Relief of Pain.

For the relief of tender nerves and muscles there is nothing better than warm fomentations. It is best to apply them intermittently; a warm fomentation may be put on the painful part for half an hour, and the application repeated every four hours; a layer of hot cotton wool taking its place in the intervals. Occasional vapour baths may afford the patient great comfort; but they should not be used when the action of the heart is much impaired.

Drugs.

As regards drugs, in the early stages of neuritis, salicylate of soda and potassium iodide, either alone or in combination, appear to be of service. Neuralgic pains may be relieved by the administration of antipyrin, phenacetin, or exalgin; but when the suffering is very great the hypodermic injection of morphine becomes necessary. Let it be particularly noted that in the acute stage strychnine must not be given.

Diet.

But of far greater importance than drugs is the regular and careful administration of nourishment, in the forms of boiled milk, beef tea, beef extracts, soups, and broths. Benger's food or peptonised gruel may be required, and when vomiting is a prominent symptom nutrient enemata should be administered.

Complete rest in bed in a well-ventilated room, careful feeding, and exposure to sunlight are the essential points in the treatment of the early stages of multiple neuritis.

CONVALESCENCE.

When the acute symptoms have subsided, but not before, recourse may be had to massage, electricity, and tonic treatment. In the acute stage massage would be unendurable, and certainly very hurtful; but its application must not be delayed too long. It may be employed as soon as extreme pain and tenderness have disappeared. At first massage should be employed in the gentlest manner and only for short periods of time; but as soon as the patient stands it well it ought to be regularly and vigorously applied. The patient should also be encouraged to make voluntary movement against resistance; and other modes of Swedish exercises can be employed with advantage. Inco-ordination of movement is best treated by Fraenkel's method, the essential feature of which is to submit those muscles which manifest the inco-ordination to a series of graduated and systematic exercises.

By these means the nutrition and strength of the muscles and the co-ordinating power are improved, while any tendency to contracture is overcome. Moreover, the patient's capacity for assimilation of food is thus steadily increased.

The restoration of the degenerated nerves and muscles may also be aided by the daily application of electricity. The constant current is the most useful in stimulating the nutrition of the affected muscles. Large electrodes are desirable in order that as much muscular tissue as possible may be reached by the current. As soon as the muscles respond to a weak faradic current this form of electricity may also be employed with advantage. A daily warm bath, followed by vigorous friction to the skin, is of value, whilst tonics and cod-liver oil often prove of great service. Arsenic has been recommended in the treatment of multiple neuritis, but of course it must not be given in the cases under consideration. Of all drugs that may be regarded as tending to the restitution of the paralysed parts, strychnine is unquestionably the most valuable, and it is better to administer it hypodermically than by the mouth. It is advisable to begin with a small dose, say $\frac{1}{16}$ gr., and then gradually increase the quantity.

From first to last, abundant fresh air and sunlight are of the greatest importance; and as soon as the patient is able to take outdoor exercise a change of air is often advisable; in many cases, however, it will be some time before local massage can be entirely dispensed with.

REFERENCE.

¹ *Medical Chronicle*, 1892-93.

MEDICAL PRACTITIONERS IN LISBON.—According to official statistics for the current year recently published, the number of medical practitioners in Lisbon is 174. This gives a proportion of 1 to every 1,902 of population.

THE SURGERY OF CHRONIC ULCER OF THE STOMACH AND ITS SEQUELÆ:

BEING A SERIES OF CASES IN WHICH OPERATIONS WERE PERFORMED FOR VARIOUS NON-MALIGNANT DISEASES OF THE STOMACH.*

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THE various conditions resulting from chronic inflammatory processes in or near the stomach, and giving rise to dilatation of that organ, may be classified as follows:

1. Temporary, intermittent narrowing of the pylorus, reflex in character, the result of muscular spasm. This condition is largely or entirely dependent upon chronic ulcer of some portion of the stomach.

2. Circumscribed or annular fibrous constriction at or near the pylorus.

3. Diffuse cicatricial induration at or near the pylorus or first portion of the duodenum.

4. Cicatricial contraction and induration with adhesions between pylorus, duodenum, abdominal wall, liver, gall bladder, etc.

5. Cicatricial contraction and induration at the site of an ulcer situated in the body of the stomach, giving rise to the condition known as "hour-glass contraction."

6. Adhesions external to, and primarily independent of, the stomach and duodenum originating in inflammatory conditions of the gall bladder, bile ducts, etc., or rarely in traumatism (Krönlein).

1. The condition of *pyloric spasm*, inducing retention of the stomach contents, and, as a sequel, the gradual dilatation of the viscus, is one now generally recognised by surgical authority. Associated with local spasm are hyperacidity of the gastric contents and frequently, if not invariably, chronic ulceration of the stomach. The resulting group of symptoms is described by French surgeons as "*la maladie de Reichmann*" and is looked upon therefore as a distinct morbid entity. The Continental teaching would have us consider that the chronic ulceration depends upon, and is induced by, the hyperacidity of the gastric secretion, but there are very compelling reasons for believing that the ulcer is not the outcome but the cause of the hyperacidity, though the perpetuation of the ulcer may indeed result. The spasmodic contraction of the pylorus is held by some to be independent of any organic disease of the stomach to be "functional." A case is recorded by Schnitzler in which a tumour could at times be felt in the neighbourhood of the pylorus. At the time of the operation nothing was at first discovered, but within the few minutes of observation a definite hardness, resembling a tumour, was thrice observed as the result of forcible pyloric contraction and spasm.

The precise sequence of events in these patients is difficult or impossible to determine; probably chronic ulceration of the stomach induces pyloric spasm, hyperchlorhydria, gastric stasis and consecutive dilatation. After gastro-enterostomy, as Carle and Fantino have shown, the hyperacidity disappears. Probably the rest which is thereby assured to the organ allows healing of the ulcer, and as a result subsidence of spasm and hyperacidity.

2. *Circumscribed Fibrous Constriction at the Pylorus.*—This ring-like narrowing results from the healing of a comparatively small circular ulcer. The fibrous ring may be $\frac{1}{2}$ to $\frac{3}{4}$ or $\frac{1}{2}$ inch in breadth, is situated either precisely at the pylorus or within an inch of it on one side or the other, and is sharply defined. The scar of the ulcer is found, in the cases that present themselves to the surgeon, more often on the anterior than on the posterior surface. The patency of the pylorus is reduced to a varying degree; there may be slight constriction, or, as in one of my cases, a narrowing to a degree permitting only, and with difficulty, the passage of a director. It is in this condition that pyloroplasty is attended with the fullest measure of success. The stricture, at times almost string-like in its sharp and abrupt limitation, is readily divided, and healthy supple tissue, lending itself easily to suture, is found on each side of it.

* Read before the Mirfield and District Medical Society.

3. *Diffuse cicatricial induration or infiltration* at or near the pylorus or first portion of the duodenum. This condition results from the presence of an ulcer, large in size and irregular in shape, deeper and of longer duration than the form last described. There is, judging from the symptoms, an ulcer actually unhealed or readily breaking down on trivial provocation in not a few cases of this kind. On examining these patients at the time of operation one finds a dense indurated scar, rendering the pylorus or the adjacent portions of the stomach or duodenum hard and resistant. The induration may be of such extent and of such density that the appearances and characteristics of a malignant growth may be mimicked with remarkable nicety. In one case of my own, which I submitted to the operation of gastro-enterostomy, believing the pyloric mass to be malignant and irremovable, the patient gained so rapidly in health and has so stoutly maintained his improvement for a period exceeding two years that I am sceptical as to the accuracy of my diagnosis. Thayer and Hirsch, Lindstrom, Kammerer, and others have mentioned examples precisely similar, and Mayo Robson has recorded a case of pylorotomy for supposed malignant disease, which on minute examination proved to be chronic inflammatory thickening.

4. The condition just described may be complicated by the *existence of surrounding adhesions*, of varying but frequently of remarkable toughness. Such adhesions are protective in character, and indicate a deep erosion of the ulcer and a threatening of perforation. In those examples in which the adhesions anchor the pylorus to the abdominal wall or the liver it is probable that a kinking is produced, which is exaggerated by a gradually-increasing dilatation. A very beautiful example of this kind is recorded by Mr. Page, of Newcastle.

5. *Cicatricial contraction and induration at the site of an ulcer situated in the body of the stomach*, giving rise to the condition known as "hour-glass" contraction. The two forms of acquired hour glass contraction of the stomach are very clearly illustrated by the two cases recorded in my list.

a. In this form an ulcer situated generally near the middle of the stomach has, by its contraction, separated the viscus into a pyloric and a cardiac portion. It is as though a tape had been tied round the organ. The ulcer is clearly seen, and produces a marked puckering of the surface. To the touch the constriction is tough, dense, and fibrous. The channel of communication may be so narrow as to admit only a No. 10 or 12 catheter. There are no external adhesions, and the stomach as a whole is as freely movable as under normal conditions.

b. In the second form an ulcer on the anterior surface of the stomach, midway or approximately so, between the orifices has eroded through, or almost through, the entire thickness of the stomach wall. Protective adhesions have formed as the ulcer has deepened, and the base of the ulcer has become adherent to the peritoneum of the abdominal wall. Extravasation of the stomach contents has not occurred; on separating the adhesion an opening into the stomach is exposed—a gastric fistula. This adhesion anchors the stomach to the abdominal wall, and, when dilatation of the stomach occurs, intense dragging pains are experienced, which rapidly induce nausea and vomiting.

The area of gastric adhesion is marked out upon the surface as an unduly rigid and often exquisitely tender patch. The impression of a tumour in the stomach wall may be temptingly suggested.

6. *External adhesions* near the pylorus and duodenum, the result of perigastritis. These may result from gall stones, cholangitis, tuberculous peritonitis, injury, and so forth. The case mentioned in the tabulated list is the only one I have operated on purely for the gastric disturbances, though I have had several others in which dilatation of the stomach has been merely an inconspicuous episode in the complex symptoms of cholelithiasis. The importance of these perigastric adhesions was first demonstrated by Mayo Robson in 1893, and in my judgment that is one of the most important advances made in our recent knowledge of abdominal diseases. The adhesions in the majority of the cases I have met with are readily enough detached or broken down, with the result that obstruction is thereby relieved, but it is not unlikely that gastro-enterostomy may at times, in the more severe cases,

when adhesions separate with difficulty, are unusually dense, or in their manipulation involve the risk of laceration of the liver or other viscus, be the more prudent and successful procedure.

SYMPTOMS OF PYLORIC STENOSIS.

It is important at the outset to emphasise the fact that in the early stages of the two diseases, pyloric cancer and simple pyloric stenosis, the symptoms are identical. Later the differentiation becomes progressively accentuated, but it is in the early stage that the surgeon must be asked to see the patient if operation is to be successful in those which eventually prove malignant.

The symptoms and the signs of pyloric stenosis depend upon the consecutive dilatation of the stomach. Stomachs are of widely varying size and capacity, within normal limits. A dilated stomach is one which is unable to evacuate its contents into the duodenum within the normal period of time. "Gastric stasis," as it is called, results, and food is retained in the stomach for two, three, or more days. So long as a stomach, even though deformed by rigid cicatrices or invaded by malignant growth, is able to empty itself in the normal limits of time, symptoms of moment are lacking.

A close examination of the history of patients suffering from fibrous stenosis of the pylorus will reveal in a certain, and probably not small, proportion of cases evidences of antecedent ulceration of the stomach. The period of intense or active ulceration is so well developed that it is referred to as an "attack" lasting some days or weeks. After this there is a period of quiescence. But at no long interval of time there are troubles which are grouped under the widely comprehensive term "indigestion." Grumbling discomfort or sub-acute pains are experienced two or more hours after food, and thereafter increase gradually in severity. Vomiting may occur, and the ejected material is seen to consist of ill-digested food, the taste of which is bitter and nasty. As the case becomes more chronic pain becomes less aggressive, but a sense of distension and of local anger after meals is commonly present. Vomiting occurs at increasingly long intervals. The stomach during, perhaps, many days gradually fills with food, which is there stagnant and undigested. When the limit of capacity is reached there is an attack of vomiting, terrific, gushing, copious. In the ejecta, foods taken days before may be recognised unaltered, or the taste of them may be perceived by the patient. After this outburst there is quiet for a few days, when the stomach, again distended, is again emptied. Meanwhile, the health of the patient suffers; he loses flesh, becomes sallow, pinched, and withered in appearance. Thirst is always present, and the mouth and tongue are dry, harsh, and hot.

The frequency and the severity of the pain depend not upon the dilatation of the stomach, but rather on the activity of any ulcer which is present. An ulcer of the pylorus or duodenum which is embedded in a mass of cicatricial infiltration which it has produced probably heals with difficulty, and when healed is liable with trivial hurt to break down. There is no grievous pain unless ulceration or adhesions are present. A dilated stomach causes merely a passive and endurable sense of fulness, weight, heat, and increasing discomfort. If ulceration be present there will probably be local tenderness in the epigastrium, pain in the lower dorsal region, and occasionally gastrorrhagia and melæna.

When the symptoms of pyloric stenosis, apart from ulceration, are alone present, the patient is not long in recognising that his bodily comfort and sense of well-being are dependent upon his maintaining a moderately empty stomach. Vomiting is therefore self-induced, or the aid of the stomach tube is invoked. The relief experienced from lavage is very considerable, and is as a rule instantly appreciated; but after months of its employment the unbroken and inevitable routine becomes often irksome and distressing.

In all cases of gastric dilatation, even the most passive, there are occasional outbursts of acute pain, more frequent vomiting and retching, and occasional hiccough. In general a distinct irritative cause for these inflammatory attacks can be remembered.

In the surgical treatment of the various cicatricial conditions found in and around the pylorus, any of the following operations may be found necessary:

1. Pyloroplasty, gastroplasty.

2. Gastro-enterostomy.
3. Pylorotomy.
4. Gastrolysis.

PYLOROPLASTY.

Pyloroplasty, or the transverse division of the stricture and the stitching of the wound in a vertical direction, is an operation of limited applicability.

The cicatricial processes occurring in an ulcer situated at or in close proximity to the pylorus, result, as I have mentioned, in permanent stenosis and contractions of widely variant form. In the first variety described above, the narrow annular, or partially annular, stricture, pyloroplasty is the simplest operation, and is attended by small risk and by great and lasting advantage. In cases of pyloric spasm it is theoretically more appropriate than any other operation. The incision dividing the stricture must be at the least 2 inches in length, and may with advantage be more.

It has been said that the risk of subsequent contraction of the scar in pyloroplasty is an emphatic reason for the preference being given in all cases to gastro-enterostomy. The recurrence of stenosis is due, I think, rather to fault in selection on the part of the operator than to any inherent malice in the method. Three points in this connection deserve special attention in order to ensure success.

1. The scar of the ulcer must be small in size, especially in width, and be sharply defined. There must be no cicatricial infiltration with the exception of the small sclerosed area and the bowel walls must be soft and supple.

2. The incision dividing the stricture must be of adequate length, and must be continued on each side, well into healthy tissue.

3. There must be no peripyloric adhesions of any, even the most trivial, kind.

In appropriately selected cases there can be, I believe, no likelihood of recurrence.

GASTRO-ENTEROSTOMY.

Gastro-enterostomy is in my experience an operation far more frequently called for than pyloroplasty. In the third and fourth varieties I have mentioned of pyloric stenosis following ulcer it is the method of choice, and as these forms are decidedly more frequent than all others, the operation must in consequence have a far larger scope.

In performing this operation in malignant and non-malignant cases, I have used Murphy's button, Laplace's forceps, and simple suture, and have united the jejunum on all but two occasions to the anterior wall of the stomach. Murphy's button is an instrument that must be used when the utmost haste is desirable, as, for instance, in cases of malignant disease, with incessant uncontrollable vomiting, well-established cachexia, and progressive collapse. No mechanical appliance is then so satisfactory. The risks of the button are, however, not inconsiderable; death has resulted from perforation and intestinal obstruction, and later operations have been demanded for the removal of the button from the stomach.

In using the instrument it is not necessary to carry out the operation in the manner advised by Murphy. The purse-string suture is needless, probably is actually harmful. An incision is made in the stomach or intestine of just sufficient size to admit the half of the button; after its introduction the incision is partially stitched up by one or at the most two Lembert sutures, so placed that the cylinder of the button is tightly gripped by the edges of the bowel wound. If the suture is introduced to the left of the cylinder on the stomach side, it should be to the right on the intestinal side, so as to ensure a greater accuracy of serous coaptation.

Laplace's forceps I have used on three occasions, and will never use again. In my last case a second operation was called for owing to a return of the symptoms, and I found the opening made at the previous operation completely closed. I had used the forceps frequently in the *post-mortem* room, and twice on the living, and I had become, I think, reasonably skilful in their management, so that I cannot but consider that the instrument itself was the cause of failure. The method of simple suture is the one I have adopted in my last 4 cases, malignant and non-malignant. It is with practice possible to apply the suture without haste in from 4 to 8 minutes, and greater speed than that is rarely necessary.

One unquestioned advantage gained by the use of mechanical appliances seems to me to be the security that they give during the period when the operator is making himself adept in the technique of intestinal manipulations.

Operation.

I perform the operation as follows:

The abdomen being opened by an incision about three-quarters of an inch to the right of the linea alba, the jejunum is sought for by passing the finger down to the left of the spine and feeling for the inferior duodenal fold. Immediately above and to the right of this is the duodeno-jejunal flexure from which the jejunum can be traced. A loop of this bowel is then pulled out, emptied and constricted by an elastic ligature. The stomach is pulled into the wound from above, and a long strip of gauze is packed all round the two viscera. A continuous silk suture is then applied for 3 inches, uniting the jejunum to the stomach along an oblique line, whose higher end is towards the cardiac orifice. The jejunum and stomach are then in turn laid open in the following manner. An incision 2 inches to 2½ inches long is made through the serous and submucous coats only; as they are divided they retract, and an ellipse of mucous membrane over half an inch wide in the centre, and narrowing off at each end, pouts into the wound. Two pairs of nibbed forceps, one toward each end, grip and pull upon the ellipse of mucous membrane, which is then excised. A close continuous catgut suture then unites accurately the posterior edges of divided mucous membrane, and at one extremity is tied to a separately knotted suture, which then is carried round, uniting the anterior lips. Finally, the serous membrane in front is united by a continuous silk suture. I believe the removal of this ellipse of mucous membrane and the accurate suture of the edge to be advantages, in that they tend to prevent the closing of the anastomosis from swelling or pouting of the cut edge.

After the anastomosis is complete, I apply two or three sutures to the proximal portion of the jejunum to fix it to the stomach at a higher level, and one or two to the distal portion near the greater curvature. To this disposition—which I adopt, whatever the method of suture—I attribute the absence of the regurgitation into the stomach or bowel contents, which has been so frequently remarked. It is important in applying the sutures to make sure that the opening in the jejunum is at that part most distant from the mesenteric attachment. There is a tendency to apply the side of the jejunum to the stomach, and thereby to invite the formation of a spur, to which has been attributed importance as a causative factor of regurgitation. It has been frequently observed that regurgitation after the use of the Murphy button is most unusual, and I believe this to be due to the fact that the intestinal half of the button must be introduced at the portion opposite to the mesentery.

PYLORECTOMY.

Though I have opened the abdomen at least half a dozen times in the expectation of doing this operation, I have never yet performed it. Pylorotomy may be the operation of the future, but most emphatically it is not the operation of today. In cases of simple pyloric stenosis it can only be called for when a definite tumour has been formed by cicatricial infiltration and induration, round an old-standing ulcer to such an extent and in such a manner that a doubt is felt as to the character of the tumour, a doubt which only microscopic examination can resolve. Pylorotomy performed then is the only proper course. To remove a pylorus which is known to be the seat of cicatricial changes only is unnecessary, for a simpler and far safer operation is equally effective. And so far as malignant disease is concerned it has seemed in my own cases that as soon as the disease can be recognised as malignant before operation it is no longer local, and therefore no longer capable of being completely removed.

AFTER-RESULTS OF GASTRO-ENTEROSTOMY.

After gastro-enterostomy the stomach, if previously largely dilated, undergoes a very decided diminution within the first three weeks. In none of my cases has the organ returned to its normal size. In one only has there been any difficulty arising from the narrowing of the newly-made anastomosis, and that was the fault of the mechanical appliance used at

TABLE OF OPERATIONS FOR NON-MALIGNANT DISEASES OF THE STOMACH.

Pyloroplasty (for Pyloric Ulcer and Stenosis).

Name and Date.	Sex.	Age.	Condition Found: Operation.	Symptoms and Description.	Result.	Remarks.
T. W., Aug., 1899	M.	38	Scar of ulcer exactly at pylorus, puckering, but no adhesions. Pyloric channel equal in size to a No. 8 or 9 catheter. Pyloroplasty	Twelve years ago had "ulcerated stomach," a sharp illness lasting about a fortnight, attended with extreme pain in epigastric region and on the right of that, frequent vomiting, but no hæmorrhage. More or less indigestion ever since this attack; has never felt able to eat indiscriminately, but has carefully selected his diet. Now marked dilatation of stomach, and obvious peristaltic contractions. Vomits every three or four days, in large quantities. On examination of stomach contents, free HCl is found	R.	Quite well in August, 1900. Has gained a stone, and eats "anything."
A. H., Sept., 1899	M.	36	Scar of ulcer at pylorus, no adhesions, but decided limited thickening—pyloric channel just admits a director. Pyloroplasty	When 18 years of age had an illness, which his medical attendant at that time told him was due to an "ulcer on his stomach." For the last 18 years (half his life) has had daily attacks of indigestion, except for a period of nearly 2 years, which terminated six years ago. Has lived for last 3 or 4 years entirely upon fluids. Has tried all medicines without lasting advantages. For 12 months has washed the stomach out daily once or twice. Now has pain after every meal, beginning about 2 hours after, and lasting until vomiting is induced, or lavage is employed. Stomach dilated, and splashy. Wave-like contractions very distinct. Nothing felt on palpation over pylorus	R.	Patient writes: "Restored to perfect health after 18 long years of suffering. I am heavier than I have ever been before."

*Gastro-enterostomy (for Pyloric Ulcer, Thickening, and Adhesions).**(By the aid of mechanical appliances.)*

E. B., Jan., 1900	F.	41	Thickening at pylorus, and along first portion of duodenum, with contraction and many adhesions. The adhesions were carefully broken down. A gastro-enterostomy was performed with the aid of Laplace's forceps; the operations being very simple and speedy	At age of 16 had an illness, attended with the vomiting of blood, on one occasion in large quantity. Pain after food ever since, at times better, at times worse. Diet has been carefully and rigidly supervised. In June, 1899, pain began to be much more acute, and vomiting, which before had been inconstant, now became frequent. Large quantities (4 pints) were vomited. On examination of abdomen, a large contracting stomach seen. Nothing abnormal felt over pylorus	R.	Quite restored to health. Eats well, and suffers no pain.
F. S., Feb., 1900	M.	35	Very dilated stomach, with pyloric contraction, some thickening, and many adhesions. Gastro-enterostomy with Laplace's forceps	Prolonged symptoms of chronic ulceration of stomach with hyperchlorhydria. Under medical treatment (bismuth and morphine about two hours after meals, etc.) he improved for a time, but eventually treatment induced no improvement. Since June, 1899, has been steadily losing ground. Pain and vomiting severe and disabling, and of daily occurrence. On examination a large and contracting stomach	R.	"Has been very well since the operation."
A. B., Jan., 1900	M.	55	Enormous stomach. When distended with two seidlitz powders, the outline of the greater curvature descends behind the symphysis pubis. An ulcer was found at the pylorus extending onwards into the duodenum, cicatricial contraction very marked, adhesion to liver. Gastro-enterostomy by the aid of Laplace's forceps, and separation of old adhesions This patient returned to hospital in March, meal, consisting largely of boiled peas, there was an attack of pain and vomiting, and from that date the symptoms gradually returned. On admission his condition was practically the same as before operation. The abdomen was again opened, and a second gastro-enterostomy, with the aid of Murphy's button, performed. The opening made at the first operation, between the stomach and intestine, was practically closed. Patient made a good recovery. When seen in September, 1900, he said he was "never better in his life," had gained over 2 stone in weight, and had no gastric anxieties or discomforts.	Dyspepsia for 10 or 12 years, culminating 5 years ago in an "attack" which lasted 2 weeks, and was remarkable for the severity and continuance of epigastric pain, and the persistence of vomiting. Since this attack, has had periodic seizures of copious vomiting, at intervals of 3 to 6 hours, varying greatly in severity, but generally not amounting to more than discomfort. On one occasion in hospital the vomited matter measured 5½ pints. The stomach was huge and flabby, but contractions were always visible. HCl present After the operation there was considerable relief for about a month. Then after a heavy meal, consisting largely of boiled peas, there was an attack of pain and vomiting, and from that date the symptoms gradually returned. On admission his condition was practically the same as before operation. The abdomen was again opened, and a second gastro-enterostomy, with the aid of Murphy's button, performed. The opening made at the first operation, between the stomach and intestine, was practically closed. Patient made a good recovery. When seen in September, 1900, he said he was "never better in his life," had gained over 2 stone in weight, and had no gastric anxieties or discomforts.	R.	Patient reports himself "as well as ever he was in his life, and able to eat anything."

Gastro-enterostomy (by Simple Suture).

S. H., Aug. 1, 1900	F.	49	Hard cicatricial ring at pylorus, a few adhesions, chiefly to liver; the finger, invaginating the anterior wall of the stomach, feels and recognises the pyloric orifice merely as a dimple. Gastro-enterostomy by suture without mechanical appliances	Nine months ago first noticed pain in epigastric region after eating; 5 months ago first vomited; pain and vomiting speedily increased in frequency and severity. Now the pain commences about one or two hours after food, and continues until vomiting comes on spontaneously or is induced. No blood has ever been noticed in the vomit. No solid food has been taken for 2½ months; the chief diet is milk and soda. Considerable wasting. A dilated stomach is obvious on examination. On distension by seidlitz powder, the greater curvature descends 2½ in. below the umbilicus, and contractions faint, but distinct, are seen. Free HCl	R.	"Complete relief"
J. H., June, 1900	M.	32	Dense ring at pylorus, sharply defined, and about ½ inch in breadth. A few adhesions which separated readily. Gastro-enterostomy without mechanical aid	Symptoms of ulcer, "acid dyspepsia" 10 months ago; relieved for one month by bismuth and morphine. For 7 months severe pain after all foods, worse about two hours after a meal. Vomiting every two or three or four days up to three months ago, since then almost daily. Stomach dilated and contracting. Lost 2 st. in weight. Free HCl	R.	Has regained lost weight, and can eat heartily without discomfort.

Gastrotomy.

M. S.	F.	55	Many adhesions round pylorus, gall bladder, and bile ducts to abdominal wall and omentum. Some of the more fibrous adhesions clearly obstructing pylorus. Adhesions all freely separated.	Three years' symptoms. Epigastric and right hyponochondriac pain radiating to right and left scapular regions; paroxysmal vomiting irregular and capricious, never severe. Is chiefly concerned about the persistence and intractability of the pain. Stomach decidedly large. The area corresponding to upper portion of right rectus is very tender, and the resistance here is marked	R.	Convalescence retarded by an attack of bronchitis, due probably to the anæsthetic. Reports herself in October as entirely free from pain, and gaining steadily in strength.
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*Hour-glass Contraction of Stomach following Ulceration.
Gastroplasty.*

Name and Date.	Sex.	Age.	Condition Found: Operation.	Symptoms and Description.	Result.	Remarks.
B. D. Aug., 1899	F.	39	Hour-glass stomach; the narrow constriction being near the middle of the stomach, and adherent to the anterior abdominal wall over an area equal to a crown piece. On each side of this the stomach dilated, and seemed to be anchored by the adhesion. On separating the stomach from the abdominal wall, an opening into the viscus was exposed, and stomach contents escaped. This opening was enlarged transversely, and the wound and fistula stitched up vertically. An omental graft was brought to cover in the sutured area, in order to guard against future anchoring.	Ten years ago an illness characterised by profound anemia. Seven months ago clear symptoms of ulcer of the stomach, but neither then nor at any time any acute illness suggestive of perforation. Now vomits after all ordinary food, and more often than not even after small quantities of fluid food. Pain after food is exceedingly severe. On examination of abdomen a dilated stomach can be felt. At one point, a little to the left of the middle line, and slightly below the ensiform cartilage is an area 2 ins. in diameter, which is markedly tender, and offers increased resistance on palpation. This area was found, at the operation, to correspond precisely with the area of stomach adhesion. Patient has lost weight, and deteriorated seriously in general health during the last few months	R.	For a month after the operation, pain at times, and loss of appetite. Since then has been free from pain, and in excellent health. Appetite and digestion good.
M. P. April, 1900	F.	27	Hour-glass stomach. The constriction was about 4 ins. from pylorus, the passage between the two sacs equalled a No. 12 catheter in diameter. There was marked induration and puckering, but no adhesion to the abdominal wall or elsewhere. The strictured neck was divided by an incision about 2½ ins. long in the transverse direction, and stitched up vertically, the mucous membrane with a continuous catgut suture, and the serous with a continuous silk suture. Two additional interrupted sutures were applied at each end of the wound	No history of gastric ulcer. Has complained of irregular attacks of pain in epigastric region for 11 months, always associated with the taking of food, and coming on about one hour after a meal. Vomiting occasional and irregular, in rather large quantities: no blood. On examination, stomach distended and splashy; contractions seen when distended. Medical treatment has proved unavailing	R.	Vomiting for 5 days after the operation, blood-stained. Since then perfectly well.

N.B.—Eleven operations on 10 patients; all recovered.

the operation. The second operation in this case has been perfectly successful.

There can, I think, be now no doubt that in all cases of gastro-enterostomy, performed by whatever method, there is invariably and almost continuously some bile present in the stomach. The presence of bile and pancreatic juice in the stomach was formerly considered to be a matter of serious import, and even to be lethal. A case of my own, however, in which all the bile and all the pancreatic juice had, after suture of the duodenum at the duodeno-jejunal flexure, to pass into the stomach through the pylorus, and thence into the jejunum implanted in the anterior wall of the stomach, suffered no disability of even the most trivial kind. Bile and pancreatic juice in the stomach do not affect in the least the health, comfort, or general well-being of the individual. The supposed advantages of posterior gastro-enterostomy in preventing regurgitation of these fluids are therefore not worth considering. Moreover, Chlumskij, in reporting 10 cases in which the parts were examined *post mortem* after gastro-enterostomy by suture, says that in not one of them was the opening found of sufficient size, and this he attributes to inaccurate suture of the mucous membrane. It is necessary therefore to make an opening which appears decidedly larger than is necessary. If this be done, and if the mucous membrane be removed in the manner I have described and accurately sutured, there will be, in my opinion, no fear of undue contraction at any subsequent period.

The improvement in the health and general condition of the patient after successful gastro-enterostomy is most striking. Appetite returns with the power of appeasing it. Food is taken with relish, pain is altogether lost, weight is gained, sometimes with amazing rapidity, and the patient experiences that "joie de vivre" which comes with a return to bodily health.

In the table of operations are:

2 cases of pyloroplasty.
2 cases of gastroplasty for "hour-glass" contraction of the stomach.

6 cases of gastro-enterostomy (2 by simple suture, 3 by Laplace's forceps, and 1 by Murphy's button).

1 case of gastrolisis.

All the patients recovered from the operation are still living, and all are completely relieved of those symptoms of gastric disturbance which made operation imperative.

CASE OF HOUR-GLASS STOMACH AND PYLORIC STENOSIS: GASTRO-ENTEROSTOMY: DEATH.

BY
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THIS case deserves record, inasmuch as it was one of double constriction of the stomach, non-malignant in character, in a young woman, for which gastro-enterostomy was performed. Unfortunately, however, this was done in the second compartment of the stomach, so that, although the operation itself was successfully carried out, no relief to the symptoms was obtained, and death ensued.

REPORT OF CASE.

History.

The patient was a female domestic servant, aged 25, single, and was admitted into the hospital, complaining of pains in the stomach, vomiting, and flatulence.

Up to the age of 20—that is, five years before admission—she had had no serious illness, but had suffered to some extent from indigestion of food, the chief symptom of which had been pain in the stomach, which became worse after meals. This continued for five years before the onset of her serious illness. It must be considered, therefore, that the total duration of symptoms referable to the stomach was ten years. Five years before admission the patient began to vomit after taking food; severe pain preceded the vomiting, which relieved it. At no time was any blood brought up. The vomiting has persisted ever since, but not continuously, there being intervals in which she was able to retain food. The pain, which was formerly relieved by the vomiting, had become constant for a few months before admission. It was of a gnawing character, and was situated about the middle of the abdomen. Flatulence had been also a troublesome symptom. During the five years of her illness the appetite had never been good, and the bowels had been constipated. Up to two years before admission the patient could take the ordinary diet of her class, but during this period she had been living on bread and butter, boiled