

Address.**DYSPEPSIA AND INDIGESTION VIEWED FROM
A SURGICAL STANDPOINT.***

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As the art of surgery advances, and as the living pathology of the abdomen is studied in its relation to clinical symptoms, the surgeon is assuming more and more jurisdiction over those fields of disease that formerly were considered wholly medical. Many symptoms once regarded as expressions of functional disorders are now believed, and with good evidence, to be due to slight pathological changes in the various viscera. The existence of these pathological changes has been recognized post-mortem, but their significance has been overlooked or underestimated by the pathologist.

The interrelation between the various viscera of the abdomen is so close and complete that a slight pathologic disturbance in one organ can and may be manifested in an organ apparently quite dissociated. A similar interrelation between the viscera of neighboring cavities renders this complexity still more puzzling at times. When, however, we consider the embryological, the functional and the neurological relations of the various organs light is thrown on many of these puzzling phenomena. The association of external genital malformations with ectopic kidney, the signs of an appendicitis in pneumonia, or the pyloric spasm that follows irritation of the cecum and appendix may be cited as crude examples. It would be interesting to take up these many complex associations, but as it is, I shall consider only one broad division of symptoms, -- dyspepsia and indigestion, as it bears on remote, often unsuspected, slight changes in a few of the abdominal viscera, viscera that are most frequently observed and handled by the operating surgeon and with whose multifarious pathologic changes he becomes more familiar than the internist or even the pathologist.

The terms "dyspepsia" and "indigestion," so vague and all embracing, have for the most part been considered as the result or expression of functional disturbances or of neuroses, whatever that term implies. Yet I believe that a proportion larger than at first sight would be granted by the clinician are really due to definite pathological lesions unsuspected or even denied up to within a few years. To deny, on the other hand, that dietetic errors, syphilis, arteriosclerosis, fatigue and other general functional causes may produce a dyspepsia or indigestion would be absurd on the face of it. When, however, in spite of treatment directed to the commoner functional causes, the symptoms persist or persist in recurring, then the physician must consider the various visceral lesions that are so familiar to the surgeon and whose elimination so readily brings a cure. The physician who prescribes for an indigestion on the train of symptoms narrated to him by his patient

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and without making a thorough examination and instituting a careful questioning of his patient is guilty of something akin to malpractice. This is a time-worn truism, but it has need of repetition to-day if I may judge from the accounts of many of our surgical patients. Within the last few years we have seen hundreds of patients who have been treated offhand by their physicians for functional dyspepsia when a little care in examination or cross-questioning could not have failed to demonstrate a subacute or chronic appendicitis, a cholecystitis or a duodenal ulcer. In calculating the individual attacks that these patients had suffered, and for which they had received palliative or temporizing treatment, I find that the numbers rise into the thousands. Lest I may be unjustly misunderstood, it is fair to say that in many instances attacks have been recognized as due to a surgical lesion and operation has been advised, sometimes urged, while in others, attacks have been borne without professional aid, the patient perhaps having recourse to home remedies, patent medicines or to no treatment at all.

Furthermore, in justification to all of us, physician as well as surgeon, a certain small proportion of such cases are most obscure and misleading, so-called border-line cases in which the patient must be frankly told that there is probably some visceral lesion, the true nature of which cannot be determined without surgical exploration. To throw some light on this class especially, I beg to offer some conclusions to-day, so far as they can be called conclusions, when the definite interrelations can be determined only with time and by the concurrence of other observers in similar fields.

That I may swing too far to the surgical side is natural, but no one is aware of that fact better than I am. I fully realize that the family doctor sees many cases of dyspepsia that quickly and happily yield to slight medication, change of diet, habits, etc. These patients naturally never come to a surgical clinic. Nevertheless, when I read over the histories of hundreds and hundreds of our abdominal cases in which the symptoms are pre-eminently dyspepsia and indigestion, I believe more firmly than ever that every case of recurrent or obstinate indigestion that does not yield to the intelligent treatment of the internist should have an opinion from one who views things through surgical glasses, if for no other reason than to eliminate the advisability of operation.

To emphasize the occasional difficulty of diagnosing these cases it is not infrequent that a consultant refers to us a case of ulcer, gallstones, etc., where we cannot find any specific excuse for operating. That we ourselves overlook a surgical lesion is occasionally proven by a later outburst of definite signs and symptoms, or, what is more embarrassing, by the uncovering at the hands of some wiser surgeon of symptoms that we had made light of, or of a history that we had not been intelligent enough to extract in our cross-examination.

In all our laparotomies where there has been an exploration "seeking for knowledge" it is

extremely rare that we have not discovered some definite causative pathology, except in a small group that I shall consider later. That the future will modify my views in one way or another goes without saying. It is the history of all surgical and medical advance that the views of to-day are changed to-morrow.

It is no argument for the skeptic to declare that because he has never seen such and such a surgical condition, it cannot exist. That argument has been fought out over and over again in relation to the frequency of gastric and duodenal ulcer, the relation of cancer to ulcer, etc. I well remember being told some years ago by a medical practitioner whose experience and judgment represented the highest in this vicinity that he had never seen a death from hemorrhage in a case of gastric ulcer. With my limited experience at that time I had already seen six cases. For how many years did we accept the statement, based on the authority of the keenest observers, that duodenal ulcer is a rare disease. We now believe that it not only is doubly as frequent as gastric ulcer, but if Codman's researches are confirmed, we must look upon it as being quite as common as appendicitis.

On the basis of this long preamble, I would ask you, as workers in the field of general medicine, because it is to you primarily that I appeal, to weigh what I have deduced from a pretty close analysis of a few general types of abdominal disease in the relation of definite pathological lesions to the common symptoms "dyspepsia" and "indigestion." There is hardly a single item that is new; there is hardly one, however, that does not need constant reiteration if one may judge from the experience of a single surgical clinic. I have purposely excluded all cases with definite pelvic and genital lesions and the obvious gross ulcers of the duodenum and stomach.

That I shall be misinterpreted by some, I am fully aware. Suffice it to say that I do not believe in opening every belly for symptoms of indigestion or of neurasthenia. I do believe, however, that there are unfortunates suffering from *so-called* (mark the word) nervous dyspepsia, indigestion, neurasthenia, etc., who can be cured by surgery alone. The true neurasthenic with incidental digestive symptoms should almost never be operated upon. A neurasthenic, on the other hand, who suffers from some pathological lesion should be granted surgical relief (if necessary) from the effects of that lesion, but should not be given any assurance of relief to his or her neurasthenia. The so-called dyspeptic neurasthenic is often another story altogether. Such a patient is unjustly stigmatized on a false diagnostic foundation and he may derive great benefit from surgery if his pathology is correctly interpreted.

I hasten to beg and pray, therefore, that no one of you will assume that our clinic may be offered as a harbor for your neurasthenics for whose welfare you are at your wit's end. A very small proportion is suitable for surgical consideration. The vast majority are still, in our judgment, most unsuitable for operative relief.

A number of years ago, when surgeon at the

Boston City Hospital, where a good share of abdominal operating was in acute or emergency cases, I analyzed 200 consecutive laparotomies with a view to determine the extra responsibility placed upon the operating surgeon from the fact that he had to work at a period of the disease less favorable to the patient from the point of view of immediate and ultimate prognosis. Sixty per cent of the cases came too late for advantageous interference. In other words, many a sufferer was brought to operation as a last resort, facing a high operative mortality and morbidity, whereas, had he entered early in the course of the disease, allowing a reasonable time for diagnosis, the risk would have been reduced tens or hundreds of times. Happily this condition has bettered itself as surgeons have improved in technic, as the general practitioner has accepted the lessons taught by surgical experience and, more than that, by the demands of a progressively better educated lay public.

The first group of sufferers from indigestion and dyspepsia that I wish to consider to-day is made up of those patients that have infection in the biliary passages. In the last year and a half we have operated upon 70 cases of this type, and an analysis with reference to their digestive troubles alone is in order.

Just as in our appendix cases, to be considered later, the terms "indigestion" and "dyspepsia" are used by the patients themselves and are taken from the histories as given to the surgical house officer. I find that many of them date the origin of their digestive troubles for ten, fifteen and twenty years before entering the hospital. Attack has followed attack, each one leaving the pathology increasingly difficult to deal with, often so difficult that an operation of the gravest nature must be offered them, occasionally with fatal issue. Had the true pathology been recognized and dealt with within a reasonable time, the risk to life would have been scarcely greater than that of an interval appendix operation. Nearly all of them had been treated or had treated themselves for indigestion. Although, as our own experience shows, a diagnosis might not be clear early in every case, yet the very fact that these invalidating attacks recur time after time should be enough to compel surgical advice if not operative interference.

These infections are not necessarily confined to those past middle life. Our cases demonstrate that 40% occurred in patients under forty years of age, 2 of them being twelve and sixteen years old respectively. If, now, we calculate the age of onset of the primary infection, the youthfulness of patients liable to gallstones or biliary infections is doubly emphasized.

Nearly 10% of our cases had developed carcinoma which in most instances could have been forestalled by timely operation.

Those of you who have been obliged to deal with operation with the complications and difficulties that result from successive attacks of inflammation in the biliary passages will readily sympathize with my plea for any reasonable excuse to

operate early in patients suffering from the indigestions associated with this type of lesion. I do not hesitate to lay the blame for some of our failures on the fatal procrastination advocated by the conservative practitioner who still clings to the time-worn fallacy that gallstones are harmless or at most very slightly harmful.

Occasionally we accidentally discover gallstones when operating for other lesions, such as fibroids, umbilical hernia, etc. On later critical cross-examination of such patients, however, we generally find that we can bring forth a group of symptoms referable to the gallstones which had been overlooked or had been ascribed to the lesion for which we primarily operated.

The disease that I wish to call attention to mainly in connection with my subject to-day is appendicitis. I have carefully analysed 250 recent cases almost entirely with reference to the symptoms "indigestion" and "dyspepsia."

However early our patients come to us for operation, and the gain is a marked one within the last ten years, there is still a considerable proportion that go on year after year suffering from indigestion and treated accordingly by medical means when really they are suffering from repeated attacks of appendicitis, which, in the majority of cases, ought to be recognized if a reasonably intelligent examination were made. Many and many a patient comes to us with the history of long and varied treatment for intestinal indigestion. Indeed, I have heard this expression so commonly associated with genuine appendicitis or gallstones that I begin to wonder if there is such a definite disease by itself. It is well to bear in mind that most of our patients are in adult life, a fair proportion being quite advanced in years. About 20% of the cases under analysis entered the hospital in their first attack. They gave no account of early bellyaches, inflammation of the bowels, weak stomachs, indigestion, etc. Apparently the primary attack came out of a clear sky, and if they entered early enough the operation and convalescence became of slight importance. A little closer examination, however, of this group reveals the fact that nearly half of them had appendices with evidences of chronic or subacute infection and that the existing attack had persisted from four days to several weeks in the various individuals. In other words, the patient had dragged around for days or weeks with an indigestion or a bellyache never severe enough to excite alarm.

The larger part of this group, dating their existing attack in the same way for days or weeks, entered the hospital because the termination of the attack became fulminating in character, and many entered with diffuse peritonitis or even moribund. In other words, about 30 of the 50 patients required drainage, suffered as all advanced cases do, and ran the risk of operative death or of the various unhappy sequelae. The mortality of 33% in this smaller group of 30 is a frightful one, and the morbidity is equally frightful. A number were moribund at entrance and died at once without operation. In a few a tense

abscess was opened under primary anesthesia. Some survived the immediate operation, to die later of secondary infection. Assuming all the responsibility that belongs to us for such a mortality, the discouraging part to us is the fact that every individual patient for days or weeks gave definite and legible signs of a so-called and so-treated indigestion. Contrast this with a second group of 50 cases in which the present attack, the primary one, had its inception within four days of operation. Although most of these cases were drained, the attack starting as a frank one, no deaths and no sequelae followed. The patients were not handicapped by a chronic sepsis; they had not been starving for an indigestion; consequently local drainage of a local infection sufficed to bring about a rapid and safe convalescence. This type of case rarely gives us any anxiety. It is perhaps asking too much that patients in this class should reach us much earlier, that is, by preference within thirty-six hours of onset, because frequently the patient does not summon medical aid for a day or two after he finds that home treatment is of no avail.

Of 90 cases that had suffered from one to three attacks previous to operation, the acute (drainage) and chronic (clean) cases are about equally divided. The early attacks came at intervals varying from months to years; each one was typical of an appendicitis, of short duration, disappearing without leaving any trail of symptoms. This group is the only one that is apparently free from symptoms of indigestion. Most of them came to operation within two or three days of onset of the final infection, all recovered, and there is no excuse for including this group in the groups suffering from indigestion. Each early typical attack of appendicitis left the patient no worse than before except for the increased assurance of a subsequent attack.

The next or what may be termed the invalid group is of much more interest to the general practitioner and to the surgeon. These patients, 80 in all, suffered from five to innumerable attacks or else were constant sufferers for months or years from symptoms generally described and treated as indigestion. The detailed histories teach us that some patients complained of constant abdominal pain lasting for weeks or months. Nearly all had more or less constant soreness of the abdomen, and a great many dated an increase in constipation from the outset. Some were confined to bed with attacks of indigestion at shorter or longer intervals; others were practically bedridden for months. Some lost weight up to 20 and 30 lb. while in others the nutrition does not seem to have been disturbed at all.

As in the other groups, most of our patients were adults, but I find one child of thirteen that had been treated for eight years for numerous attacks of indigestion accompanied by vomiting. Some patients referred their pain, distress or nausea to the ingestion of food and had reduced their diet to the simplest equation possible, their health and resistance suffering correspondingly.

Not a few had been put on a strict diet by their family physicians.

If we look at this last group of 80 cases from an economic point of view, the patient has a right to protest at our failure to recognize and treat his disease. Every patient suffered at least five attacks, others too many to be counted. If now we choose ten as the average number of attacks in which the patient was invalidated for a few days at least, it means that these people suffered at least eight hundred attacks of pain, suffering and anxiety, to say nothing of the current expense of treatment, the loss of time and wages and the deterioration in productive health.

Of the last group that I wish to consider to-day I must frankly confess that we cannot yet dogmatically determine which will be definitely cured by operation, though we are gaining some light as to those not benefited by the removal of a damaged appendix. To analyze them in detail needs more time and post-operative observation. They can be classed roughly as cases of appendicitis with gastroduodenal symptoms, the latter varying within wide limits.

Before taking them up in detail, a short retrospect of recent gastric surgery is necessary. In 1904, I had the honor of reading before this society a paper strongly advocating gastro-enterostomy in ulcer of the stomach. The criticism of the internist at that time was that only in the presence of obstruction or serious complication was an artificial stoma justifiable. This criticism was just, and, so far as it covers the ground, it is accepted by surgeons after a thorough and impartial trial of the operation in all types of so-called stomach lesions. Unfortunately, it is applicable to only a portion of so-called gastric diseases; there still remains a considerable number of patients that need relief by some means from most distressing gastric symptoms.

Surgical enthusiasm has at least demonstrated the frequency of duodenal ulcer as compared with gastric, thus throwing light on a group of dyspeptic symptoms that had never before been satisfactorily elucidated.

We are yet in the dark, however, in the treatment of the so-called gastric neuroses. At the time of my paper mentioned above we were deliberately subjecting the worst types of gastric neurotics to a gastro-enterostomy to demonstrate whether the symptoms were merely secondary to improper drainage alone or whether there were some other unknown but discoverable cause. It is only reiteration to declare now that gastro-enterostomy in such cases not only is of no value but in certain instances the symptoms are aggravated. This fact both Dr. Mayo and myself strongly emphasized at the Congress of Physicians and Surgeons in 1907, and we feel now that one who makes an artificial opening in the absence of a gross lesion is guilty of meddling surgery.

Can anything be done for these unhappy so-called gastric neurotics? For certain types I believe much is possible; for others surgery is either powerless or of little use even where there is an unmistakable lesion of the appendix.

For some time we had noticed in our clinic that certain patients exhibiting most marked gastric symptoms were cured by the removal of an appendix moderately damaged. Mayo called our attention to the same fact and soon afterwards published his observations on the relation of pyloric spasm to an inflamed appendix. Recent papers by Morris, Moynihan, and Graham and Guthrie serve to clear up more and more certain types of this group. We have found that the individual variations in signs and symptoms is quite considerable, and although certain types can be and are relieved by appendectomy of all their gastric symptoms, others are not and the exact line of differentiation is not yet clear to us.

We have operated upon some 30 or more patients included in this group, and in every one the appendix has shown a definite pathologic lesion of one type or another, such as stricture, punctate hemorrhages, obliterative atrophy or infection secondary to concretions.

A half dozen of the patients had such severe attacks of gastroduodenal hemorrhage, either in single attacks or in attacks more or less separated one from another, that there was no reasonable doubt of an actively bleeding ulcer in the stomach or duodenum. In nearly all of the 30 cases the abdomen was opened first of all in the upper quadrant. In some, although we were suspicious that the gastroduodenal symptoms were really due to an appendicitis, especially as we found evidences either in the protocol or at examination of an active infection in that organ, we did not feel justified in operating without a most painstaking examination of the viscera in the upper part of the abdomen.

Barring those with profuse hematemesis, the larger proportion of these patients suffering from appendix indigestion have been greatly benefited or cured, but the lapse of time *post operationem* is not sufficiently long to allow us to speak authoritatively. A few in whom there were associated evidences of definite neuroses apparently have not been relieved of their latter stigmata. Although one or two patients with severe gastric hemorrhages have apparently been relieved of all their digestive symptoms since operation, I do not feel at all sure that the relief is because of the appendectomy or that it is permanent.

In every abdomen in this last group a careful examination revealed no gross pathological lesion in any other organ except a perihepatitis of unknown origin in two cases. In a few there was ptosis of some of the organs to an extent that by some would be considered causative of functional disturbances, but our increasing experience in dealing with the abdominal cavity in all types of disease has taught us to be extremely conservative in declaring visceral ptosis, unless perhaps it is extreme, as either abnormal or pathologic.

To conclude very briefly, I would again beg the general practitioner to consider the probability of some simple surgical lesion of the abdominal viscera in his cases of persistent recurrent indigestion; that where such a lesion does exist,

surgery is the safest and surest means at our disposal to bring about a permanent cure; that his neurotics with indigestion secondary to surgical lesions have the right of relief from their local trouble; that finally, there is a type of dyspepsia most naturally ascribed to gastroduodenal ulcer, but which is really secondary to an appendicitis and which is curable to a degree not yet definitely determined by a simple appendectomy.

Original Articles.

A REPORT ON THE HUNDRED AND SEVENTY-TWO PATIENTS TREATED AT THE MASSACHUSETTS GENERAL HOSPITAL FOR INGUINAL HERNIA IN THE YEAR 1905, WITH THE END RESULTS OF THE OPERATIONS.*

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The following is an analysis of the cases of inguinal hernia treated at the Massachusetts General Hospital in the year 1905, and a report of the end results as far as they could be determined. The work was undertaken, as the author in an out-patient service had the misfortune to see several cases recurrent after operation and wished to determine whether the hospital statistics were as good as the average, or what could be done to make them better. An attempt was made to trace the cases at the end of four years, to allow sufficient time to elapse for a recurrence to take place if it would, although Coley makes the statement, borne out by these statistics, that recurrence usually takes place within a year.

Out of 187 operations on 162 patients performed by twenty-one surgeons, the result is known in 152 of the patients.

Number of patients seeking treatment,	172
No operation,	10
End result known at end of one year,	20
End result known at end of four years,	110
End result not known,	32
Number of radical cures,	187
Number of radical cures, end result known,	152

Of these, 14 were performed on strangulated hernia, of which the end result is known in 11.

Much has been written on the subject of hernia in recent years, and the literature abounds with articles on the cause and operations for the cure, as well as statistical articles, and no complete bibliography has been attempted. One of the most recent articles is by Rodman and Bonney.¹ Bull and Coley² have reported many cases, and two good books on the subject have been written by De Garmo³ and Ferguson.⁴

The importance of the operation cannot be over-estimated when it is realized that from 8 to 10% of all males are afflicted with hernia. Many of these go through life with no symptoms, untreated, and many wear trusses, but at the present

* The author wishes to express his thanks to the surgical staff of the hospital for permission to include their cases in this report.

time, unless there is some contra-indication, operation is the treatment of choice, being associated with so little risk and giving such a large percentage of cures. If ether is contra-indicated, the operation may be done under local anesthesia, and recently a large number of cases have been operated on at the hospital successfully under spinal anesthesia.

Anatomy.—The anatomy of the inguinal region is well known by surgeons and will not be gone into in detail; a few points, however, are of importance. Viewed from the inside, the inguinal region presents three fossae, formed by two folds of peritoneum. The outer one lies to the outer side of the deep epigastric artery and represents the internal inguinal ring. It is the deepest, and it is through this fossa that the common form of hernia, the external indirect hernia, takes place. A second fossa lies to the inner side of the deep epigastric, bounded by it and on the inner side by the fold made by the obliterated-hypogastric artery (the triangle of Hesselbach). It is through this fossa that direct hernia occurs. A third fossa exists to the inner side of this, not of great importance, but through it the rare form, internal indirect hernia, occurs. Of the 187 cases of hernia operated upon, 9 were direct, or 4.8%. Another important anatomical structure in inguinal hernia is the conjoined tendon and the internal oblique muscle. This muscle is described in anatomies as arising from the outer half of Poupart's ligament and as being inserted as the conjoined tendon in the pectineal line. In cases of hernia, however, the origin and insertion often varies and the muscle itself is apt to be deficient.

Indirect inguinal hernia is the common type, the sac in this form entering the inguinal canal at the internal ring, external to the deep epigastric artery, and following through the canal appears at the external ring. At times, owing to weakness of the muscles or a large ring, it may appear to come directly through the abdominal wall. There are a large number of names used to designate the different forms of this type. It is complete or incomplete depending as to whether it descends into the scrotum or is merely a bulge in the groin. In general they are either congenital, in which case the cavity of the tunica vaginalis is continuous through the sac with the peritoneal cavity; or acquired, when the tunica is formed in the usual way and the sac is a separate protrusion of the peritoneum. Of the congenital form there are several varieties, infantile, funicular, etc. In twenty-eight of the operations performed the sac was stated as being congenital, but not enough data were obtainable from the records to make further subdivision possible.

The sac may contain any one of the abdominal organs, though the omentum or small intestines are the commonest contents. In one case in this series the sac contained an inflamed Meckel's diverticulum, and in another the appendix, while a third had tubercular peritonitis. Many cases are reported where the bladder, sigmoid, kidney, female pelvic organs, etc., have been found in the sac. If the cecum protrudes through the canal,