

that every city and town should have some accommodation for such cases.

One word in regard to expense. If the sanatorium for incipient cases is an economy, as is certainly believed by the German Insurance companies who have erected sanatoria for the care of their risks who become tuberculous, how much more of an economy will it be to make provision for the care of the advanced cases, which directly and especially indirectly cause the infection of so many others!

DR. DURGIN: The account given by Dr. Brannan of the work done in New York for the relief and control of consumptives is both interesting and instructive. It is plain to see that there is not only more consumption but more available money in New York than in Boston. They began their work earlier, are better provided with hospitals, and have done more work with the consumptive in New York than we have in Boston. The methods in use there and here do not differ very much. We require physicians to report their cases, but so far, the cases reported are but little in excess of the reported deaths. We shall hope for more complete reports in the immediate future. We remove to the hospital only the most helpless and serious cases, owing to the lack of hospital accommodations. We make forcible removals when necessary. We send circulars of information to the family of the patient through the attending physician. We disinfect after all removals and after deaths from this cause, at the expense of the city. We keep sputum outfits at about fifty different stations in the city for the accommodation of physicians, and collect, examine and report the results to the physicians daily. We have sent from the public schools cases of tuberculosis found by the medical inspectors of schools for the last ten years. We prohibit spitting in public conveyances, stations, buildings, halls, markets, churches and theaters, and on steps or sidewalks immediately connected with such public places. We are seriously in need of more hospital accommodations for consumptives. The deaths from consumption in Boston equal 11.33% of our total mortality, for which we have but forty beds. The deaths from smallpox, diphtheria, scarlet fever and measles combined, constitute but 3.21% of the total mortality, and for which we have 450 beds. We need immediately an increase of not less than two hundred beds for consumptives. This need is clearly recognized by the Mayor and City Council, who have expressed their desire to meet the demand as soon as the financial condition of the city will warrant the necessary outlay. It may be said, by way of encouragement, that the deaths from consumption in Boston have decreased from 40.08 per 10,000 living, in 1886, to 20.42 per 10,000 living, in 1903, or nearly 50% decrease in seventeen years.

IMPROVED TECHNIC FOR FINNEY'S GASTRO-DUODENOSTOMY.*

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THIS operation was first described by J. M. T. Finney of Baltimore.¹ It is designed to relieve non-malignant obstruction at the pyloric end of the stomach. Finney's original technic was devised before the importance of clamps was recognized, and the adaptation of this feature to the old method has been but slowly accomplished.

* Second papers of the series.

¹ Bull. Johns Hopkins Hospital, July, 1902.

There are, as yet, no reported experimental data upon which to base a conviction as to the superiority of this gastroduodenostomy over a gastrojejunostomy. Later research will decide the relative merits of these two operations. However, the Finney operation is regarded by surgeons with growing favor, and the writer believes that any real improvements in its technic will be welcome.

Attention is to be called to the following details which differ from those in present use: (1) Placing of clamps. (2) Opening of stomach and duodenum, trimming mucous membrane. (3) Omission of guide stitches.

TECHNIC.

The Finney gastroduodenostomy is done in the same way as an ordinary gastro-enterostomy, except that the cuts into the two viscera are connected at one end. The continuity of the incisions is made possible by their situation close to the pyloric sphincter.

The human duodenum is bound down to the posterior abdominal wall, except for two inches at its beginning, and for this reason cannot be brought into natural contact with the stomach.

The first step, therefore, consists in freeing the duodenum from the posterior abdominal wall by blunt dissection until it can be drawn out and held to the greater curvature of the stomach. To accomplish this the duodenum is approached from the outside and is raised from its posterior attachment for a distance of two inches.

The second problem to be met is the application of clamps. It is customary to place them directly across the pylorus on the stomach side, thus making it necessary to introduce one blade beneath the stomach into the lesser peritoneal cavity. The clamping of the duodenum is also at a right angle to the lumen. The above method of placing the clamps for this operation is poorly thought out, because in each case the blades cross the organs parallel to the blood vessels.

The incision into the stomach will cut vessels which arise from the greater curvature, and a clamp placed directly across the pylorus will not control this bleeding in the least. The most satisfactory method of applying the clamps is the following:

A fold of the anterior wall of the stomach is picked up 3 to 4 inches long, parallel to and about $\frac{1}{2}$ inch from the greater curvature. The ends of the clamp are not freed, but are pushed up tightly until the inner jaw rests against the pyloric sphincter, about $\frac{1}{4}$ to $\frac{1}{2}$ inch below the free edge of the fold, where they are made fast.

The duodenal clamp encloses a similar fold, as it goes obliquely across the bowel from the free edge to the pylorus and is pushed up until its inner jaw touches that of the stomach clamp, where it is fastened. The handles of the clamps are next brought together, and the pyloric angle thus put on the stretch, incision can now be made into any part of the area held by clamps or into the pyloric angle without hemorrhage.

When the clamps are placed carefully accord-

ing to this method, the duodenum and the stomach folds lie neatly side by side, thus obviating the necessity of guides.

The two folds are fastened together with a continuous sero-muscular stitch. It is better to start this stitch at the pyloric angle to make sure that this point comes at the apex of the tongue to be cut out later.

As mentioned before, the incisions are like those of a gastrojejunostomy, except that they are united at one end. The stomach incision is made first, and is carried down until the mucous membrane pouches freely between the cut muscular walls. The stomach is then left and the duodenum opened until the mucous membrane of the stomach is met at the pyloric angle. Before going further it is occasionally necessary to trim off the mucous membrane from the edges of the duodenal incision. The pouching mucous membrane is finally removed from the stomach by cutting with scissors close to one muscular edge, returning on the other side. The completed incision leaves a tongue-like process made up half of gastric and half of intestinal walls.

After the incisions have been made the exploration of the pyloric portion is easily accomplished by loosening without withdrawing the stomach clamp. After inspection the jaws can be fastened again and the suture continued.

The two edges of the tongue are next sewed together with a continuous through and through chromic stitch, which starts from the apex of the tongue and goes across to its base. At this point it is interrupted with a tie before continuing the suture across over the front. When operating with the clamps placed according to the older method, the sewed over tongue protrudes up into the wound and must be buried with guide stitches before the through and through stitch can be carried over the front. No such difficulty is met with correctly applied clamps, for the outer edges tie well for accurate apposition. When within an inch from the pylorus and the suture over the front is nearly completed, the clamps are loosened to relieve the tension and allow the last few stitches to be placed.

The clamps are now removed altogether, and the suture buried with a sero-muscular stitch. The closing in of the inaccessible pyloric angle is made easy by the introduction of the writer's mattress stitch. The rest of the sero-muscular stitch may be continuous.

CARDIAC COLLAPSE DURING EXAMINATION OF A POST-PHARYNGEAL ABSCESS; INCISION; CIRCULATION RE-ESTABLISHED AND MAINTAINED FOR FOUR HOURS BY MASSAGE OF THE HEART; DEATH.

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For years physiologists have demonstrated that the oxygenation of the blood may be carried on and automatic respiration re-established by artificial means, which have come into daily use

clinically for the resuscitation of patients. It has been equally well known that under certain conditions pulsation may be re-established in the arrested heart of animals, both in situ and even some hours after its removal from the body. Recent investigators in the field of surgical physiology have endeavored to develop a rational method based on these and similar experiments for restoring to life patients whose vital functions have been suddenly arrested either by traumatic or surgical shock or by mechanical conditions obstructing these functions. Such a method depends chiefly on the restoration of respiration and of cardiac pulsation and the maintenance of the blood-pressure at an approximately normal level. Clinical experience is still scanty, however, and the following case is reported with a view of adding to the evidence in this important field.

The patient, Eleanor S., three years of age, was brought to the Children's Hospital, on Feb. 23, 1904, with a history of about two weeks' duration of illness, feverishness and anorexia. There was complaint of sore throat and difficulty in swallowing, and the neck became swollen, chiefly on the right side. The symptoms became progressively worse, the child became practically unable to eat or to talk and during the last few days respiration had become labored. There had been no pre-existing symptoms suggestive of caries of the cervical vertebrae.

Physical examination showed a fairly developed and poorly nourished child, pale, dyspneic, considerably exhausted, with a pulse of 140, respirations 46, and slight cyanosis of the finger-tips and lips. Heart, negative; lungs, negative, except for shallow respiration and a few moist rales, most marked at the bases; abdomen, normal. The neck showed a diffuse fullness on the right, not red or tender and without perceptible fluctuation. The throat showed a swelling obstructing the oropharynx, but the struggles of the child made it both impossible and inadvisable to determine exactly its origin, whether from the tonsils and soft palate or from the pharyngeal wall.

The gravity of the situation was explained to the mother and her consent to incision obtained. It was found impossible to reason with or gain the confidence of the child, so the necessary manipulations were carried out by force, but as gently as possible. The arms were confined by a blanket swathe and the child held in a nurse's lap in the usual way. No anesthetic was employed. The child struggled ceaselessly. The introduction of the gag caused such choking and cyanosis that it was withdrawn, with immediate relief to the symptoms of asphyxiation. At a favorable moment the gag was again placed in position and the finger and knife introduced, but a point of fluctuation was not felt at once. The condition suddenly again became alarming and breathing ceased. The child was instantly laid on the table and artificial respiration begun. No pulse could be felt at the wrist, no cardiac sounds could be heard with the stethoscope, normal respiration had absolutely ceased; the face, finger-tips and mucous membranes were moderately cyanotic, the pupils dilated and unresponsive and the cornea insensitive. The picture was that of death. This occurred at 6.20 P.M. With the patient in the Rose-Trendelenburg position the abscess, which proved to be retropharyngeal, was opened and evacuated. The amount of air which was entering the lungs, as shown by stethoscopic examination, was not satisfactory, so a large