

## POSTERIOR GASTRO-ENTEROSTOMY BY EXACT MEASURE.\*†

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For seven years past I have done posterior gastro-enterostomy occasionally, always following as closely as possible the conventional technic, but never wholly without apprehension lest there be some degree of kinking from anastomosing parts which wouldn't lie quite easily and naturally together. As I wasn't troubled over other possible mishaps, it seemed to me that, whether my fear of kinking was reasonable or unreasonable, it should be possible to remove it by some system of accurate measurement. From time to time I have tried to put such a scheme in practice but never satisfactorily until my last three (now four) cases.

To distinguish it from "no loop" and "short loop" let us style as normal the operation in which stomach and jejunum are anastomosed as they lie easily together without tension, the length of jejunum being that required for the anastomosis without suspending either organ on the other.

According to the conventional technic, one embraces in a clamp a portion of the jejunum high—as high as possible for a no-loop operation and within three inches of the top for a short loop operation. He embraces in another clamp a fold of posterior stomach wall extending from a selected point at the bottom of the stomach upward, in whatever direction he wishes the jejunum to take and anastomoses the two portions. The point is that a portion of jejunum pre-determined or selected by guess is anastomosed to the portion of stomach thought to be most favorable for drainage, but without any accurate measurement to determine whether in the given case the latter will fit perfectly to its outlet. This veritable missing link in the technic may account for some of the "inherent defects" of the operation.

In the plan which we are trying to follow, the posterior wall of the stomach having been exposed through a generous opening in the mesocolon, the omentum, transverse colon and stomach are held in the left hand with the left thumb in the slit in the mesocolon. While the upper part of the jejunum in its natural position within the abdomen is straightened out by the right hand in the desired direction, the exposed posterior wall of the stomach is laid upon it without any tension in any direction. At the point where the posterior aspect of the greater curvature of the stomach comes in contact with the jejunum a stitch is placed in each organ. A second stitch is placed in the jejunum three inches higher up. All three stitches are cut long. The points of artery clips on the first two

stitches are brought together and another stitch is placed in the stomach where the upper stitch on the jejunum comes in contact with it. If one prefers he can make the lowest part of the stomach as it lies within the abdomen or some other point along the greater curvature the starting point for this determination. According to the first plan one decides on the direction of the jejunum, and then the proper site for the anastomosis is the lower three inches of the line of contact of posterior stomach wall and jejunum. If this direction doesn't allow enough jejunum, make it more oblique. If an oblique position gives more jejunum than desired, make it more vertical. If there is no special reason for giving the jejunum a particular direction, one corresponding to the opening in the mesocolon may well be chosen as most convenient. According to the second plan one selects a point on the stomach wall which is to be the lower end of the anastomosis, and makes the jejunum conform to that without tension. The basic idea of this scheme is accuracy. It is intended to eliminate all inaccuracies of application, including torsion, flexion, and also suspension of stomach on jejunum, or the opposite. In cases without obstruction before operation, faulty application sufficient to cause symptoms of blocking should cause them at once. At least a part of the late symptoms of blocking commonly attributed to the inherent defects of gastro-enterostomy are due to faulty application, these symptoms appearing as the original obstruction disappears. In the same case a no loop operation may be either a perfect application or a suspension of the stomach or jejunum, according to the direction given the jejunum. A perfect application insures the proper length of jejunum, but that the converse is not true one can easily convince himself. By following this scheme advocates of the no loop operation can at the same time avoid torsion, flexion and suspension. Without some system of measuring, one cannot entirely exclude one or more of the varieties of misapplication. No detail that makes for accuracy should be omitted. This applies particularly to cases without obstruction or those in which as a result of operation the obstruction may disappear.

Of the three (now four) cases in which this plan was followed, each was x-rayed before operation and in each instance we found at operation frank duodenal ulcer confirming the pre-operative diagnosis. In the first, a case of Dr. G. C. Mahoney of Somerville, operated on Oct. 22, 1914, with Dr. Mahoney's assistance, and in the third, a case at the Soldiers' Home, operated on Dec. 31, 1914, the measurement was begun by deciding which direction the jejunum was to take. This gave a two and a half inch jejunal loop in one and none in the other. In the second case, operated on Dec. 28, 1914, with Dr. E. P. Starbird's assistance, the point where the greater curvature of the stomach crossed the jejunum as at first held was within three inches of the top of the jejunum so that we then se-

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lected another point on the greater curvature (in this instance the lowest point) which would allow three inches of jejunum for anastomosis when the latter was straightened out to that point without tension on either organ. In the fourth case, operated on February 27, 1915, with Dr. Starbird's assistance, the abdominal wall was very thick, and for ease of manipulation a point on the greater curvature was selected nearer the pylorus than would otherwise have been chosen. This gave more jejunum and still was the correct length to reach without tension, the point selected.

It was very interesting and rather surprising to me to realize that even in the first case in which this scheme was tried my fear of a misfit had entirely disappeared. We are keeping detailed records of all symptoms of stasis from the completion of the operation as a basis for determining later whether in a series of cases this plan is an aid toward uniformly perfect results.

## PROGRAM AND DIRECTIONS FOR THE MENTAL EXAMINATION OF ASOCIAL, PSYCHOPATHIC AND DOUBTFUL SUBJECTS.

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### THE HEALY TESTS.

Most of these tests are treated very fully in the descriptive monograph,<sup>7</sup> but for convenience some of the principal facts in regard to them are summarized here. The age limits given are only approximate.

I. For young children (4 to 8 years), and subjects of doubtful mentality. The minimum number of moves is eleven. Usually not more than five minutes need be allowed. The character of the errors is more significant than the time. Several distinct levels of performance are found.

1. The pieces are put on the board, but no effort is made to fit them into the holes.

2. The blocks are put into the holes, but without trying to fit them. Sometimes they are put in obliquely, or on edge.

3. The subject tries to fit block to hole, but by the trial and error method. The same errors are repeated, and final success is a matter of time and chance.

4. The subject considers the shape and size of each piece, and attempts to choose the appropriate hole. These individuals generally learn by experience and show less tendency than the preceding group to repeat errors.

5. A few study the picture, decide what is needed to complete the meaning as well as to fit a given hole, and then select the appropriate piece. These subjects make few errors and rarely repeat an error.

It is noteworthy that comparatively few consider anything except the size and shape of the pieces, and those few are scattered among all ages and many grades of mentality.

The reaction to the double triangles constitutes almost a test by itself, and frequently appears to be determined by affectivity rather than by intelligence. The problem is complicated by the fact that the large triangle is nearly, but not quite, equilateral. Hence a subject with some knowledge of geometry and a fairly well trained eye may be more readily discouraged by it than a subject of distinctly poorer mentality and less training.

II. (5 to 8 years.) Minimum number of moves, 13. Time, not more than 5 minutes. As this is somewhat more difficult than the preceding it usually need not be given to those who fail badly on No. 1, that is, those at the first and second levels mentioned.

III. (From 8 years.) Minimum number of moves, 5. Time, generally not more than 5 minutes. It has been done by children of 12 years in 12 seconds. The examiner should record the number of moves, of repetitions of errors, and of obvious impossibilities tried. It is convenient to record each move by a pencil stroke. Obvious impossibilities may be indicated by crossing the stroke (x) and repetition of errors by a double stroke (v).

IV. (From 10 years.) Minimum number of moves, 11. Time, from 5 to 8 minutes. It has been done by children of 12 years in 1 minute. This is more difficult in some respects than III, but it is sometimes solved by subjects who fail on III. The record may be made in the graphic form described by Dr. Healey, or as suggested above for III.

V. (From 12 years.) Minimum number of moves, 6. Time, not more than 10 minutes. Children of 12 years have done it in less than 2 minutes.

VI. (From 6 years.) Time of exposure, 10 seconds. This test takes but little time with the younger and more defective subjects. Their own recital is brief, and few questions are needed to discover the limitations of their memories and the degree of their suggestibility. The more intelligent ones give longer recitals, and more questions are required for them, but the value of the data obtained is proportionately greater.

Important facts to bring out in the report are: (1) fullness and accuracy of memory in free recital, (2) improvement or the reverse under questioning, (3) degree of suggestibility, and (4) any peculiarities in the type of reaction as, for example, the tendency of some subjects to ramble on indefinitely with imaginative details following chance associations.