

GASTRODUODENOSTOMY: ITS INDICATIONS AND TECHNIC

BY DONALD C. BALFOUR, M.D.
OF ROCHESTER, MINN.

GASTRIC surgery has attained its present high place as a result not only of the impetus received from the early contributions of American and English surgeons but also from an increasing coöperation between clinician, röntgenologist and surgeon, the investigation of the causes of past failures, a clearer conception of the indications for operation, the more careful observance of general surgical principles, and, particularly, a more intelligent appreciation of the specific merits of the many technical procedures, old and new, which are at the disposal of the surgeon in the treatment of benign gastric and duodenal lesions. Further progress can well be expected as the experience of those who are particularly interested in the subject of gastric surgery becomes available, and it is with this in mind that I draw attention to the operation of gastroduodenostomy.

Gastroduodenostomy is not an infrequent operation, inasmuch as the various types of pyloroplasties (Finney, Heinicke, Mikulicz, etc.) are essentially anastomoses between stomach and duodenum. The operation to which I have reference does not include in its technic any interference with the pylorus, nor does it utilize the ulcer callus as any part of the posterior wall of the anastomosis. In other words, the ulcer area is purposely avoided and the anastomosis is made entirely in healthy tissue.

Historically, the operation of gastroduodenostomy is of some interest.

Moynihan credits Jaboulay as the first to suggest and carry out gastroduodenostomy (1892 and 1894). Many modifications of this principle have been proposed. Kümmell divided the duodenum, closed the proximal end, and implanted the distal into the anterior wall of the stomach near the greater curvature. Billroth, Villard, Terrier, and Kocher devised other methods of accomplishing the operation. Kocher advised an elaborate mobilization of the duodenum (the descending and a considerable portion of the transverse portion) by dividing the parietal peritoneum covering the kidney. The operation he named "lateral gastroduodenostomy." In this country by far the most popular form of this principle has been the pyloroplasty of Finney, an operation which has the advantage of permitting, under certain conditions, the safe excision of the ulcer, as well as making possible the inspection of the mucosa in the immediate vicinity of the pylorus.

It is important to become familiar with these various methods and to know their indications, for only with such knowledge will the error of forcing a favored operation to apply to unsuitable conditions be avoided.

The circumstances we have recognized as justifying a gastroduodenostomy of the type described in this paper are as follows:

1. A pyloric lesion or a lesion involving the pylorus, associated with marked obstruction, with more or less ballooning of the duodenum pro-



FIG. 1.—High lying duodenal ulcer causing an angulation which brings the upper duodenum and the pyloric end of the stomach in close apposition. Gastroduodenostomy made below ulcer and ulcer covered. See Fig. 2.

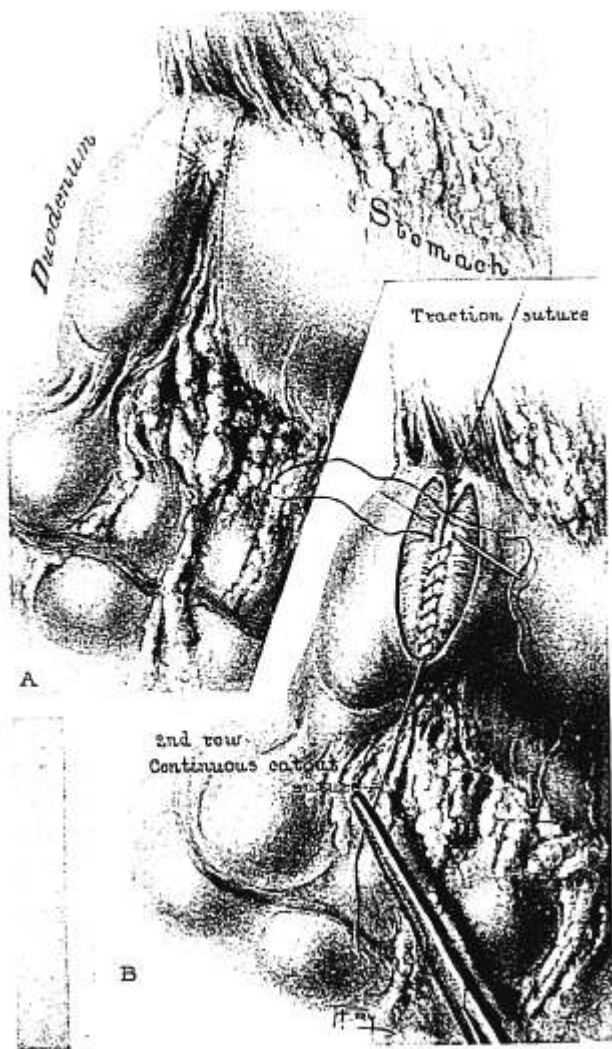


FIG. 3.—A, easily mobilized duodenopyloric ulcer. Gastroduodenostomy made in front of the ulcer.
B, gastroduodenostomy in progress.

GASTRODUODENOSTOMY

ducing a deformity the counterpart of an hour-glass stomach (Figs. 1 and 2). Particularly if such a lesion is active or has caused the pylorus to become fixed to pancreas or liver, or in a mass of adhesions, should the advisability of gastroduodenostomy be taken into consideration. At the same time we would still give posterior gastrojejunostomy the preference in this group, with gastroduodenostomy as an excellent alternative, reserving the latter as the operation of choice in the groups to follow.

2. Any condition such as those indicated in Group 1, complicated by anatomical derangements (either congenital or the result of previous inflamma-

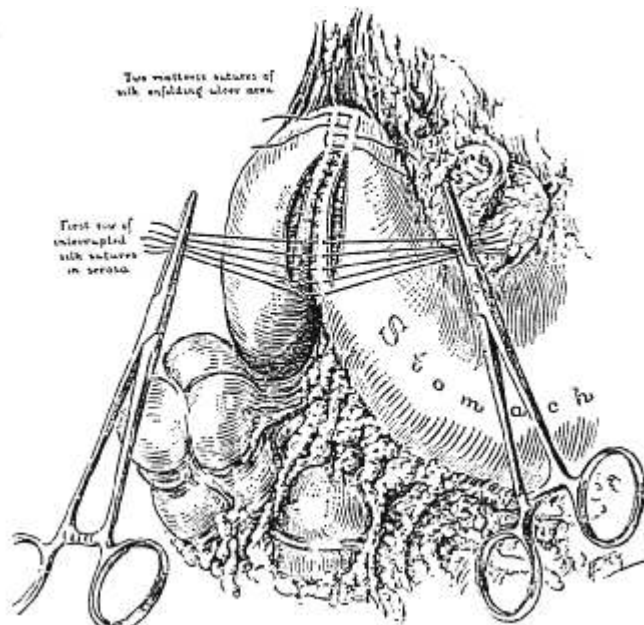


FIG. 2.—Gastroduodenostomy for obstructing ulcer with an angulation. See Fig. 1.

tory exudate) of a nature to preclude or make inadvisable a posterior gastrojejunostomy.

3. In those instances in which patients have failed to obtain the expected relief from gastrojejunostomy because of secondary complications, such as gastrojejunal ulcer and mechanical difficulties, because the operation was ill-advised or improperly done, or because of unknown reasons, gastroduodenostomy has been of signal value following the cutting-off of the gastrojejunostomy and the restoration of the walls of the stomach and jejunum.

It should be mentioned that the lesion in these various conditions, as far as can be determined, is a chronic ulcer, that it is not safely excisable and that

conditions are such that a pylorotomy is not justified because of the operative risk.

The operation we have carried out is as follows:

The best possible exposure and mobilization of the pyloric end of the stomach and duodenum is obtained. In many cases this exposure is already strikingly in evidence, while in others much aid may be gained from the careful division of the adhesions which course over the prospective field of operation. Markers are now placed close to the inferior border of the duodenum and stomach at such points as to insure, when approximated, a sufficiently large anastomosis. A line of interrupted sutures of fine silk are placed posteriorly, parallel to the pylorus, and usually immediately in front of the scarred tissues. A continuous suture of fine chromic catgut is placed in front of the silk suture, extending slightly above and slightly below the proposed opening. The stomach and duodenum are now opened, actively bleeding vessels separately ligated, and the anastomosis made just as in a gastrojejunostomy with No. 2 chromic catgut (Fig. 3). The posterior suture lines are now duplicated anteriorly, *i.e.*, a row of fine chromic gut and finally a few interrupted sutures of silk. No clamps are used, but contamination, although not possessing serious possibilities, is largely avoided by careful isolation of the operative field and by suitable wound protection.

The operation under good circumstances is easier and can be done in less time than a posterior gastrojejunostomy. In other cases, however (usually when the operation is not one of choice), exposure is difficult on account of the deeply placed and fixed pylorus, but even in these unfavorable cases the results of the operation and its adaptability to specific conditions have been exceedingly satisfactory.

REFERENCES

- Billroth, T.: *Offenes Schreiben an Herrn. Dr. L. Wittelshöfer über die erste mit günstigem Ausgange ausgeführte Pylorotomie.* Wien. med. Wchnschr., 1881.
Cited by Bier, A., Braun, H., and Kümmell, H.: *Chirurgische Operationslehre.* Leipzig, Barth, 1912, vol. ii, pp. 383 and 405.
- Finney, J. M. T.: *A New Method of Pyloroplasty.* Tr. Am. Surg. Assn., 1902, xx, 165-190. Abst. in Bull. Johns Hopkins Hosp., 1902, xiii, 155-161.
- Heinicke: *Inaug. Dissert., Furth, 1886.* Cited by Finney, *loc. cit.*
- Jaboulay, M.: *La gastroenterostomie, la jejuno-duodenostomie; la resection du pylore.* Arch. prov. de chir., 1892, i, 1-22. *Inconvenients de la gastroenterostomie simple, et moyens d'y remédier.* Province med., 1894, viii, 61-64.
- Kocher: *The Freeing of the Duodenum and Gastroduodenostomy.* Scottish Med. and Surg. Jour., 1903, xiii, 311-318.
- Kümmell, H.: Cited by Moynihan, *loc. cit.*
- Mikulicz, J.: *Zur operativen Behandlung des stenosirenden Magengeschwures.* Verhandl. d. deutsch. Gesellsch. f. Chir., 1887, xxxviii, 769, 798, 817. Also Arch. f. klin. Chir., 1888, xxxvii, 79-90.
- Moynihan, B.: *Abdominal Operations.* Ed. 3, Phil., Saunders, 1915, p. 240.
- Terrier, F.: *De la gastroenterostomie posterieure.* xiv Cong. franc. de Chir., Proc.-verb., Paris, 1901, pp. 479-496. Also Rev. de chir., 1902, xxv, 369, 410.
- Villard, E.: *De la gastroduodenostomie sous-pylorique.* Rev. de chir., 1900, xxiii, 495-520. Also Echo med. de Lyon, 1900, v, 171-173.