wait until a recurrence has actually occurred, and then to remove the appendix in the early hours of the second attack. An exception should, of course, be made where a patient is so situated that early surgical assistance would not be available.

In conclusion, then, I maintain that, for a disease which in its early stages is a purely local infection, appendicitis has yet far too high a mortality. Early removal of the infected appendix is the only means we have of reducing the mortality to a minimum, and will, I am convinced, ultimately become the generally adopted rule of practice.

THE TREATMENT OF COMPLICATIONS AND SEQUELAE OF GASTRIC AND DUODENAL ULCERS.*

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I wish to draw special attention to only one of the many complications of gastric and duodenal ulcers, and that is as to the immediate treatment of perforation of ulcers situated in either of these viscera.

At present it is a surgical dictum that prompt surgical interference is the right and proper treatment when this calamity occurs, and the earlier the abdomen is opened and the ulcer closed the higher will be the percentage of lives saved. I do not think that any medical man will question the wisdom of treating these cases by operating early, rapidly, and skilfully; but the circumstances and the conditions are frequently such that it is not only difficult, but impossible to carry it out.

It is everybody's experience to hear histories of cases which point to perforation, the patients having recovered or died without operation; it is necessary to examine very carefully under what conditions recovery took place without surgical interference.

It is not possible in most cases to judge or to form opinion from the history of a case, or from the condition of the patient, whether the perforation be small or large, or to locate its anatomical position with precision; but what we do know is that perforation usually takes place when the stomach is full and not when it is empty, and we also know that the majority of such patients rapidly slide downwards towards a precipice with the valley of death below if Nature is left unaided whilst waiting for the coming of a surgeon.

I desire to invite your attention to a method of treatment which seems to me to be the most rational, and it should be carried out as a matter of routine and without delay in every case pending surgical interference.

The natural forces which cure cases of perforation vary according to the symptoms from which the patient suffers, and these symptoms have been described as beneficent, in the sense that they call forth some reserve force to attempt to prevent extravasation of the contents of the viscera into the peritoneum. I would tabulate the symptoms and their indications as to what we should do to assist Nature to get on the right path to cure. For example:

1. *Collapse* makes the patient assume the horizontal position, and stops peristalsis of the intestine and prevents the force of gravitation in disseminating the visceral contents towards the lower part of the abdomen.

2. *Tenderness and rigidity* of the abdominal walls indicate that palpation and manipulation of these must be harmful and dangerous.

3. *Cramp and colic* make the patient draw up his knees and roll from side to side; by so doing he gives the great omentum an opportunity of getting nearer the seat of the perforation.

4. *Thirst* indicates that water is needed in the system, and therefore it should be given, but not by the mouth.

5. *Vomiting*, when it takes place (usually does, I believe, in cases which recover without operation), indicates the use of a stomach pump.

We know from recent war experiences that Nature has cured a large number of bullet perforations of the stomach,

* A paper read before the South Wales and Monmouthshire Branch of the British Medical Association.

and that the conditions under which such happy results have taken place were:

1. The patient had an empty stomach when shot.
2. He had no food nor drink given him for long hours afterwards.
3. Suffered from shock.

We also know that a complete tear across the jejunum has been temporarily mended by natural processes under similar circumstances of profound shock and no food.

Knowing all these facts, which demonstrate that conservative surgery of a very high order can be performed by the peritoneum and the omentum under favourable conditions, therefore we must act in like manner in ordinary cases of perforation of the stomach and duodenum, and I think the proper treatment should be the following:

1. Place the patient in the horizontal position.
2. The administration of morphine in sufficient doses to relieve pain and to check peristalsis.
3. The avoidance of palpation and manipulation of the abdomen.
4. The emptying of the stomach by means of a stomach pump. Ordinary siphonage is unsatisfactory, because the solid contents of the stomach cannot be thus satisfactorily removed.
5. No food nor drink to be given by the mouth.
6. The abdomen should be covered with several inches' thickness of cotton-wool and bandaged.
7. Water and food to be given by the rectum only.

Never blister the abdomen in acute abdominal pain of unknown cause. It is not only a pernicious habit, but it very seriously interferes with subsequent surgical interference when required; one so often sees blisters applied in abdominal trouble that it is necessary to protest against the habit until it is discontinued.

The principles which Dr. Ochsner of Chicago has so clearly laid down for the treatment of cases of perforative appendicitis which have not been subjected to an early operation should, I think, be applied also to cases of perforation of the stomach at the earliest possible moment. If necessary, a local or general anaesthetic should be given in order to completely empty the stomach, and I feel convinced that many lives could be saved if immediate medical treatment on the above lines were adopted instead of wasting valuable hours in the search for a surgeon.

In two cases of perforative peritonitis in which I operated, I simply mopped out gastric contents from the abdomen, drained and washed out the stomach. The patients were *in extremis*, and only the slightest surgical interference was justifiable, yet both recovered without my closing the perforations.

When I operate for perforation of the stomach, of course, wherever possible, I suture the opening, but I have joined the school which simply mops out quickly the peritoneum and drain according to circumstances, suprapubically, loins or vagina, according to the exigencies of the case.

I have given up for some years flushing out the abdomen with normal saline solution, as I had a series of four deaths and then a series of recoveries by the "other method." I have never adopted the still more radical method of evisceration and leaving the abdominal wound open; it seems to me to be founded upon want of confidence in natural processes of repair and of misplaced confidence in bacteriological considerations. The practice is revolting and barbarous, and seems to me to be unscientific.

The sequelae of duodenal or gastric ulcers are so numerous that time will not allow me but to touch upon one aspect of the question. It is important for the surgeon to have an open mind as to what particular operation, if any, he will perform after opening the abdomen upon patients who are "chronic dyspeptics" from the effects of ulcers. During the last three or four years the operation of gastro-jejunostomy has been so highly lauded as a curative agency in these cases that some surgeons to my knowledge have advised it before seeing what the actual conditions were within the abdomen; under these circumstances an unnecessarily severe operation may be performed upon these cases unless careful examination be made of the conditions of the viscera suspected of causing the trouble.

The following case is a striking example of the curative

effect of a simple and safe operation on a lady who had been a martyr to indigestion for over twenty years. She was a patient of Dr. C. C. Shepherd, of Cardiff, who suggested that surgical interference might be desirable, and sent her to me.

History.

Since 1883 Mrs. X. had suffered from indigestion and had consulted doctors in many provincial centres and London. Her history pointed to probable perforation of the stomach in 1883. When I saw her she was pale and very emaciated, and it was feared she had become a morphinomaniac. Her dyspeptic symptoms were purely subjective, and no tumour nor displacement of the stomach could be made out, and it could be distended with air without suffering; she had tenderness over the right hypochondriac region. Pain after taking any food, either solid or liquid, was so bad that she had been taking sedatives for over four years at least twice a day.

Operation.

On May 2nd, 1903, Mrs. X. was anaesthetized by Dr. C. C. Shepherd, and Dr. W. S. Haughton, of Dublin, was present at the operation. I opened the abdomen, and found the stomach and the first part of duodenum to be healthy, but on drawing up the liver I discovered that the under surface of the gall bladder and beginning of the cystic duct were adherent, and caused kinking at the angle of junction of the first and second part of the duodenum. By drawing the liver and gall bladder upwards and the duodenum downwards the adhesions were easily divided; they were about $1\frac{1}{2}$ to 2 in. long; the raw surface on the gall bladder and the duodenum were covered with peritoneum.

After-History.

The patient on the third night after the operation stated that her old pain had disappeared, and that she did not need any morphine. From that day she has been quite free from indigestion, and has not taken any more drugs for it.

In 1903 I used to perform gastro-jejunostomy *en Y*, and if one had overlooked or failed to discover the real cause of her trouble, one would have been tempted to do the operation I had a bias for at the time on account of the wasting and severity of the subjective symptoms; but the fact that the patient took morphine would have made me hesitate to do such a severe operation considering that there was no evidence of old disease of the stomach or pylorus. I would, therefore, wish to emphasize the scientific importance of having an open mind as to what operation, if any, should be performed upon chronic dyspeptics until the abdomen is opened; if the surgeon finds no evidence of old disease of the stomach and duodenum, nor contraction of the pylorus, it is wise to close the abdomen without risking life by doing a gastro-jejunostomy, for old dyspeptic symptoms usually recur as soon as the irritative effects of the operation have passed away. It is better to encourage such patients to face their "normal conditions of sailing" than to submit them to an operation which will bring undesired reproach upon it and discredit to the operator.

SOME OBSERVATIONS ON NEPHRECTOMY,

WITH STATISTICS OF A SERIES OF CASES OPERATED ON DURING THE LAST TEN YEARS.*

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MR. PRESIDENT.—The subject I wish to bring before the Society to-night was suggested to my mind by an exceedingly interesting case under my care in hospital. Apart from the interest of the case itself, the methods of investigation employed to determine whether nephrectomy was permissible are so generally applicable, that I think I cannot do better than place on record full details concerning this patient as an introduction to some further observations.

Mrs. —, aged 41, was admitted under my care on January 14th, 1907, complaining of severe pain in the region of the left kidney. Five months previously a stone had been removed from this kidney in another hospital; the operation gave relief until the patient resumed active life, when pain returned with greater intensity than before. The pain supervened at night as well as by day and at varying intervals of time; it did not partake of the nature of ordinary renal colic, but was described as a tense, full feeling in the left side of the abdomen, as though something would burst, and was not accompanied by vomiting. The left kidney could be palpated bimanually, and was found to be enlarged somewhat, but it

was not tender unless an attack of pain was being experienced; the right kidney, which was freely mobile, could also be palpated, but it was not tender, nor did it appear to be enlarged. The past history was of great interest. Ten years ago, after a bad confinement, a vesico-vaginal fistula formed, which was treated by the late Lawson Tait by suprapubic section of the bladder. The fistula was completely closed, but almost from that time discomfort was experienced in the left kidney; this steadily increased, and was associated with hæmaturia occasionally.

Examination of the urine during several days after admission to hospital showed an unsatisfactory excretion; the amount varied from 30 oz. to nearly 40 oz., the specific gravity from 1007 to 1012; a small quantity of pus was always present and an occasional cast; the amount of urea varied from 120 to 180 grains, the patient taking an ordinary mixed diet and lying in bed.

In considering what means should be adopted to give relief to the pain, which was extremely disabling to the patient, the possibility of nephrectomy had to be kept in mind. The elimination of waste products, as shown by the quantity of the urine, its specific gravity, and the amount of urea excreted, all indicated that there was but a small margin of safety, which might easily be jeopardized if the left kidney were functioning and were removed, thus further reducing an already insufficient excretion.

The past history of a plastic operation for the cure of a vesico-vaginal fistula and the persistent trouble in the left kidney, beginning almost immediately afterwards, suggested that the left ureter was stenosed and the kidney pelvis dilated; the enlargement of the left kidney and the character of the pain confirmed this view.

To obtain more complete information two further methods of investigation were employed—cystoscopy and separation of the urine from the two kidneys. Cystoscopic examination failed to recognize the orifice of the left ureter; its position and the median portion of the trigone were obscured by scar tissue. The right ureteral orifice was easily found, but the ureteral bar was distorted, and the orifice looked upwards and outwards to the right lateral wall of the bladder. Separation of the urine was effected by Luys's separator, the instrument being retained in position for forty minutes, during which time about 3vj were collected from the right ureter, and practically none from the left. Everything therefore pointed to the left kidney being entirely disabled, and so far enhanced the value of the right, from which the whole of the urea excreted was derived. A quantity of urea, often below and never above 180 grains, and the low specific gravity of the urine, together with distortion, and probably therefore some embarrassment of the right ureteral orifice, hinted strongly that the efficiency of the right kidney was damaged. Methylene blue did not colour the urine until thirty-six hours had elapsed after its administration.

Under these circumstances it was determined to expose the left kidney by lumbar incision, and to do nephrectomy only if no alternative course seemed feasible. As in nearly all secondary nephrectomies freeing of the kidney was difficult, but was thoroughly effected, and the organ brought out of the wound for investigation. Stone was recognized in the pelvis and in the dilated calyces; the pelvis and ureter were both considerably dilated. The ureter was opened and a bougie passed down it, which stopped abruptly close to the bladder; smaller bougies were tried, but nothing passed through the obstruction. Mere removal of the calculi was, in the face of the facts recited, little likely to give relief to the symptoms complained of; nephrectomy was therefore performed. As a final precaution, the peritoneum was opened in the anterior part of the wound and the right kidney examined with the hand; its mobility was confirmed, but no gross change, such as dilatation of its pelvis or calculus, could be detected in it, which, so far as it went, was reassuring. The artery, vein, and ureter of the left kidney were ligatured separately and the organ removed.

An uninterrupted recovery followed without incident of any kind. The excretion of urea on the day of operation was 180 grains, and for the three following days respectively it was 330 grains, 520 grains, and 315 grains. Gradually this enhanced excretion fell to about 250 grains on the tenth day, and to 160 grains on the eighteenth day, the quantity of urine being 50 oz., of specific gravity 1010. The diet taken was an ordinary light diet, much as before the operation. Clearly the right kidney is damaged but is at present sufficient. It responded, as I have often noticed that these kidneys do, after removal of the other extensively diseased organ, to the stimulation of an increased blood supply, or to some other perhaps unrecognized factor, and the urea output ran up enormously; but the increase was only a temporary one, and this I find to be usual after nephrectomy.

What is the normal amount of urea excreted by a healthy person? The physiological textbooks estimate it as about 500 grains, but this presumably means by a person actively employed, and on a full nitrogenous diet. Certainly nothing like this prevails in patients lying in bed, and taking a light diet of fish, chicken, vegetables, milk, bread, and tea. In my hospital patients, before they are submitted to any considerable operation, the

* A paper read at a meeting of the Midland Medical Society, March 27th, 1907.