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A NEW OPERATION FOR GASTROSTOMY AND ONE FOR CURETTEMENT OF CARCINOMA OF THE CARDIA.*

Demonstrated upon the Cadaver of Dogs.

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I.—GASTROSTOMY.

THE operation of gastrostomy, when utilised for the relief of conditions in which, either through malignant disease or otherwise, it is impracticable to introduce food into the stomach by the natural route, requires for its success two essential conditions. First, that the operation shall be simple and safe; and, secondly, that after the operation there shall be no leakage of stomach contents through the external wall.

The operation itself under modern antiseptic methods is not a perilous one; thus the first essential is not a source of difficulty. The prevention of leakage of the stomach contents, however, with its consequent irritation and inconvenience, is quite another matter, and various devices have been adopted to meet this requirement. In all cases either the valve or the sphincter principle has been adopted in one form or another; either directly, by means of folds of the stomach wall, or indirectly, on the principle of the uretero-vesical valve by means of a long oblique passage from outside into the gastric cavity. This latter has met with most favour, and is carried out either by making a fold in the stomach wall, as in the method of Witzel, by carrying the fistula obliquely through the stomach wall, as in the methods of Andrews and Fischer, or by making a fold in the stomach wall and carrying it obliquely through the tissues so as to make a canal, as in the Ssabanejew-Franck operation. The direct method of using folds of the stomach to act as sphincters or valves, is, in its way, illustrated by Kader's operation, and by the one which I am here going to describe.

My method was devised by me in the year 1894, and experimentally demonstrated in my lectures before the Jefferson Medical College, February, 1896.¹ It consists essentially in the production of a valvular fold in the passage to the stomach by infolding the stomach wall. The steps after the preliminary incision and exposure of the external stomach wall, which can be done according to any approved antiseptic method suitable to the individual case, are: A fold of the anterior wall from above downward is made and secured for the distance of an inch or more by three stitches. A stitch is introduced through the stomach wall near the lower edge of this fold, and both ends of the thread pass through a perforated trocar which, with its cannula, is held transversely across the fold. The point in the stomach wall where the stitch is inserted is the point of selection for the entrance of the trocar, for which the thread is intended as a guide. The fold first made is now stitched over the cannula and another fold taken up from the bottom is stitched over this. The ring is next sutured to the peritoneum and posterior wall of the rectus fascia. This being done the trocar is pushed into the stomach cavity and withdrawn, leaving the cannula in place; the guiding thread is also withdrawn. The wound is closed, leaving the cannula *in situ*, and the operation is complete.

Taken in separate stages the operation may be analysed as follows:

1. Folding the anterior wall and securing it with stitches.
2. Bringing this fold together around the cannula and stitching it there.
3. Inserting guide thread at point of selection, and passing it through the trocar.
4. Bringing a fold up around the end of the trocar and stitching it over the ring.

* Read in the Section of Pharmacology and Therapeutics at the Annual Meeting of the British Medical Association, held in Edinburgh, July, 1898.

¹ Proc. Fr. Congress of Surgery, *Rev. de Chirurgie*, 1896, p. 867.

5. Suturing the ring to the peritoneal wall and posterior wall of the rectus fascia, pushing the trocar through into the stomach cavity, and withdrawing guide thread and trocar, and closing wound, leaving cannula in position.

The advantages of this operation which I claim for it are that it is quickly performed, and occupies less space on the anterior wall of the stomach than some of the other operations, notably Franck's and Witzel's, and that it makes a perfect valve, preventing any possible leakage of stomach contents. I have demonstrated this repeatedly on the cadaver and on living dogs. I have filled the dog's stomach with air and with water, and in neither case was there any perceptible leakage even under pressure, while by the insertion of the cannula, which is done without any difficulty, the tension is at once completely relieved.

The plan of preventing leakage by means of a valve similar to those of the veins or the ileo-cæcal valve is claimed in only two or three of the methods that have been proposed. Fontan draws out with the forceps a cone-shaped section of the stomach, fixes it *en couronne*, pushes inwards a fold of this portion and sutures it at the sides, then opens the stomach wall at the point of attachment of the forceps, and inserts the cannula. "The cannula is thus sheathed in a mitre-shaped valve formed by the folds of the gastric tissues and the contacts (*adossements*) of the serous surfaces." E. J. Senn² draws out a large cone-shaped section of the stomach and sutures it some distance below the apex with two purse-string sutures of strong catgut, enveloping these in a cuff formed from the omentum. After fixing the apex of the cone in the parietal wound an incision, one-half inch in length, is made in the centre of the exposed portion, and a rubber tube inserted. The edges of the incision are now inverted and fixed in that position by Lembert sutures, thus producing a valvular opening. This method is said to be effective, but takes time; in some cases it is made in two stages, and involves a large portion of the stomach wall. It appears to be disadvantageous as compared with the operation I have here described. As I have stated, my own device was originated as early as 1895, and used in two actual operations, and was roughly described by me in a lecture given before the Jefferson Medical College on February 10th, 1896, and published in the *Medical News* of April 4th of that year. Fontan reported his method at the French Congress of Surgery in October, 1896, and Senn's was published in November of the same year. As regards priority, therefore, of these methods, I maintain that my publication in April, 1896, though brief in its description, covers the principle of the production of a valvular opening "similar to the ileo-cæcal valve," as is indeed directly stated therein.

I have thus far applied the method on three occasions to the human subject, all of which, as far as the operation was concerned, were successful; though, unfortunately, in all three, the advanced stage of the malignant disease prevented their long survival. Two died within six weeks of metastasis to distant organs; the gastrostomy, however, functioning well. In none of the three cases was the operation in any way responsible for the fatal termination. I am in hopes before long of having some more promising cases for operation, and from results already obtained I believe that this method will take its place among the more approved operations for gastrostomy.

II.—CURETTEMENT OF CANCER OF THE CARDIA.

Gastrostomy is at best a palliative, and alimentation by the natural route is preferable when it can be maintained, even in malignant disease. If we can relieve the cardiac stricture with gastrostomy, a desirable result is attained, and one which may add materially to the patient's enjoyment of life. Occasionally, therefore, it is advisable to attempt to reduce the size of obstructive growths at the cardiac orifice of the stomach after gastrostomy, and for this purpose I have devised an instrument which I may call an oesophageal or cardiac reamer or curette, and which I have utilised in at least one instance with some success. It consists of a narrow cylinder, or more correctly a truncated cone, on the sides of which are inserted narrow knife edges at an acute angle, and slightly oblique to the long axis of the cone. Its narrow end

² *Ibid.*

³ *Jour. Amer. Med. Assn.*, Nov. 28th, 1896.

is protected by an ivory bulb, and its broader extremity is inserted into a narrow socket and attached to the revolving stem that I use in my gromele, which is protected by a flexible tube. This instrument can be inserted into the abdominal wound, and guided by external manipulation to the cardiac orifice, and there set in revolution. It can in this way remove tissue and enlarge the calibre of the oesophageal opening when occluded by morbid growths.

My first instrument of this kind was a roughly-improvised one, and yet with it I obtained results which were at least encouraging, if not completely satisfactory. I have since had such an instrument constructed upon my model which will be free from the unavoidable defects of the original, and which presumably will do more satisfactory work.

The use of this instrument is naturally indicated in cases where the obstruction is located near the cardia, and of sufficiently voluminous bulk to be safely bored out. The nature of the tumour, its rapidity of growth, etc., has also to be considered, but in a certain number of cases its utility will be, I think, established. It is easily introduced, easily guided by external manipulation to the point desired, and its ivory bulb-shaped extremity readily engages in what is left of the cardiac opening. With a correct diagnosis of the existing indication it can be used with safety; the knife edges are not sharp, its action is that of a dull rather than a sharp curette, and healthy tissue, being more resistant, is not liable to be removed. If by its aid we can restore the natural passage of the food for any length of time, we may accept it as a solid gain. I offer the instrument as an aid to an operation which in some cases may be an actual necessity, and which in all is a decided advantage if it can be performed with any prospect of success.

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ON OBSCURE HÆMORRHAGE FROM A SINGLE KIDNEY AND ITS CURE BY NEPHROTOMY.*

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At the end of the last and the beginning of the present century there was considerable talk of "hæmaturia sine materia" or "essential" genuine hæmaturia. Rayer¹ has, for instance, a whole chapter upon this subject. Later on, in the most flourishing period of etiological inquiry, little or nothing was heard about genuine hæmaturia, probably because new or hitherto little noticed causes of hæmorrhage of the kidneys were discovered. In short, in every case of severe bleeding a tumour, tuberculosis, or a hitherto symptomless stone was supposed to be the cause. Since in later years operations upon the kidneys have become more frequent, the question of genuine hæmaturia has once more most unexpectedly come to the front. This is due to the circumstance that surgeons, operating for the removal of stone, tumour, or tuberculous

deposits, supposed to be the cause of the bleeding, found the kidney apparently healthy. In some cases the kidney has been removed, the bleeding has ceased, but the microscopical examination has shown no pathological changes. These observations have given a tremendous impulse to the discussion of "hæmaturia sine materia," and there have appeared in the last few years a series of reports of cases supposed to range under this heading. These are described sometimes as "renal hæmophilia" (Senator, Broca, Passet), sometimes as "hæmorrhage of anatomically unchanged kidneys" (Piqué and Reblaud, Groslik), as "hæmaturic neuralgia" (Leguen) and by Klemperer even as "hæmaturia from a healthy kidney." These authors cannot explain the bleeding in other ways than by supposing the existence of a "local hæmophilia" or an "angioneurosis." This latter hypothesis (Leguen, Broca), that the bleeding should be caused by a nervous disposition in the patient, seems now, since Klemperer has adopted it, to be the predominating. Moreover, Klemperer has quite recently expressed the opinion that such forms of hæmaturia can be diagnosed and cured without surgical interference, and therefore that operations in such cases are not permissible.

We stand, then, face to face with an important question belonging to the borderland between medicine and surgery, and it seems to me that it is highly necessary, from the surgical side, to carefully weigh and examine Klemperer's opinion, which would cut away our hitherto settled indications for surgical interference.

I have during the last couple of years been forced to take up this matter, from having had under treatment a small series of cases of unilateral hæmaturia, which could not be explained by the usual or known causes, and I take the opportunity of submitting the results I have arrived at to your notice as a slight contribution towards the solving of this question.

A critical study of the cases reported in literature has shown me that the majority of them are most doubtful as cases of "hæmaturia from a healthy kidney." It is clear that before such a diagnosis can be pronounced every possible means ought to be taken to ascertain, first, whether the bleeding really comes from the kidney; and, secondly, whether the possibility of morbid changes of the kidney is absolutely excluded.

The cases reported in literature fall into two groups: (1) those which have been exclusively under medical treatment, and (2) those in which the kidney has been the object of palpation, incision, or removal through operation.

The cases in the first group are quite useless in deciding the question, because there is no cystoscopic examination and no necropsy of the kidney. It is, therefore, quite impossible to say whether the bleeding was due to the kidneys, the bladder, or some other part of the urinary tract, or whether the kidney really was healthy.

Therefore, we are restricted to the second group in searching for proofs of the existence of hæmaturia from "healthy kidneys." By critically examining the 12 reported cases of this kind, it will be found that very few—I think only 2 (Schede and Klemperer)—are in any way convincing. In the 2 cases named the hæmaturia ceased after removal of the kidney, the microscopical examination of which gave a negative result, and no other cause of the bleeding was discovered.

As to the other cases, it is true that the authors themselves state that they have been unable to find any actual cause for the hæmorrhage, whilst they see in the circumstance that the bleeding ceased after simple exploratory operation, a proof that the bleeding originated in the kidney and was only caused by a nervous disposition in the patient. But if you examine these cases, you will find that the patients never showed any symptoms of hysterical or other nervous disposition, while in each case mention is made of other pathological changes, which much more probably could be supposed to be the cause of the hæmorrhage. In the case observed by Senator and Israël, histological examination of the removed kidney showed "interstitial inflammatory areas"; in Lauenstein's case there was oxaluria and a distension of the pelvis, in which no blood was found (probably a stone was impacted in the ureter); in Sabatier's case there was chronic albuminuria, bacteriuria, and the microscopical

* Read in the Section of Surgery at the Annual Meeting of the British Medical Association, held in Edinburgh July, 1898.