Original Articles.

THREE CASES OF PYLOROPLASTY FOR STRICTURE OF THE PYLORUS.¹

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OBSTRUCTION at the pylorus seems not uncommon if we consider as causes of obstruction not only organic changes at the pylorus itself, but also changes in the position of the stomach by which a kink or flexure is produced at its outlet. It seems probable that many cases of gastric dilatation are caused by sharp bends at or near the pylorus, either in the stomach or in the duodenum. These bends, though not preventing the passage of food, do produce a certain amount of obstruction, with stasis and fermentation of gastric contents and a resulting dilatation. Such kinks and flexures may not even depend upon adhesions; they may take place without any changes whatever at or about the pylorus, the faulty position resulting from a simple overloading and sagging of the normal stomach, or from atony of the gastric walls, and dilatation. That such a cause should be effective may seem more or less a matter of theory; but the proof lies in the great efficacy of lavage. This is shown in the following case:

Edward S. C., of Denver. Seen at Union Springs, New York, on June 1, 1892. This was a man of thirty-five, with a good family history, who had been dyspeptic since the age of fourteen. He had suffered from acidity of the stomach, with vomiting and eructations of gas. For five years he had had attacks of pain in the region of the gall-bladder, gradually increasing in frequency, and supposed to be caused by gall-stones. He had never passed any gall-stones, however. The pain had always been in the gall-bladder region. He had been jaundiced at times. He had lost 16 pounds in weight. The pain would be at first intermittent, and then steady. The attacks were sometimes short, and sometimes long. The pain at the time of my examination was confined to the border of the ribs on the right side, running up as high as the fourth rib. The bowels were regular, except when he had to take morphine for pain. The stools for the past three or four weeks had been dark and tarry. There was intense suffering from gas in the stomach and bowels — so great that he feared rupture of the intestines. The vomitus had been like coffee grounds.

The patient was pale, very much emaciated, with a pulse of 124 and a temperature of 99.4°. The abdomen was tympanitic, except in the left lower quadrant, where there was a non-resistant, fluctuating tumor. There was neither pain nor tenderness in this tumor. I aspirated and got what seemed to be gastric contents. The pain was seated in the right anterior thoracic wall, three or four inches above the margin of the ribs, directly above the gall-bladder. From this point the pain radiated chiefly toward the pylorus and the tumor. It seemed clear that there was a dilated stomach, and that the pain was caused by its dragging weight; that a sharp bend was produced at or near the pylorus, which aggravated the original cause, whatever it might be, and increased the obstruction. I advised systematic lavage, which was carried

out. On June 22, 1893, I examined this patient, and found him to be very well. There was no evidence whatever of dilatation. There was no pain. He was in perfect health, and was able to attend to his business. He reported himself perfectly well on September 2, 1894. There were no physical signs of dilatation.

This case illustrates well a gastric dilatation dependent upon a sharp bend at or near the pylorus. The cause of the original dilatation is conjectural. It may have been a moderate enlargement from the ordinary causes, the bend having been produced only after prolonged distention. That the constant sagging of a distended stomach was later on the chief factor was shown by the efficacy of lavage.

A case resembling this in some respects came under my observation in my present service at the Massachusetts General Hospital. A young girl under treatment for some slight trouble — neurasthenia with dyspepsia — without apparent cause suddenly became collapsed. She was in the West Medical Service under the care of Dr. Fitz, and was referred to the West Surgical Service. I found her in profound collapse. The lower abdomen was filled by a smooth, spherical tumor. It was dull, fluctuating and tender. There was sharp abdominal pain, with normal temperature and a high pulse. Her condition was alarming. Though no tumor had been detected previously on physical examination, it seemed to me possible that the tumor was an ovarian cyst with twisted pedicle, as I had myself once failed to find such a tumor before twisting occurred. The tumor proved to be an acute dilatation of the stomach. Dr. Mixer kindly operated for me and found an excessive and phenomenal dilatation. It was found impossible to pass a stomach tube and to wash out the stomach. An anastomosis was therefore made between the stomach and intestine, but this proved ineffectual. Whether the dilatation was caused by a sharp bend at the pylorus or not could not be determined.

Whatever the initial cause which produces the bend near the pylorus, it seems evident, even if that cause be a constriction, that the traction of the loaded stomach will tend to increase the obstruction. In many cases the only cause of dilatation may be an organic stenosis at the pylorus. In some instances this stenosis does not result in dilatation, but rather in a thickening of the gastric walls. In two of the cases reported herewith there was no dilatation whatever, though before operation that condition had been supposed to be present. In one the cause was too recent; in the other the gastric walls were evidently hypertrophied.

The influence of adhesions from external causes in producing stenosis seems clear. Such a cause may be found in an old cholecystitis, in which, after the acute infectious stage, with dilatation and adhesion-formation, has subsided, the gall-bladder contracts and drags upon the duodenum or upon the pylorus.

Localized peritonitis from other causes, with adhesions about the stomach, may produce serious disturbance of nutrition, even though there may be no organic disease of either pylorus or duodenum. In such cases nutrition is interfered with either from limitation of the normal physiological movements of the stomach, or, what is more likely, from a real obstruction to the flow of the gastric contents. This point has been recently illustrated in Dr. Porter's clinic at the Massa-

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chusetts General Hospital by the following brilliant case:

The patient, a man of twenty-nine, farmer and painter, had had for three years symptoms referable to the right hypochondrium. There were pain, ten-

FIG. 1. Showing in vertical section a stricture of pylorus.

derness, and vomiting. At one time there was wrist-drop and facial twitching. The last attack occurred five weeks before entrance to the hospital, in November, 1898, and from this attack he had not recovered. During this time his weight fell from 165 to 125, and he was very weak. The stomach could be distended until its lower border reached one-third of the distance between umbilicus and pubes. At times he vomited as much as a gallon of fluid. There were obscure physical signs in the right hypochondrium. The vomitus contained free hydrochloric and lactic acids.

Dr. Porter operated December 30, 1898, and found the pylorus adherent to the gall-bladder and under surface of the liver. There were very fine adhesions along the attachments of the lesser omentum. These were divided and tied off in sections. The pylorus having been thus freed from the gall-bladder, the pyloric end of the stomach became freely movable. The pylorus itself was opened and carefully examined, but no lesion or constriction was found.

The patient made a rapid recovery. All his symptoms were relieved. He was discharged January 30, 1899. On March 23d he re-entered for examination. He was so improved that he was not recognized. He had gained 45 pounds. There was no distress after eating; he was in perfect health.

In this case the symptoms were undoubtedly due to the malign influence of adhesions upon the position and shape of the stomach, and consequently upon its physiological functions.

In other cases separation of adhesions about the pylorus has been followed by benefit, though I do not know of any case in which the benefit of operation has been so conspicuous.

The diagnosis of pyloric obstruction may be easy or it may be hard. The lesion may be unmistakable, or may be determined only after exploration. The facility with which it is recognized depends first upon the detection of an adequate possible cause. In Case I the boy's history gave no sign, his age no tendency, his physical examination no clue; yet the history and complaints, even without adequate probable cause, pointed directly to a pyloric stoppage, and to nothing else. In Case II the regurgitation of stomachfuls of food some hours after the eating, with constipation and progressive emaciation, would have proved a pyloric stenosis even had there been no history of a corrosive

poison accidentally swallowed. In Case III, on the other hand, no symptoms pointed directly to a benign stenosis, and none to a complete one. The history pointed quite as strongly to a carcinoma as to a cicatrized ulcer; to a simple dilatation as to a constricting band. There was no history of ulcer.

The importance of a history of gastric ulcer may be, and often is, overestimated. The typical symptoms of such a lesion are often absent. There may be nothing whatever in the man's life to suggest an organic disease of any kind. Indeed, in a case of actual perforation recently operated upon the symptoms appeared suddenly in a robust young man in perfect health. In this lesion as in so many other acute abdominal emergencies, the patient may present anything but the classical history and appearances of organic disease. Were the signs of ulcer always so glaringly apparent as they are described to be, or as, in the majority of cases, they are, no one could mistake the lesion. Such cases are only too easy to diagnose. It is in the unusual, the atypical, that the unexpected is found; therefore in all cases of suspected pyloric stenosis the absence of these typical symptoms must not excite too great a confidence. Just as in gall-bladder lesions, and especially in acute inflammations dependent upon gall-stones, there is often no previous history whatever of gall-stones themselves upon which to base a guess, so in gastric lesions there may have been a lifetime of perfect digestion. I have seen, for example, a complete intestinal obstruction from a simple cholesterol stone in a man of sixty-five or seventy in whom there had never been a moment of conscious pain; yet in this case the stone was unmistakably a gall-stone, and it must have ulcerated through the gall-bladder and into the intestine. So in gastric cases the existence of a cicatrix closing the lumen of the pylorus cannot be disproved even by the most rigid elimination of a previous history of ulcer. Yet it may be stated that as a rule an ulcer in the pyloric region will be found to have given at some time or another signs of its presence. A history, even if obscure, may furnish the missing link in the chain of evidence. Fortified by such a history, the symptoms of pyloric obstruction acquire a meaning clear enough to indicate the ap-

FIG. 2. The incision through the cicatrix, with sound tissues on either side.

proximate surgical remedy and to demand an exploration.

The most important symptom of pyloric obstruction is vomiting or regurgitation of food some hours after it is taken. The more complete the obstruction the

more the food will be regurgitated, until practically all that is swallowed will be returned. If the food is retained long enough, it will become decomposed and offensive. Pain may or may not be present. The stomach may be dilated or even contracted. Its walls

FIG. 3. The transverse suture nearly completed. The cut shows where the last sutures are to be applied, and where the greatest tension will be.

may be hypertrophied. At exploration the peritoneal surfaces are reddened and its vessels injected. If dilated the stomach will present the usual characteristics of dilatation. One may think before operation that he detects a tumor; but I am skeptical about it, even when exploration shows a considerable thickening about the pylorus. In Case III and in two cases without stenosis which were explored there was an unmistakable thickening of the posterior gastric wall near the pylorus. In Case III the tumor had been felt by one of the consultants; yet I could not feel this thickening by direct pressure, even when my hand was in the abdomen. It was only by getting the mass between my thumb and fingers that I could even then be sure of it. It seems hardly necessary to assert that gastric tumors cannot be felt unless they are at the pylorus or in the anterior wall, except when they are very large and project forward. An excessively large tumor of the stomach escaped the notice of every examiner in a recent instance, and yet autopsy showed that it was present. The apparent thickening so often detected deep in the epigastrium overlying the abdominal aorta generally is either the pancreas or the normal pylorus, as I have time and again demonstrated. The anatomical structure of the epigastrium makes deep palpation deceptive and unsatisfactory, nothing being felt when a tumor actually exists, and tumors being felt when everything is normal. Exploration through an incision is the only way in obscure cases to be sure of the lesion.

With characteristic vomiting, with or without pain or dilatation, progressive emaciation adds the required evidence for a reasonable diagnosis of pyloric stricture. If the vomitus contains blood, changed or unchanged, the question of an acute process, whether ulcer or cancer, must be considered. The opinion inclines toward carcinoma if the blood is changed, if there is cachexia, if the patient is over thirty-five. It becomes a conviction if there is a tumor. If the patient is under thirty-five, if he is anemic rather than cachectic, if the blood is bright, the opinion must incline towards an ulceration.

The stomach presents a field in which surgery may achieve some of its most brilliant results. From the anatomical, the physiological and the pathological

standpoints this field is a most attractive and encouraging one. The size of the stomach, the thickness of its walls, its easily controlled blood supply, its physiological functions, which may be more or less completely dispensed with—these characteristics make the stomach favorable for all the technical possibilities of modern methods.

In strictures of the pylorus of benign origin no methods seem worthy of serious consideration which do not restore to its normal calibre the lumen at the point of constriction. Though in rare instances ideal restoration may be impossible, yet in practically all cases it can be accomplished. We may resort to plastic operations, or to resections with suture in continuity; we may make a communication between the stomach and the jejunum. In benign strictures, however, the lumen may be usually restored in continuity. We need not consider, therefore, the makeshifts by which the stream is diverted directly into the jejunum.

I have used the Heinecke-Mikulicz pyloroplasty in the three cases herewith reported (Figs. 1, 2 and 3). This procedure, whatever its theoretical beauties, has certain disadvantages which these cases have emphasized. On the cadaver no operation could be more perfect than that which enlarges a flexible cylinder by transforming a longitudinal into a transverse slit. Presumably this operation would be perfect upon a healthy pylorus. I have demonstrated its efficacy upon an obliquely inserted ureter² in hydronephrosis. No operation could be more satisfactory than this was in Case I. When, however, there is a wide annular ring of cicatrix at the pylorus the method is faulty and unsatisfactory, for reasons to be given presently. Upon the cadaver a longitudinal cut two inches long, transformed by suture into a transverse one, enlarges the lumen markedly. The posterior and lateral wall of the new lumen are made of the old pylorus, the extremities of the sutured wound representing the former anterior surface now separated by the length of the transformed incision (Figs. 2-4). The anterior wall of the restored pylorus is made up of gastric and duodenal walls brought together from the distance of one inch each way—the gastric wall one inch above the centre of the cut being in apposition with that of the duodenum one inch below the centre of that cut. From these sutured points the

FIG. 4. Shows the depressed area about line of suture, when the cicatrization is thick and extensive.

gastric and duodenal walls are gradually merged into the posterior and lateral surfaces that were taken from the anterior pyloric wall. This approximation of surfaces is satisfactory when the cicatricial ring is narrow,

² Transactions of the American Surgical Association for 1897.

or when the cicatrix is confined to the posterior wall of the pylorus; for the new channel is then bounded everywhere, except behind, by normal mucous membrane. Even when the posterior half of the circumference of the new lumen is the old cicatrix, there is room enough. When, however, the cicatricial ring is broad, the new walls in front do not have enough mucous membrane, and the stricture may recur. In Case II, in which the stricture was comparatively long, this complication was supposed to have resulted. The lumen was a flattened slit, its posterior surface being the cicatrix, its anterior, mucous membrane from stomach and duodenum, and I was not sure that the relief was enough (Figs. 4 and 5).

In Case III this possible difficulty was anticipated. After making the longitudinal cut, I trimmed the edges into a lozenge—an expedient by which all the cicatricial tissue was removed except that comprising the posterior wall of the pylorus. The whole anterior and lateral portions of the circumference were thus normal gastric wall, and the joint was three-fourths

FIG. 5. A cross section of restored pylorus, showing depressed anterior wall.

mucous membrane on its internal surface. In such cases the Heinecke-Mikulicz operation is not as satisfactory as a resection of the anterior and lateral pyloric walls, because it is less efficacious and no safer. Moreover, resection of the lateral walls, leaving the posterior wall with its blood supply intact, is quite as rapid and much more secure, and makes a larger lumen. Another difficulty with the Heinecke-Mikulicz method lies in the stiffness of the cicatrix, which does not always permit a ready approximation. In Case II the tension was too great on the central sutures, for the stiff and thick pyloric wall would not adapt itself readily to the change in direction (Fig. 3). Moreover, the longitudinal tension was so great that when completed the line of incision was depressed in the centre (Figs. 4 and 5) without being rounded out or even bulging with the excess of transplanted tissue, as is desirable in plastics of this kind.

The technique of the Heinecke-Mikulicz operation needs no amplification here. The longitudinal cut must not be very long—two or two and a half inches is enough (Fig. 2). If suturing is unsatisfactory, or if,

on bringing the ends together temporarily with forceps, the new pylorus is unsatisfactory, a cut should be made from the ends of the longitudinal cut to the lateral borders of the pylorus above and below (Figs. 6 and 7). These additional cuts should be so made that the opposing surfaces of stomach and duodenum will fall together in full and easy approximation, even if it becomes necessary to remove entirely the cicatrix of the posterior wall. The last procedure would, of course, be a complete resection of the cicatrized pylorus.

For suture material I use only silk. The mucous membrane should be united separately by suture, continuous or interrupted, to control bleeding and to secure accuracy. One row of Lembert sutures is enough for the peritoneum, though there is no objection to a second fortifying row. A strand of gauze should be left for forty-eight hours in contact with the line of suture.

The results in this, as in most operations upon the stomach, are very encouraging; all my cases of gastric surgery have recovered except two, one a digital dilatation for a benign stricture—a most unsatisfactory and useless operation—and a gastro-enterostomy. The latter was performed with a Murphy button, and was followed by general peritonitis from extravasation. The list of successful operations includes two gastrostomies for foreign bodies, a pylorotomy, and a total extirpation—not to mention several gastrotomies. I have no doubt that many chronic and distressing gastric cases could be permanently relieved by an exploration, and the immediate application of the appropriate surgical remedy. In most instances, however, the favorable moment is lost by waiting for positive diagnostic signs. The operation often is not resorted to until the patient is so reduced that he cannot successfully undergo even the rapid manipulations of a pyloroplasty.

CASE I. Frank C., aged seven and one-half, a patient of Dr. Nason, of Newburyport, I saw on April 28, 1896. He had always been well. Twelve weeks before, he was taken with violent epigastric pain and vomiting. The vomitus contained a little blood. The pain lasted two or three days, but the vomiting continued. The bowels moved regularly for three or four weeks, then became obstinately constipated. He was extremely emaciated. The stomach was dilated. Fluids by mouth would accumulate in the stomach, and finally would be vomited. The diagnosis of pyloric stricture and gastric dilatation was made. The Heinecke-Mikulicz pyloroplasty was immediately performed (Figs. 1, 2 and 3). He made a good recovery, and is now shown in perfect health.

CASE II. Charles D. G., aged forty-eight, married, shoemaker, a patient of Dr. Marshall, of Lynn, entered the Massachusetts General Hospital in February, 1899. The family history was negative. The patient was a man of good habits, and had always been well. On December 11, 1898, he took by mistake about a third of a tumbler of muriatic acid, by which an immediate burning pain in the stomach was caused. This grew worse for three days, and then gradually subsided. On the eighteenth day there was bloody vomitus—a pint in amount. There has been no blood since. Food remains in the stomach from three to thirty-six hours. He is always hungry. The vomitus is at times foul. Food causes some distress in the stomach a short time after ingestion. He has been on nutritive enemata for past two weeks.

The patient was a fairly-developed and poorly-nourished man—evidently starving. The pulse was weak and the face thin and drawn. He asked for food and drink; but, when this was given, regurgitation of everything occurred. He was placed on nutritive enemata every six hours. It was evident that there was an obstruction at the pylorus,

caused by a corrosive poison, with ulceration and subsequent cicatrization and stricture.

On February 11, 1899, a median incision was made, three inches long, beginning about one inch below the ensiform cartilage. The anterior wall of the stomach and pylorus presented, between which could be seen the depression of an annular stricture. A longitudinal incision three inches long was made directly through the stricture and the contiguous surfaces of stomach and duodenum. The pylorus was found quite impervious. It was very difficult to bring the ends of the longitudinal cut into immediate transverse approximation. Owing to the rigidity of the cicatricial tissue, the tension was so great upon the stitch which brought the ends of the longitudinal cut to the centre of the transverse line that it immediately tore out. It was necessary, therefore, to begin at the sides, half-way between the ends of the incision. The change of direction from longitudinal to transverse was thus gradually attained without too great tension upon any one suture (Fig. 3). The sutures were the interrupted Lembert of fine silk. Two small wicks were placed down to the line of suture, and the rest of the abdominal wound was closed with silkworm-gut.

The patient bore the operation well. The pulse was 120 and of good quality. He was given a morphine suppository of one-fourth grain. This was repeated during the evening. Every four hours the patient was given an enema of beef juice, brandy, salt solution, each one and one-half ounces, an egg, strychnia, grain one-thirtieth, deodorized tincture of opium ten minims.

On February 12th the patient was fairly comfortable. He slept four or five hours during the night. Twenty-four hours after operation drachm doses of peptogenic milk were given every hour, and well retained. The amount was increased in the evening to two drachms every hour, with sips of warm water every hour. The enemata were well retained. On February 19th the stitches and wicks were removed. On February 21st he was taking liquids and soft solids without nausea. The patient's face was filling out rapidly, and his general appearance was much improved. On February 22d he vomited. All food was therefore omitted for twenty-four hours, when he was given liquids and soft solids. On February 24th he was put upon house diet. He was improving daily in appearance. On February 28th the patient was apparently doing well. He said that he had no nausea, and kept down all he ate; the nurse, however, saw him vomiting, and, on questioning, found that for the last three days he had been vomiting at night all that he had eaten during the day. He carefully hid the vomitus in the bedpan and the urine cup, till he could empty it unnoticed. The reason given for this deception was that he would be deprived of food if he confessed the vomiting. On March 4th the patient's general appearance was improving, and he was gaining in weight. In the last two days he has gained four pounds. On March 6th he was discharged relieved. He reported once or twice afterwards. Dr. Marshall reports that he has returned to his work and is perfectly well.

In this case the occurrence of vomiting suggested the reclosure of the pylorus. I was prepared, therefore, to perform a more extensive plastic — to remove if necessary, the cicatrix by a more or less complete resection (Figs. 6 and 7). It is possible that such a procedure may in the future become necessary. For reasons already given, linear pyloroplasty does not seem likely to be so efficacious as a V-shaped excision of the cicatrix, or even a complete cylindrical resection. Guided by the experience in this case, a modification of linear pyloroplasty was used in Case III (Fig. 6).

CASE. III. George L., aged fifty-four, married, ship-carpenter, of Charlestown, a patient of Dr. Morris, entered the Massachusetts General Hospital in March, 1899. The family history was negative. He had always been well, and of good habits.

This patient had been unable to work since June, 1898, on account of pain in pit of stomach. In November, 1898, he vomited tarry-looking material, but there had been no

FIG. 6. Partial resection of cicatrized pylorus; a method preferable to the linear incision when cicatrization is extensive.

vomiting since. For the last four weeks he has passed tarry-looking feces. At times he is constipated, and at times he has diarrhea. The pain is not constant. There is some tenderness in the region of the epigastrium all the time. He has had to give up everything except soft food. For a time he lost weight; then regained it. At times he vomits nearly everything at varying periods after eating. At other times he vomits not what he eats, but a thin, green liquid, though it may be soon after eating. He has himself felt a tumor in the epigastrium. The bowels have been constipated of late; the appetite has been poor. He is a well-developed but poorly-nourished man. The body is not much emaciated, but the face looks drawn, thin and pale. Abdominal examination is negative, except for an indefinite mass, about the size of an English walnut, which can be felt on deep palpation in the right epigastrium.

March 8th. He has had a poor night; he vomited this morning. The vomitus on examination shows presence of free hydrochloric and lactic acid. March 9th. About middle of last night, the patient again vomited what seemed to be chiefly blood.

March 11th. Examination by Dr. Fitz shows the stomach to be dilated, its lower border being about two inches below the umbilicus. There is a leucocytosis of 15,000. Hemin crystals are found in vomitus. Undigested food resembling rice is found in stomach washings. The red blood count is 5,712,000; hemoglobin, 62 per cent.; whites, 7,45 A. M., 13,000; 11.15 A. M., 12,600; 4.30 P. M., 12,250. Butyric acid is present. The urine is high colored, acid; 1.030; no albumin; chlorine normal; no sugar; bile, slight trace. March 15th. Patient has

FIG. 7. A still more extensive resection; a method to be used in exceptional cases.

been fairly comfortable during past few days. Stomach washed out to-night and found to contain considerable undigested food of a very sour odor.

On March 18th an incision four inches long was made in the median line, beginning just below the ensiform cartilage. No evidence of malignancy was found, but the pyloric end of stomach was adherent to liver and gall-bladder, and there was evidence of an old adhesive peritonitis. The gall-bladder was contracted from side to side, but elongated, its fundus being attached to the stomach by old and firm adhesions. These adhesions were dissected from the stomach until the gall-bladder was perfectly free. The pylorus was extensively thickened and tightly constricted—probably by the cicatrization of an old gastric ulcer. An incision three inches long was then made longitudinally in the pylorus, directly through the constriction, extending into both stomach and duodenum. The longitudinal incision was converted into a lozenge or a broad V by removing a considerable portion of the cicatrix of the anterior wall of the pylorus (Fig. 6). By bringing together the opposing surfaces of duodenum and stomach an abundant artificial lumen was procured. The mucous membrane was first united by a continuous suture; the peritoneum by an interrupted Lembert of silk. Two gauze wicks were then placed on either side of the line of sutures, and the abdominal wound was closed with interrupted silkworm-gut sutures. The patient recovered from ether well. He vomited once, about an hour after coming out of ether. The vomitus consisted mostly of blood. The patient was very comfortable during the night, after a suppository of one-fourth grain of morphine.

March 19th. The patient was in good condition; there was no distention or abdominal tenderness. The following enema was given every few hours: Brandy, salt solution, beef juice each one ounce; eggs; tr. op. deod. m. x. There was good movement of bowels this morning. On March 20th the patient passed a comfortable night. This morning one pint salt solution by rectum was well retained. At noon to-day, forty-eight hours after operation, peptogenic milk, one drachm every hour, by mouth, was well borne. There was no vomiting or gastric distress. This evening peptogenic milk was increased to three drachms every two hours, with sips of water at frequent intervals. On March 21st the liquids were increased to peptogenic milk every two hours, with port wine one drachm, every four hours. The wound was redressed. One wick was taken out, the other loosened. On March 22d the liquids were increased to peptogenic milk, one ounce every four hours. The patient complains of no gastric distress. On March 23d the second wick was taken out. The wound was healed by first intention, except for a small granulating area where the wick was. Peptogenic milk, four ounces, was given every four hours; beef tea, two ounces every four hours, egg-nog with sherry, half an ounce. On March 26th all the stitches were out. Peptogenic milk and beef tea were omitted. The regular liquid diet—soups, milk, etc.—was given, eight ounces every four hours.

The patient was discharged relieved. He reported several times after discharge. At one time it seemed probable that there was a recurrence of the pyloric disturbance. The last heard from him, through Dr. Morris, was that he was doing very well.

THE HOSPITAL FOR CHRONIC DISEASE.¹

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WITH the striking increase in hospital development which has marked the last few years, the victim of chronic disease has received but a small share of attention. Popular sentiment has demanded that the acutely sick be given the first care, a feeling with which no one would wish to take issue. The limitations of our hospitals have required that space be

given to those whose needs are immediate, and whose ailments are capable of palliation or cure; residence in the wards is discouraged beyond a certain period, both on account of the necessity of making room for others, and for reasons of expense. This is as it should be. We have not yet attained to a great hospital in the sense of an all-inclusive one, where cases of long as of short duration may alike be treated. The necessity of discrimination is apparent, and may, no doubt, most conveniently be made between the so-called acute and chronic diseases. The inevitable result is that the victim of a chronic disease suffers, and often suffers severely, for want of the skilled treatment which it would seem an enlightened community should provide. His needs, it may be, are not immediate, his treatment may not demand heroic measures, but he requires above all that constant care which a properly equipped institution can alone give. Without that care it is hard to conceive a more wretched illness and death than is likely to fall to his lot amid the increasing squalor of a home rendered destitute by the length of his illness. There is certainly no class of persons more demanding of sympathy from a purely humanitarian standpoint. Within the last few years a decided advance has been made in the establishment of hospitals for certain classes of disease, ordinarily not accepted at general hospitals. I refer particularly to institutions for the treatment and care of tuberculosis; even in these, however, the preference is, and at present must be, given to those in whom treatment is likely to be efficacious. The fatally ill are therefore seldom gainers, and their disease must still run its course, a constant menace to their associates. With but few exceptions, and those absolutely inadequate to the needs, the sufferer from chronic disease remains an outcast, for whom the community provides no shelter, except under the declaration of absolute dependence.

The time will no doubt come in our country, as it has in others, when the sentiment of the medical profession, as of the people at large, will demand and find the means of providing institutions for the sick so comprehensive in scope that no worthy person who is diseased and disabled from whatever cause will be rejected. We are, however, far removed as yet from that consummation. We must recognize the conditions as they are, and make the most of present opportunities. That we have not even done that is sufficiently obvious. As at present organized, the hospitals in which chronic disease is treated are, with the exception of the hospitals for the insane and various smaller institutions, connected with almshouses. This is true of Massachusetts and Boston, and also, so far as I am aware, of other American cities. The development of these almshouse hospitals has lagged behind that of others for various reasons. Prejudice, politics, lack of scientific interest, a superficial feeling of the hopelessness of treatment have all entered in. Yet it is in these institutions that the first step must undoubtedly be made toward a broader spirit of scientific inquiry and toward a more liberal conception of the privileges and duties of medical charity.

Before entering upon what seem to me the very hopeful possibilities of the present situation in Boston toward the development of its almshouse hospital into a highly creditable institution it will be well to consider briefly the value of the hospital for chronic disease in general. This would appear hardly necessary

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