right upper quadrant, for which, until operations became frequent, no adequate cause could be predicted.

Those symptoms, therefore, which suggest strongly but not markedly gallstones, but which may prove to be of quite different origin, must be seriously considered, lest, under the narrow limitations of a too positive diagnosis, an unnecessary operation be performed, or an imperative one be withheld.

Excepting lesions of the female pelvis and perhaps of the appendix, the most important diseases of the abdomen are situated in or near the right upper quadrant of the abdomen, where they manifest themselves by symptoms persistent, disabling and unresponsive to treatment. Organic diseases of the stomach, duodenum, liver, gall bladder, pancreas, right kidney, and hepatic flexure of the colon present symptoms of the widest diversity, some of which are commonly found in all; some of which are occasionally found in all; and some of which are found in but one. Pain, for example, in some of its forms is common to all; loss of weight, loss of appetite, and other constitutional symptoms may be present in all. But jaundice is present only in diseases which obstruct the biliary flow; hematemesis, only in diseases which involve the esophagus, stomach and duodenum; hematuria, only in lesions of the genito-urinary tract.

In the great majority of these lesions, especially at the operable stages, it can be taken for granted that the chief symptom will be pain in some form or other. The more pronounced any sign pointing to the cause of pain, the more positive the diagnosis, but the more advanced the disease. Gastric spasm, for example, locates the cause of pain in the pylorus, just as jaundice locates it in the biliary tract, or blood in the urinary. In the diagnosis of gallstones in their earliest stages without jaundice; in the diagnosis of pyloric growths without gastric spasm or hematemesis; in the diagnosis of renal tumors without hematuria — the chief symptom is usually pain and the character of that pain is the only guide at that early stage, when, in neoplasms, there is a chance of cure, or, in gallstones, an uncomplicated biliary tract. At a stage thus early, errors in diagnosis must occur; errors in indications for operation must occur; errors of judgment between the imperative and the needless operation must occur.

Fortunately, however, even if at operation no gallstones are found, other lesions are usually demonstrated and successfully remedied. It is the rarest of exceptions when the operation demonstrates only its own uselessness. It is excessively rare to find neither lesion nor relief, or to make the patient even worse than he was before operation.

These remarks are illustrated so frequently that no prolonged search for illustrative cases is necessary. The number of patients upon whom a needless operation is performed is very small, and yet improvement in our results demands that these cases be especially emphasized and avoided. But if we emphasize errors of commission, on the other hand we must emphasize with equal force the errors of omission. It is not difficult to find examples for both.

* Read before the Southern Surgical and Gynecological Association, Dec. 11, 1906.

A gentleman of sixty-two, after a very severe attack of left abdominal pain, with vomiting, rigidity, and distention, *without tenderness*,—symptoms which disappeared completely,—passed bloody urine. No more natural inferences could be drawn than that of left renal stone and reflex abdominal symptoms. A second attack proved fatal. Autopsy showed perforation of the posterior wall of the stomach, with stone in the left kidney. The diagnosis was right as far as it went, but it did not go far enough. The man had the benefit of the opinion of clinicians in whom I have the greatest confidence. At the second attack he was in such desperate straits that it was clear to all that his only chance lay in palliation. Could the real lesion have been detected before the second attack, he might have been saved.

A woman of forty-one (Vol. 24, p. 63) had suffered for two years from abdominal pain. In 1897 she was operated on; the appendix was removed, and also the right tube, which was dilated to about the size of a mandarin orange. In 1901 she was operated on for hernia in the scar. Two years later she died after an operation for gallstones, the details of which I do not know. Were the gallstones the major lesion, and the appendix and tube the minor?

A woman of forty-two (Vol. lxii, p. 57) was operated upon for pain supposed to be due to gallstones. I removed several; but the pain persisted and was finally accompanied by visible and violent gastric spasm. Cancerous stricture of the jejunum was found. This had not been detected at the first operation. Thorough extirpation has so far given complete relief.

A man of forty (Vol. 60, p. 125) was operated upon by another surgeon for supposed appendicitis, diagnosed chiefly from right-sided pain. Operation brought no relief. There is now for the first time bloody urine, and the diagnosis of renal stone is probably correct.

For pain in the region of the appendix I have operated many times, even when the diagnosis was not positive. In some—very few—of these cases other diagnoses have later become apparent; and the results, as a whole, have been of the most gratifying kind. But, as I have said, these few exceptions in the present splendid development of surgery are the only things left for us to study and improve upon.

Under the diagnosis of gallstones, even of the most positive character, lie possibilities of error; and no one knows this fact so well as the operating surgeon. Indeed, no one sees as he does the intimate relation between cause and effect, and no one can possibly be in a better position to avoid errors in diagnosis and in the indications for treatment. But, be he never so experienced, so accurate in his observations, so logical in his deductions, cases will arise in which he will find himself completely mistaken. Instead of gastric perforation, he will find acute cholecystitis (Vol. lxii, p. 32); instead of gallstones, he will find chronic pancreatitis (Vol. I, p. 90); instead of pancreatic disease, he will find gallstones; instead of gall-bladder abscess, he will find renal abscess; instead of tumor of the gall bladder, he will find a hypernephroma (Vol. 44, p. 155); instead of gallstones, disease of the pylorus; instead of gallstones, adhesions and faulty position of viscera; instead of gallstones and cholecystitis, perforation of duodenal ulcer and general peri-

tonitis. Furthermore, he will find not only the disease that has been diagnosticated, but other lesions as well, and lesions perhaps more likely to be the cause of the symptoms than that for which the operation was undertaken, as in the case cited of appendix and tube with gallstones; jejunal cancer and gallstones (Vol. lxii, p. 57); pancreatic cancer and gallstones (Vol. I, p. 90); pyloric adhesions and gallstones (Vol. 40, p. 171); intestinal cancer and gallstones (Vol. lix, p. 114); hepatic cancer with gallstones (Vol. lxii, p. 67, and Vol. 60, p. 173).

The commonest experience, however, is that in which, after a very positive diagnosis of gallstones, nothing is found. Were not an adequate explanation at hand,—the fact that the last gallstone may have been expelled at the last attack of pain,—this experience would be indeed hard to explain. No doubt this explanation is in some cases a satisfactory one. Indeed, it cannot be said in any case that this may not be the right one. But, with multiplying observations, it seems to me impossible that a long history of repeated attacks of pain, without the discovery of gallstones in the stools, without jaundice or other evidence of a protracted passage through the common duct, this explanation can be accepted as the right one. We must therefore consider the significance of symptoms in cases which by some kind of pain suggest gallstones but in which no gallstones are found; and we must also consider the significance of the absence of symptoms when gallstones *are* found, perhaps filling a gall bladder which by its thickening and contraction expresses the slow and painless changes of many years.

Why is it that in some cases a single stone causes pain of the most excruciating kind, whereas in others many stones cause none? An answer immediately suggests itself—the difference in the impaction; its situation; the size of the stone. But have we not learned that this is much too easy and superficial a view of the subject? In one instance at least the attacks of pain recurred after the removal of about a hundred stones (Vol. 63, p. 43). The attacks became frequent and unbearable. Inasmuch as I had many times observed pain after cholecystostomy and drainage, I looked upon this case as similar to those in which there had been pain, which later disappeared. Dr. Jones operated on this patient for me, and removed the gall bladder. He found it adherent to the old cicatrix and surrounded by adherent omentum. It was dilated and contained about six ounces of dark—almost black—thickened bile. The adhesions extended down about the cystic duct, but no definite band or kink was found. The head of the pancreas was thickened to about an inch and a quarter. No stone could be found after a prolonged search. The cystic duct, when opened, proved to be very tortuous. The gall bladder wall was somewhat thinned by the dilatation, especially at the fundus where it had been drained. The patient made a good recovery. In this case, however, there was adequate cause for cholecystitis either in the

presence of gallstones before the first operation, or in a possible lesion of the mucous membrane during tube drainage.¹

I have for many years — but particularly of late — been impressed by the value and interest of diagnosis as a healthy and stimulating intellectual exercise which highly cultivates the powers of observation and deduction. The surgeon has opportunities of testing and verifying not only the significance of his histories, but the results of his own physical examinations and those of others, and especially the deductions that he draws from the evidence at hand.

Of all the areas in the body (excepting perhaps the field of cerebral diagnosis, where correct deductions from accurate observations offer the most extraordinary opportunity for the highest intellectual endeavor) none equals in the variety and frequency of disease the right upper quadrant of the abdomen, for there lie possibilities of widely differing lesions with symptoms more or less common to all. The similarity of symptoms, especially in the early and best operable stages of all these lesions, makes correct diagnosis extremely difficult; but it makes correctness of diagnosis and consequent efficiency of treatment of inestimable value to the patient. I cannot but feel, therefore, that at the present time there is no task set before the surgeon that is more productive of good than that of the early recognition of those lesions of the right upper quadrant which in their early manifestations are cured with little if any danger, but only with great and unavoidable danger in their later. But in emphasizing the importance of diagnosis in the right upper quadrant, as well as elsewhere, one must not in his enthusiasm forget that, delightful and satisfactory as it may be to make correct deductions from accurate observations, internal diagnosis is an exceedingly difficult and elusive problem, and the diagnostician must be particularly careful in making those diagnoses which condemn the patient, without even an attempt at relief, to an inevitable death. Even though the observer has, through years of general practice, of the practice of general surgery and of abdominal surgery, acquired great nicety of diagnostic accuracy, yet, skillful and logical though he may be, he must be on his guard lest he make such an error on the side of conservatism and inoperability as to remove the patient's only chance of cure.

We are told that, at the end of a long life devoted to the Greek definite article, the professor's chief regret was that he had not confined himself to the dative case. So may we sometimes feel, in spreading our observation over the wide field of general surgery, — we may regret that we have not devoted our lives to the abdomen, or to a single lesion in the abdomen. Seriously, however, the best way to study a particular subject is to approach it through subjects allied to it. The best education for the surgeon is general

practice; for the abdominal surgeon, general surgery.

In the subject under consideration, I am convinced that further progress can best be made on frankly admitting the errors of diagnosis and treatment, but more especially the errors of diagnosis. In gall-bladder surgery, therefore, I wish to call attention to various errors in diagnosis and their results, whether beneficial or injurious, whether influencing the course of the real disease in a manner favorable or unfavorable.

These errors have come under my own personal observation in cases of my own, and are errors for which I have been partly if not wholly responsible. It seems but fair to myself and others concerned in them to explain that they are very infrequent. They are selected from many hundred cases, in which, operated and unoperated, there has been a correct diagnosis in an overwhelming majority. Indeed, were it not that the correctness of predictions has been almost invariable, I should not have been so deeply impressed by the occurrence of mistakes or so eager to prevent them.

The great deterrent to conservatism, especially in abdominal surgery, is the difficulty of demonstrating beyond a doubt that the greater rather than the lesser evil is present; that, for example, when gallstones are diagnosed, there is a lesion more serious than that of gallstones, rather than one less serious — or even no lesion at all. Estimated by the chagrin which the surgeon feels, perhaps the worst error is that of performing an absolutely unnecessary operation, by which, however, the patient receives no injury; estimated by his remorse, he feels that there is none greater than that following a perfectly unnecessary operation by which the patient's life is sacrificed, unless perhaps, the self-reproach is as great when he has withheld an operation essential to life; estimated by the evil to the patient, none can be greater than the infliction of a fatal operation for a cause which does not exist, for the withholding of an operation does not always mean death; few lesions are essentially fatal without relief, and those few seldom unrecognized. Estimated by the evil to the patient when death follows, the infliction of an unnecessary operation or the withholding of a necessary one, has the same result; but, estimated by the probable evil, there is of course no comparison, because the great majority of unnecessary operations at least do no harm, whereas the great majority of lesions demanding operation are, without that operation, fatal.

Estimated by the good to the patient, the application of surgical measures to the lesions which may, however doubtfully, demand them, is vastly greater than the withholding of such measures on the ground that no lesions exist to demand them. Estimated by the sum total of evil and chagrin, self-condemnation and remorse, the worst are comprised in the inflictions of unnecessary operations and the withholding of necessary ones. Estimated by the least evil to the least number, the infliction of the unnecessary operation is incalculably less. Estimated by the greatest possible

¹ Not long after this operation the pain recurred with renewed violence. While we were discussing the question of what it was best to do, the patient passed by rectum a stone which we hope is the last one. This case illustrates what the probable cause of post-operative gallstone pain is, — an overlooked stone or fragment.

good to the greatest number, successful effort lies in the elimination of the unnecessary operation and the selection of the necessary one.

Successful effort then demands that one cultivate to its highest perfection the powers of diagnosis.

I must ask the indulgence of this association for emphasizing facts which are indeed truisms; but even truisms may be neglected or forgotten. The tendency is toward hasty, imperfect and inaccurate diagnosis, because operative diagnosis is so easy and unmistakable. This tendency is surely a pernicious one, and one to be resisted with all our might. No greater reproach can be brought against the surgical art than that it is only an art, and that, as ordinarily practised, it can never rise, in the hands of the surgeons themselves, to the plane of a science. Whenever time permits, the proposed operation should be based upon the most careful and exhaustive study of the patient; or, still better, no operation should be performed until that operation, by a positive diagnosis, has been found necessary. Every lesion should be regarded as one not demanding or justifying operation until, in the particular patient, that demand has been completely justified. The exploratory laparotomy, for example, should be reserved for those cases in which security of the patient demands *certainly* of diagnosis, and those in which there is everything to gain, and little to lose, by exploration.

The diagnosis of gallstones is usually easy and beyond doubt. The cases which require study are those comprised in my title, for those are the ones in which errors of commission and of omission are to be found. One will occasionally find nothing abnormal when he confidently expects to find gallstones. In some cases, though he will find no gallstones, he will find other lesions like chronic pancreatitis or pancreatic cancer; in others, the bile will be thick, black and tenacious, without gallstones — cases in which cholecystostomy and drainage are followed by complete and permanent recovery (Vol. 48, p. 117); in still other cases (Vol. 57, p. 167, and Vol. 59, p. 102) there will be an unchanged gall bladder and unchanged bile. When in the doubtful case, the diagnosis of gallstones seems, on the whole, the most probable, gallstones will in the majority of instances be found.

The errors in diagnosis are met with not only when no physical signs are present, but when the history is not characteristic — or at least not in accordance with our present and recent ideas; when, for example, the only complaint is that of an obscure, non-localized pain; a discomfort; a distress; a grinding, boring sensation (of which the patient will say that it is hard for her to tell when it begins, when it ends, or just where it is located). In a few instances the pain may be characteristic of gallstones, as to onset, situation, direction, intensity, "depth, breadth and length," persistence and termination. After a single attack of characteristic gallstone pain, failure to discover any stone or abnormality in the gall bladder is quite conclusive that the only stone or

stones were actually expelled. Indeed, the more characteristic the attack is of successful ejection, the less will be the anatomical changes in the biliary tract. On the other hand, the more obscure and uncharacteristic the attack, the greater will be the anatomical changes.

In many of these cases of extensive anatomical changes the history will often be devoid of symptoms suggesting in the least the presence of a gallstone origin. When I have found gallstones in the course of other operations, and have been over the history in the light of the demonstrated facts, I have seldom found a characteristic history of gallstones. True, I have found complaints for which the demonstrated presence of gallstones and their anatomical effects offer an explanation, and doubtless the correct one; but except in certain cases this explanation, in the light of previous knowledge and experience, would have been regarded as absurd. Indeed, in the light of present knowledge, such histories would still be regarded, by some at least, as totally inadequate for a reasonable diagnosis of gallstones or for a justifiable operation.

In some cases I have been obliged to make the most searching cross-examination to detect a single suggestive symptom. I do not refer to gallstones harmlessly suspended in a gall bladder full of bile; but to gallstones filling to its utmost capacity a gall bladder not materially changed, and to gallstones so tightly grasped by a thickened and contracted gall bladder as to be deeply embedded in its mucous membrane.

In comparing the evils of an inaccurate diagnosis, we are forced, I think, to the conclusion that our failure to recognize early the presence of gallstones is by far the greatest evil that attends our treatment of disease of the biliary tract. An operation which demonstrates nothing organic in the right upper quadrant is a chagrin, not to say a humiliation; but it has the virtue of at least demonstrating the absence of organic disease — a by no means slight merit — and it has the virtue of comparative safety. I am not so sure that the satisfaction of knowing beyond a doubt that there is no anatomical cause for persistent and disabling symptoms in the right upper quadrant is not well worth the risk of exploration. Considering the numerous causes of symptoms in that anatomical area from diseases other than gallstones, the satisfaction of an unsuccessful search for organic lesions is all the greater.

It is a difficult task to satisfy patient and family and friends with the account of an unnecessary surgical operation, and especially a fatal one. We probably all have felt that, by the perversity of fate, our worst disasters have followed unnecessary, or at least not urgent, operations. When a patient dies from the anesthetic in a tooth extraction, in an operation for hemorrhoids, for a small shoulder lipoma; in a simple ovariectomy, appendectomy, or an unfruitful exploration; when she develops pneumonia, pleurisy, or a fulminating wound infection; when she bleeds to death from an operation upon a torn cervix; when death takes place from suppression of urine, acute

parotitis, a spreading phagedena, a gas infection, a pulmonary embolism, tetanus, or even typhoid fever and other infectious diseases — when these things do occur, we have all felt the inadequacy of explanation or excuse.

So in operations for supposed gallstones in which nothing is found, we are forced to admit to ourselves the commission of a surgical mistake, one which would never have been committed were our powers of diagnosis more reliable. But can we ever hope to be free from occasional errors?

The only errors from which we can and ought to be free are those which depend upon inadequate study — upon haste and carelessness in observation and upon precipitancy of deduction. But we must not forget that these causes of error may lead the conservative man to overlook serious diseases quite as frequently as they may tempt the radical to explore for diseases which do not exist.

Under the heading of gallstones without symptoms may be classed those lesions in which there is in reality a gallstone origin, but in which the symptoms are dependent upon remote effects. Acute intestinal obstruction, for example, is occasionally caused by gallstones, and this fact must be borne in mind in the diagnosis of lesions causing acute obstruction. In the two cases which I now recall, a gallstone cause was not considered at all. The diagnosis of complete obstruction was so evident that immediate exploration was made and showed the gallstone cause. In the first case, however, no previous symptoms suggesting gallstones had ever been noticed; even the most searching inquiries were negative, and not a moment's pain or discomfort was described. I cannot but think, however, that, with our present experience, we should have elicited at least a history of indigestion. In the second case, that of a woman of sixty-eight (Vol. lxii, p. 45), my diagnosis was chronic intestinal obstruction, probably from cancer. Dr. Clara J. Alexander found a gallstone an inch in diameter, an inch and a quarter long, and three inches in circumference, completely obstructing the small intestine. In going over this history before making my diagnosis I paid little or no attention to two facts. This history (taken from the records of the New England Hospital for Women and Children) was as follows: "Patient aged sixty-eight. Family history negative. No acute illness, except children's diseases. Grippe seven years ago. Headache rather frequent. Three years ago was in hospital for *attack of indigestion*. [*Italics mine.*] Two years ago was in hospital twice; once for chronic bronchitis and again for *chronic gastritis*. Both times went home improved. Appetite good. Has gained flesh in last two years." "While in usual health, four days before entrance to hospital, began to have pain in region of the umbilicus, sharp and sickening in character, lasting only a few seconds and gradually wearing away. There were also nausea and vomiting. Attacks continued at varying intervals. Bowels moved up to the last day." In the light of the demonstrated cause, how significant the attacks of indigestion

and chronic gastritis; how important the usual good health and the good appetite, and the fact that there had been no loss of flesh! As in this case, so, I dare say, in many another, the gallstones are reported as without symptoms, when the fact is that we are of insufficient acumen to recognize the symptoms, when, especially in the light of operative demonstration, they seem glaringly conspicuous.

The absence of gallstone pain and discomfort in histories must not receive too much weight in eliminating gallstones from the diagnosis; for, as I am saying, they may exist and cause serious anatomical lesions with few if any symptoms of pain or any of its manifestations. Nor must they be positively diagnosed in the presence of jaundice; for many cases are met with in which jaundice exists without a gallstone cause; and many, it is true, in which the jaundice is the only symptom of gallstones. In considering gallstones without symptoms, therefore, the possibility of gallstones must always be borne in mind if a lesion is suspected anywhere in the biliary tract or contiguous to it, whether the lesion has symptoms suggestive of gallstones or not. Gallstones without symptoms are found usually in the course of abdominal operations for other lesions, when a systematic examination is made of the abdominal contents. They are also found when some other and more probable diagnosis has been made — ulcer of the pylorus or duodenum, for example, some lesion of the kidney, or even acute intestinal obstruction.

Scattered through my records of recent years are many cases which illustrate these statements. In most of them, however, the history is at fault. In the light of the operative demonstration, as I have said, the significance of apparently unimportant symptoms becomes apparent.

At an exploration of cancer of the ascending colon in a man of fifty-nine (Vol. lix, p. 117) the gall bladder was found tightly packed with gallstones, which had never been suspected. Review of the history taken in much detail shows the following expressions which might have been based upon the condition of the gall bladder: "Miserable, heavy pain in the left renal region"; "a dull, grinding pain,— it is awful." A tumor was later discovered in the ascending colon, and to this was attributed the pain. There was, however, no intestinal obstruction at any time, and intestinal cancer without obstruction is usually painless. Left-sided pain in serious gallstone lesions is not so very uncommon, and in this case it was probably caused by the gall-bladder lesion.

A woman of forty-four (36-27) was operated on for removal of a large fibroid, and at this operation a stone was found completely filling the gall bladder. Not a word in the history taken suggested gallstones. Later the patient had "cramps in pit of stomach and breast. No pain in right side. Have to be very careful what I eat, and cannot lie on right abdomen. I have a good deal of pain, but I have got used to it and do not mind anything about it." Over the liver was a raw blister. The patient declared that before the

hysterectomy she had always been perfectly well except for "bilious attacks," on account of which she had to be very careful in her diet. The bilious attacks before operation and the obscure symptoms after were probably owing to the condition of the gall bladder.

A woman of forty-nine (vol. lvii, p. 59) at an hysterectomy for fibroid, was found to have a number of gallstones. Forty stones were removed by cholecystostomy. On reviewing the history of the case I find: "For six months was treated for gastritis and persistent pain in the epigastrium — colic spells without jaundice. Tenderness in gall bladder. Better examine under ether and explore gall bladder and pylorus." In this case I find that there were very positive indications of gall-bladder disease; but in the presence of a bleeding fibroid the significance of a gall-bladder involvement was lost.

At operation for removal of double multilocular ovarian dermoid cysts in a woman of fifty-one (62-159) we found the gall bladder contracted upon one large stone. A review of the history shows only this statement: "She has a fair appetite, but considerable gas in the stomach." In this patient it may fairly be said that there were at no time any symptoms of gallstones; and yet "gas in the stomach" may have been her way of expressing a gallstone irritation.

A woman of thirty (62-55), operated upon for double salpingitis "for a year had had pain low down in the back and in the right lower quadrant. Things seem to knot up like cramps." In this case there was nothing that could reasonably be attributed to gallstones, but a gallstone was felt impacted in the cystic near the common duct.

On inquiry I have been informed that "previous to her operation she had attacks of what was called acute indigestion, and several times she called a physician to get relief. She had not been troubled with this for at least two years prior to operation. Occasionally she was heard to complain for a moment, of a gastric pain but nothing of any consequence. This she never associated in any way with the trouble for which she underwent the operation. She has never complained of any attacks since."

From this patient's age, and from the records, no one would have had a suspicion of gallstones. Had she died of some acute disease, and had the stone been found at autopsy, her case would have been classed as one of the numerous instances of gallstones without symptoms. Knowing exactly the size and situation of the stone, I have little doubt that it will eventually be passed into the duodenum. An operation performed for gallstone symptoms would very likely prove useless; for there is but one stone, and that, as I say, small enough to be passed in a single brief colic. This information shows that the "acute indigestion" was the missing evidence of gallstone irritation, which, if we search carefully, we shall find in most if not in all cases.

In the case of a woman of sixty-three, at the removal of a large ovarian cyst, I found a large, flabby gall bladder containing many small stones. The abdominal symptoms had lasted six years. The only symptoms referred to the epigastrium was nausea, of which the patient complained a good deal, and which was probably due to the pressure of the cyst.

At an abdominal hysterectomy for fibroid (July 14, 1906) in a woman of sixty-six (62-59), a small gall bladder was found contracted upon several small

stones, one of which — the size of a pea — was situated in the cystic duct close to the common. Going over her history I find (in the writing of Dr. F. W. Palfrey): "Is said to have a fibroid. Her only complaint is indigestion for two weeks — distress in stomach and vomiting. Bowels moved only with croton oil at the beginning of her trouble, two weeks ago; since then they have moved of themselves. She has no pain — no feeling of weight or pressure. Has noticed an enlargement of the abdomen. No bleeding from vagina. Appetite good until the past few days. No loss of weight. Thirty-eight years before had a 'typhoid dysentery' followed by 'consumption of the blood.'" Three months later (Oct. 9, 1906) the patient reported to me "in splendid health. Looks extremely well; red cheeks. No pain from gallstones. Has had 'those vomiting spells.' She said, 'In the first place, I would feel as if my stomach refused to take anything I would swallow. That would be all there was to it. Some days I would vomit everything I would take into the mouth. Night before last something happened: I had dinner at 4.30. Had supper at eight or nine and went to bed. Soon began to have nausea. There was no pain. I didn't vomit. The attack lasted a short time, and next morning I was all right. Have never had any gallstone colic.'"

In this case as no doubt in a great many others, the operation, though plainly indicated, even demanded, was performed upon the less acute and less serious lesion. In the light of the operation, the nausea and indigestion had nothing to do with the fibroid. Though the growth was a large one, there was neither pain, pressure, nor hemorrhage, — in fact, it was causing no symptoms. But for my unwillingness to impose one capital operation upon another, I should have removed the gallstones.

These cases, taken mostly from the records of the past year, are by no means infrequent. In bringing them together I expected to show fewer signs of gallstones in the histories studied after the demonstration of stones. It is, I think, true that few gallstones exist which do not cause symptoms of some kind at some time or other. It is true, too, that these symptoms are so unusual, and so unlike our preconceived ideas, as to be of themselves either non-suggestive or wildly and absurdly so. I am seriously of the opinion, nevertheless, that any gastric or epigastric symptoms, persistent and unmistakable, recurring at irregular intervals or not recurring at all, are, in the presence of gallstones, usually due to those stones; and that progress in the direction of accurate diagnosis demands long-continued observation of patients in whom stones have been demonstrated and left undisturbed.

Recently one of the younger men to whom I referred a case of supposed gastritis, far away in the country, made a diagnosis of acute cholecystitis, and advised operation on subsidence of the acute attack, or in case the symptoms were growing worse. The patient suddenly and unexpectedly died of the perforation of the duodenum from unsuspected ulcer. A week or two later the same physician, in consultation with one of the younger men, a skillful and experienced surgeon in whom, as well as the physician, I have the greatest possible confidence, advised in another case an

operation for supposed gallstones. Present at the operation was an older physician who had scouted the idea of gallstones and had diagnosticated gastric ulcer. One can imagine the chagrin of the younger men at finding no gallstones when gallstones had been confidently expected. There was no gastric ulcer; but the bile was thick, dark and tenacious; there were masses of mucus suspended in it. In a word, there was an abnormal condition of the gall bladder inviting infection, causing colics, and, in my belief and experience, making the gall bladder the nidus of future gallstones — a condition for which cholecystostomy and drainage are the best remedies. There was no cause whatever for chagrin. The only error in such cases is in limiting the cause of symptoms to an actual crystalline formation. This experience I have had several times. Furthermore, I have operated for gallstones and have not found even the changed bile, or any other abnormal condition in the biliary tract.

A physician from Philadelphia (57-167), thirty-nine years of age, six months after typhoid (in 1889) had his first attack of colic. During two years the attacks were repeated every three months, and were accompanied by jaundice. No stones were found in the stools. From that time to operation (in November, 1905) he occasionally had jaundice, induced apparently by fatigue, emotion, or indiscretion in diet. The colics ceased in 1891; but there has been ever since more or less pain in the region of the gall bladder. The pain has rarely been radiating, but has been distinctly circumscribed in the gall-bladder region. The diagnosis was cholecystitis. The patient was in the hospital two or three months with jaundice and clay-colored stools. He had a "subacute gastritis or duodenitis," and the temperature went as high as 104°. There was a good deal of gastro-intestinal fermentation with eructations. The diagnosis of gallstones was made by one of the best surgeons in America, upon whose diagnosis and recommendation I would willingly have operated even had I not concurred fully in his diagnosis. At operation I found the gall bladder rather large and full of fluid. No stones were felt in the gall bladder or cystic or common duct. Between the top and left side of the gall bladder, running over to the stomach and constricting slightly the pylorus, were a number of old adhesions, probably of inflammatory origin. These adhesions were dissected away, so that the gall bladder and pylorus were entirely freed.

I was much surprised to find no stones. The bile was distinctly changed; it was dark, dense, viscid and opaque. On drainage it became thin, transparent, and yellow, like normal bile. This patient was completely cured.

A girl of twenty-three from Honolulu (59-102) had been operated upon for appendicitis in 1904, just after an acute attack. There was said to have been sepsis, so that recovery was slow and imperfect. After the operation there was pain in the right side, with occasional severe exacerbations. The pain was intermittent and hard to bear, recurring every month or so. It radiated from one spot, and was accompanied by neither vomiting nor jaundice. After the pain there was tenderness in the gall bladder. Gallstones were diagnosticated by one of the most experienced and skillful of the younger physicians in Boston. The diagnosis was based chiefly upon the fact that, after an acute attack, he found definite tenderness in the gall bladder. At the operation the gall bladder was

found filled with dark green bile of greatly increased consistency. The common and hepatic ducts were free of stones. The head of the pancreas seemed thicker than usual. By means of a tube the gall bladder was drained for two or three weeks. Then it was allowed spontaneously to close. The patient was completely relieved of her pain, and has been well ever since.

In this case the condition of the bile was such that its passage through the cystic duct was difficult. As in all such cases, it ran very slowly through the small aspirating needle.

In another case, that of a woman of about thirty-five (Operation Book, 1902, p. 213), the diagnosis of gallstones had been made from intermittent attacks of colic, with subsequent tenderness over the gall bladder. The diagnosis in this case was made by the husband, who was a surgeon of experience. The bile was precisely like that found in the two preceding cases. Drainage for two or three weeks resulted in perfect and permanent cure.

The last case I have seen was that of a man of forty-eight (Vol. 64, p. 77) who for two or three years had had pain in the right hypochondrium, gradually increasing in severity. The last attack, three days before my examination, was described as a sudden onset of severe pain, like the stab of a knife, in the exact region of the gall bladder. The pain radiated through the abdomen to the right shoulder. There was no jaundice. These attacks were irregular in their appearance. I found the gall bladder perceptible and prominent, and sent the patient to the Massachusetts General Hospital, where the assistant surgeon operated for me. The gall bladder was soft, non-adherent and not distended. It contained no stones, and was apparently normal in every way. The adjacent viscera were all normal to the touch. The gall bladder was not opened. The patient made a good recovery, and has had no pain since.

This is a very recent case; the patient has just been discharged from the hospital. I did not see this operation, but an absolute demonstration of the condition of the interior of the gall bladder was not made. I have found in the gall bladder gallstones which I could not feel before the gall bladder was opened. I have had the gall bladder out of the body, between my fingers, and then have been unable to feel a gallstone inside.

The final case was that of a woman of about fifty upon whom I have just operated for the closure of a large omental hernia, following an operation for supposed gallstones. This patient had the symptoms of gallstones, but at the first operation, which was performed by an assistant surgeon at the Massachusetts General Hospital, none were found. The head of the pancreas was thickened, as in the cases of supposed pancreatitis. The patient was entirely cured by the operation, and came back at the end of a year for closure of the hernia.

Scattered through my records in the past ten years are several cases of this kind. I am convinced that in many instances the real lesion is one of the gall bladder, with such changes in its contents that they are emptied through the cystic duct only with increased difficulty. This results in a painful spasm, just as does the passage of a stone through the duct. It is a matter of conjec-

ture whether this condition of the bile is one which eventually produces gallstones. I have sometimes found, in bile thus changed, small, soft stones, apparently of recent formation. The chief symptom in these cases is pain — the gall bladder contracts with such violence as to produce a sudden severe spasm. The pathological changes may be slight or extensive, without gallstones or with them. The inference must not be too hastily drawn, that because no actual crystalline masses are found in the gall bladder, that viscus and its contents are healthy. I should not regard a gall bladder as demonstrated to be normal unless the interior of the gall bladder itself had been actually examined and the condition of its contents accurately demonstrated.

There remains much for us to learn as to the effect of gallstones in the gall bladder, especially in those early stages when the stones have hitherto been regarded as innocuous and without symptoms. In going over my histories in the light of the demonstrated lesion, I find it difficult in any case to establish an indisputable history of inoffending. So common are gallstones, especially in women beyond the menopause, that it seems to me wise, in all abdominal cases — no matter what the diagnosis — to question carefully with reference to obscure abdominal symptoms, especially those connected with digestion. Not only may the surgeon predict the presence of gallstones in patients operated upon for something entirely different, perhaps for a lesion in the pelvis, but he may discuss with the patient and her friends the desirability of removing such a menace to health whenever the additional operation would add but little to the risk. In proposing an operation for the removal of a fibroid, for example, one might, by the detection in the history of obscure epigastric symptoms, be prepared to relieve some abnormal condition in that region. I have found not only changes in the biliary tract, but many variations from the normal in the stomachs of women operated upon for pelvic diseases. I have not felt at liberty, without consulting the patient, to add the burden of operation upon the stomach, upon the gall bladder, or upon the appendix. In future I shall make as careful inquiry into digestive disturbances as into the condition of the heart, lungs and kidneys. Not that I have not always noted the appetite and the processes of nutrition; but, as in one of the cases already reported, previous attacks of indigestion and colic often are not mentioned by the patient, because she thinks that they are in no way connected with her complaint, which in the case mentioned was salpingitis.

I have sometimes felt, of recent years, that in writing much upon the surgery of the biliary tract I have been perhaps open to the criticism of telling a twice-told tale — of threshing out old straw; but still I must insist that for me, at least, the right upper quadrant is a field far from being fully satisfactorily explored and understood. Every day I see conditions for which, in my own experience or in the literature of the subject, there is no precedent. The two conditions which

I occasionally meet with — comprised in the title of this paper — present questions which demand much more experience than I, for one, am able to give for their perfect solution, which can be settled only by renewed study and abundant discussion.

THE USE OF TUBERCULIN IN THE EARLY DIAGNOSIS OF TUBERCULOSIS IN A LARGE OUT-PATIENT CLINIC.

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IN the rush of work in a large out-patient clinic there is nothing harder than to make what may be called an early diagnosis of pulmonary tuberculosis. Yet in such a disease as consumption, which if detected in an early stage offers every chance of a cure or an arrest, nothing can be of greater importance to the patient or to the community at large. By the term "early diagnosis" we mean that stage in the disease when the symptoms are more constitutional than local, when there is only a little throat cough, little if any expectoration, certainly no bacilli in the sputum, and no marked evidence of disease in the lungs. However certain the physician may be that a given patient has tuberculosis in this early stage, it is far more satisfactory to him and to the patient (and this is especially true in dealing with the poorer classes) to have at least one definite thing in addition to several other indefinite signs and symptoms on which to base conclusions. We firmly believe that in a certain number of selected cases a carefully given tuberculin test will in many instances give just such definite information and enable the physician to distinguish between debility and anemia due to tuberculosis and that due to other less important causes. We also maintain that good results can be obtained from the use of tuberculin even under the somewhat adverse conditions that are met with in a large out-patient clinic.

In a recent article on the subject of tuberculosis,¹ Dr. S. A. Knopf, of New York, comes out with the somewhat startling statement that the use of tuberculin in diagnosis is distinctly dangerous. He says: "I am not in favor of tuberculin as a means of diagnosing tuberculosis. I know it is not infallible. . . . Such men as Profs. E. G. Janeway, of New York City, and Frank Billings, of Chicago, have expressed themselves to me personally the same opinion based on actual experience and advise against the use of tuberculin for this reason." It seems rather a pity that a man of Knopf's standing should make such a statement as this without qualifying it in any way. It is hardly worth while to quote statistics in answer to this. Tuberculin, both in diagnosis and in treatment, is used all over the world. The opinion of most of the great workers in this field is distinctly contrary to that expressed

¹ Knopf: Tuberculosis in Prisons, N. Y. Med. Jour., Nov. 7, 1907.