ANNALS OF SURGERY

Vol. 200 September 1984 No. 3

Presidential Address: The Reception of New Operations

MARK M. RAVITCH, M.D.

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AS I BEGIN MY ADDRESS, I wish once more to express my appreciation to you for entrusting to me the office of President of the American Surgical Association, an honor I conceive to be the greatest that can come to a surgeon in this country. I hold this Association in great respect, and on this occasion, as on every other on which I have risen to address you, I am concerned that my efforts should be to your high standards and should receive your approbation.

There is no dearth of subjects for the Presidential Address to the American Surgical Association in this year of 1984. My major interests and concerns have been: the world we live in and what is happening to it, the care of the sick and the education and training of surgeons, the lessons to be learned from the history of our calling.

As to our world, we are closer than ever to the possibility of the nuclear destruction of civilization, of life, perhaps even of the habitability of the earth. Yet governments, ours included, *act* in a way that must mean they still believe such a war can be fought, can be won, and can be survived. I doubt that governments understand, as everyone in this room understands, that nuclear catastrophe will be beyond mitigation by whatever medical effort. Does anyone think our safety is enhanced by multiplying and remultiplying the number of times we can destroy every city in the U.S.S.R.? Can not some reason be introduced in this insane situation? A number of problems I shall address in a moment are defined by fiscal constraints. The money saved merely by reduction in our overkill capacity would go a long way toward easing those constraints.

On a less global scale, there are the things that have been happening to the structure of medical care and to medical education and postgraduate training. The undoubtedly well-intentioned efforts of legislators, and socially concerned citizens, physicians among them of course, have led to a pyramid of legislation and regulation, which has dramatically escalated the cost of medical care and imposed a huge bureaucratic structure, which must be responsible for a shameful portion of that escalation. The mode of access of the underprivileged to medical care has been altered, it is true, and the dignity of the patient's position has been enhanced. But that medical care is more accessible is not clear, and that any improvement in the quality of care to the less privileged is attributable to all of this is doubtful. Most of the attacks upon the delivery of medical care in this country, and criticisms of the health of the population, deal in fact with health indices that represent the effects of social and economic conditions, not remediable by physicians as such.

The efforts now to cut the cost of in-hospital care will, I believe, for the first time in the lifetime of those in this audience, require us at the least to endanger lives by economy-minded corner cutting. In general, in the current governmental climate, the generosity, warmth, openness, and optimism that characterized the spirit of Americans and their country is in danger of being replaced by a niggardly, mean-spirited, not to say hardhearted philosophy that yet, in this matter of medical care, will probably

Presented at the 104th Annual Meeting of the American Surgical Association, Toronto, Canada, April 25–27, 1984.

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Submitted for publication: April 30, 1984.

result in more of the profligate waste and increased expenditure that we have already seen.

The responsibility of government in protecting and improving the health of the people by looking to the prevention and treatment of disease is best met by direct support of those citizens needing it, by support of the development of new knowledge, and by the support of education. Instead, state legislatures, like those of California and Massachusetts, pass laws telling physicians what is proper treatment for a disease, and which choices the physician must offer the patient.[1] Yet if a religious doctrine so requires, the same woman with cancer of the breast may, under protection of the law, be offered prayer and none of the alternatives of medical therapy ordained for physicians treating other women. I commend the liberty of choice of the one and condemn the legislative interference of the other. Similar to these matters is government's intrusion into the sick room and nursery, made infamous in the recent Baby Doe case, and government's open invitation to what must be considered to be a corps of spies and informers. When did it become government's business to say what alternatives of reasonable therapy should or should not be offered?

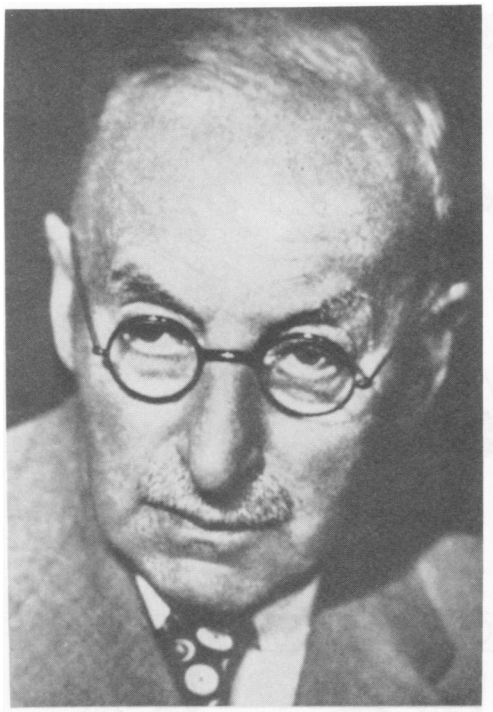
The problems of medical education and postgraduate training are almost as grave. Deans were bribed by federal head money to increase the sizes of their medical school classes, often without commensurate increases in facilities and faculties. The then suddenly discovered shortage of physicians is now as suddenly a newly discovered excess. The government's bounty has been withdrawn, but now deans find they cannot bear to think of the loss in tuition fees that would result from a decrease in class size. In addition, we are faced with the existence of a dramatic increase in the number of our medical schools, some of them weak, ill-situated, poorly financed, and all of them protected by local communities and local pressures, unrelated to the need for the products of these educational institutions.

Surely the purpose of the legislation affecting medical care was to ensure that all of our people could benefit by access to what has developed as the best medical care in the world. But one of the earliest effects, and most predictable, of that legislation, which included in its mission and in its interpretation the right of every patient to have free choice of a private physician (although the freedom of that choice today is often debatable), was the virtual disappearance of the old public wards, on which the senior members of this Association received their training. The designers of this legislation to provide the benefits of the most advanced medical care in the world to all of our citizens, appear not to have given any attention to the fact that they just might have been killing the goose that laid the golden egg. Now things are never as good as they were in the old days. All of the senior members are confident of that. It is, therefore, embarrassing to admit that our new members seem as well trained and as expert as we at their age considered ourselves to be, and unquestionably they are profound masters of medical esoterica that were unknown to us. But their proficiency and expertise is due to their ingenuity and hard work, and their ability and ours to work in a system and around it. I do not suppose many truly teaching hospitals will be forced to close as our new payment plans take effect, but in those states in which a "budget neutral" payment plan emerges, without recognition of the cost of unreimbursed care, teaching hospitals will be hard put to serve their traditional function and still survive.

This heedlessness of our legislators and planners, with reference to the important side effects of their legislation, continues to be evident. We create strong standards in our medical schools, set up residencies, board certification, reexamination and recertification, are told to keep our house in order, but physicians with no demonstrated level of training or expertise in surgery are acceptable to all third-party payers of surgical fees. Some of those who used to be called "irregular practitioners" of medicine and held in disrepute now have support by legislatures, courts, third party-payers, and at least the acquiescent suffrance of some medical organizations. I will not mention the intrusion of limited license practitioners into hospitals and hospital staffs and their acceptance by some states and some payers for the performance of physician functions.

We were almost required to accept in our medical schools transfer students from degree-granting Caribbean medical academies whose major entrance requirement is a very large fee, and this too in spite of the concern for the overproduction of physicians. The quality of medical care in this country is challenged, but legislatures in their scientific judgment recognize two standards of medical education, leading to the degrees of M.D. and D.O., accepting in that recognition the concept that osteopathy is a valid science or discipline, something I believe the osteopaths have long stopped claiming, or demonstrating in their practice, or teaching in their schools. One state supports a school of osteopathic medicine, as well as three standard medical schools. Do our legislators, insurance commissioners, and insurance companies believe there are several valid systems of medicine?

Well, as I said, there is no dearth of subjects for an address such as this. But these are complicated matters, discussion of which is likely to be tendentious, and to offend some, although you may not think fear of offending someone has been my guiding light in life. One of my illustrious, and by me much admired, predecessors in this office devoted his Presidential Address to instructing this Association, in effect, to stick to its knitting, by which he meant the art and science of surgery, and to leave the work of the world to others.[2] While I am of two minds



FIGS. 1A and B. Heller's esophagomyotomy for achalasia. *A, left.* Ernst Heller (1877–1964). *B, right.* Title page of Heller's original 1914 publication.[3] Heller's first patient, reported on the year after operation was doing well. He wrote two further papers. The operation was widely known but infrequently performed for 35 years after Heller's publication.

IV.

Extramuköse Cardiaplastik beim chronischen Cardiospasmus mit Dilatation des Oesophagus.

Von

Privatdozent Dr. **E. Heller,**

Oberarzt der Klinik.

(Hierzu 3 Abbildungen im Texte.)

Im ersten Heft des Archivs für klinische Chirurgie 1913 hat HEYROVSKY eine subdiaphragmatische Oesophagogastroanastomose beschrieben, die er bei zwei Fällen der sogenannten „idiopathischen Dilatation der Speiseröhre" mit Erfolg ausgeführt hat. Kurz nach dem Erscheinen dieser Mitteilung kam ein Patient mit chronischem Cardiospasmus und starker sackförmiger Dilatation des Oesophagus in die Behandlung der Leipziger chirurgischen Klinik, bei dem mir nach Lage des Falles chirurgische Hilfe zur Beseitigung des Leidens geboten erschien. Unter dem Eindruck der HEYROVSKYschen Erfolge beabsichtigte ich den operativen Eingriff in der gleichen Weise vorzunehmen. Im Verlauf der Operation kam ich jedoch, bestimmt durch gewisse Schwierigkeiten der operativen Technik und später auszuführende theoretische Ueberlegungen, zu einer vom ursprünglichen Plane abweichenden Durchführung der Operation, nämlich zur Ausführung einer extramukösen Cardiaplastik. Da der Erfolg, wie ich vorgreifend bemerken will, im funktionellen Sinne sehr befriedigend ausgefallen ist, und diese Aenderung des operativen Vorgehens meines Erachtens nicht unerhebliche praktische Vorteile gegenüber den für die Behandlung des Cardiospasmus mit Oesophagusdilatation vorgeschlagenen und ausgeführten operativen Maßnahmen besitzt, möchte ich mir erlauben, den Fall kurz mitzuteilen.

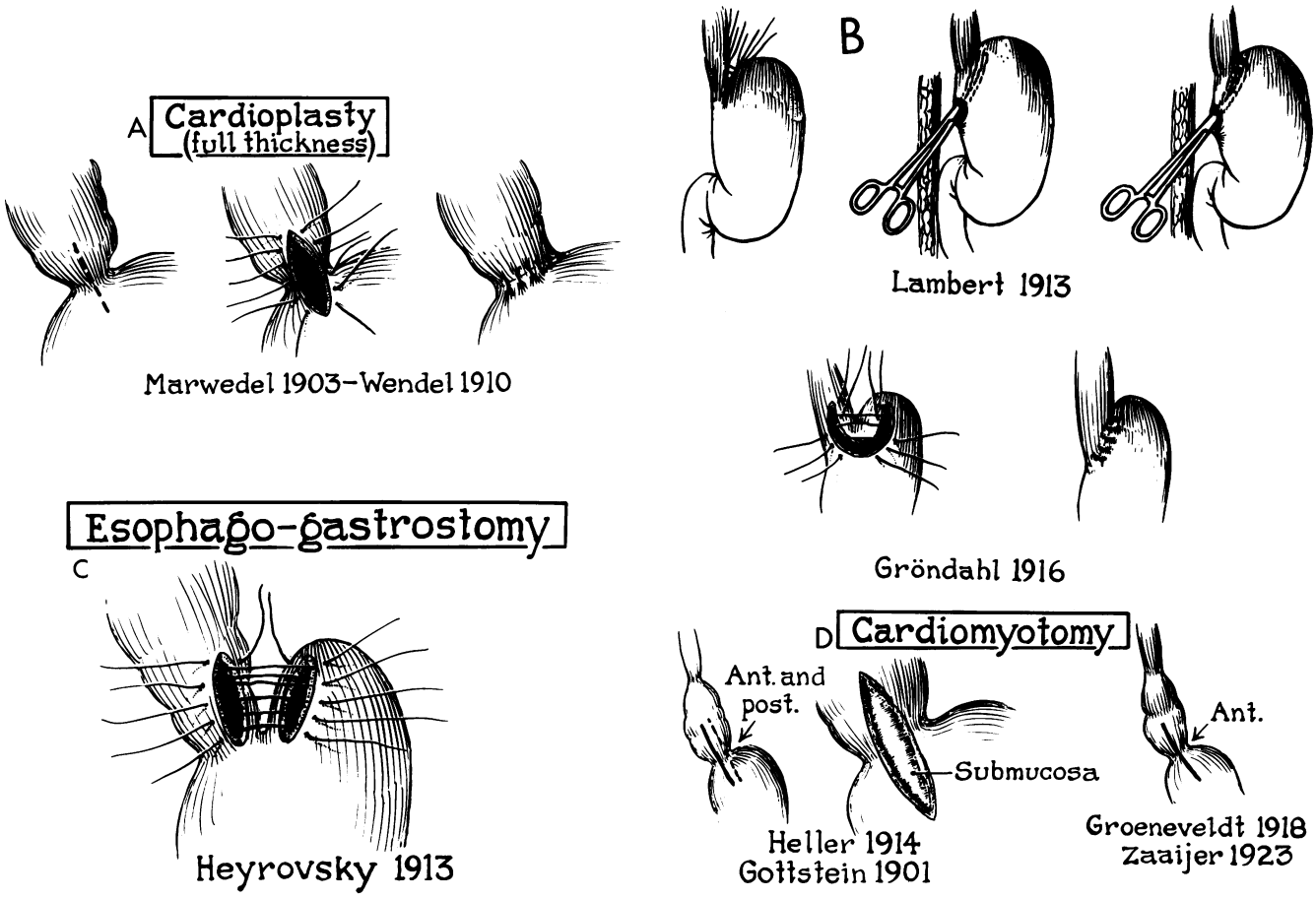
Krankengeschichte: Der 49-jähr. Patient leidet seit ca. 30 Jahren an Schluckbeschwerden. Ueber den Beginn des Leidens und etwaige veranlassende Momente, hereditäre nervöse Belastung, auch über den Grad der Beschwerden im Beginne des Leidens oder Schwankungen in der der Schwere der Störung weiß er nichts Zuverlässiges mehr anzugeben.

as to the advice he gave the Association, and perfectly clear that he was speaking to the matter of the Association's official involvement in matters of public policy, I am equally clear that he in no sense intended his strictures to apply to the thinking, the reading, the speaking, and the writing and other efforts of the individual Fellows. Nevertheless, this Fellow is indeed more comfortable in other areas, and perhaps more fully informed, and I turn now to more traditional ground and the lessons to be learned from the history of our calling.

I have long been fascinated by the reception of new operations, and the changes with time in the attitude of the profession toward them. An enormously important corollary is the very long lag time, in a considerable number of procedures, between the time of their widespread adoption and the time of their ultimate rejection.

It is much easier to find examples of delayed rejection, than of the converse, a long lag time between the proposal of an operation and its final adoption. In general, if a technique has been adequately reported in a major journal, but was then not persistently followed up by its creator with a succession of papers confirming the original successes, and was not picked up by others, the conclusion may safely be drawn that the procedure was defective, or unattractive, and had probably been tried by others, who found it wanting, perhaps without bothering even to publish. There are exceptions to this. I will cite two, and you will think of others.

Ernst Heller in 1914[3] described his simple myotomy for achalasia of the esophagus, for which condition a number of more dramatic operations were available (Figs. 1A and B). In the middle 1950s, Felix Steichen and I[4] became interested in the long gap between Heller's report and the general acceptance of his operation. Heller's patient, operated upon in 1913 and reported in 1914, had an entirely satisfactory result. Heller wrote subsequent papers in 1921,[5] describing 16 cases, his own and others, and in 1932.[6] Reports of small experiences with the op-



FIGS. 2A–D. The operations for achalasia. The full thickness cardioplasties of *A*. Marwedel and Wendel, *B*. Lambert and Gröndahl, and particularly *C*. Heyrovsky's formal esophagogastric anastomosis, were the standard procedures for the relief of achalasia. *D*. Gottstein in 1901 had suggested esophagomyotomy, but not performed it. Heller performed his first operation in 1913 and reported it in 1914. Groeneveldt and Zaaijer demonstrated that a single myotomy was as effective as Heller's anterior and posterior myotomies. From: Steichen, FM, Heller E, Ravitch MM. Surgery 1960; 47:846–876.

eration were published from a number of countries, but it was little used in Germany, England, and the United States. The operations of cardioplasty (Marwedel, Wendel, Gröndahl, Lambert) and of esophagogastrostomy (Heyrovsky) (Figs. 2A–D), continued to be employed in those European countries in which Heller's procedure was known and practiced, as well as in Germany, England, and the United States where it was neglected. The situation was dramatically changed by the 1949 paper of Barrett and Franklin,[7] of St. Thomas's and the Brompton Hospitals (Figs. 3A and B), describing the dismal results after esophagogastrostomy, or formal cardioplasty operations, which by the time of the Barrett–Franklin report had been in use for 30 to 50 years. Phillip Allison,[8] Barrett, and others were beginning to study reflux esophagitis. Barrett pointed out that the result of destroying or bypassing the esophagogastric junction was to invite esophagitis of such severity that patients suffered pain, would not eat, and bled seriously. As far back as 1922, Finsterer[9] had discussed regurgitation into the esophagus and the dangers of esophagitis after esophagogastric anastomoses. Barrett proposed return to the Heller operation and reported success with it.

The clear and forceful paper by two prominent British thoracic surgeons, their citation of the complications attendant upon other operative procedures, and their own good results with Groeneveldt's[10] 1918 modification of Heller's operation (one incision in the esophagus rather than Heller's two), and the generally increasing awareness of and interest in esophagitis now led to the widespread acceptance of the Heller procedure in England, the United States, and Germany and its establishment as the primary mode of operative relief for achalasia. But of course, for years to come, those who hadn't "gotten the message" continued to perform the occasional Heyrovsky, Gröndahl, or Wendel operation.

What was the reason for the delay? Heller's results were good. His operation had been based on Rammstedt's pyloromyotomy,[11] developed in 1912 and immediately accepted. Reputable surgeons in several countries had con-

FIGS. 3A and B. The revival of the Heller operation. *A, left.* Norman Barrett (1903–19xx). From: Hurwitz A, ed. Milestones in Modern Surgery. New York: Paul B. Hoeber, Inc., Harper & Brothers, 1958. *B, right.* Title page of Barrett and Franklin's 1949 paper.[7] Barrett and Franklin cited the complications resulting from the reflux esophagitis, which was the result of destroying or bypassing the esophagogastric junction, and presented their own good results. The Barrett and Franklin paper, 35 years after Heller's established the Heller procedure as the primary mode of operative relief for achalasia.

THE
BRITISH JOURNAL OF SURGERY

VOL. XXXVII OCTOBER, 1949 No. 146

CONCERNING THE UNFAVOURABLE LATE RESULTS OF CERTAIN OPERATIONS PERFORMED IN THE TREATMENT OF CARDIOSPASM

BY N. R. BARRETT AND R. H. FRANKLIN, LONDON

THIS report is based upon a follow-up of 25 patients who complained originally of cardiospasm and who were treated, after medical methods had proved of no avail, by œsophagogastrostomy or cardioplasty. It is our purpose to show that these operations, which have been heralded with enthusiasm by others, often produce harmful effects more serious to the patients than the original lesions for which they were performed. The term 'cardiospasm' is here used to describe a condition in which there is an obstruction to the passage of food from the œsophagus to the stomach without an organic stricture; it is conveniently applied to a localized narrowing of the œsophagus which is generally idiopathic but which may be associated with pathological processes in the abdomen or the nervous system. Whatever the cause or the nature of this abnormality the differences between cardiospasm and organic stricture are sharply defined, and we can assert that at the time of operation the patients under consideration were not suffering from stricture or œsophagitis, but were in fact true cases of cardiospasm. This point is most relevant to our argument because untreated cardiospasm is not complicated by 'œsophagitis'.

was performed (R. H. F.), by dividing the œsophagogastric junction in a longitudinal direction through all coats and suturing the resulting incisions transversely. The first series does not include any patient in whom a Heller's operation was done, and we distinguish this procedure, which is an extramucous œsophago-cardiomyotomy (first performed by Heller, of Leipzig, on April 14, 1913) from cardioplasty as defined above; we believe that Heller's operation is a sound procedure whereas the two operations at present under consideration are unsound.

The operations were easy to perform, especially as the cardia was practically always approached by thoracotomy; there was no operative mortality and post-operative convalescence was smooth. The anastomoses were done in a variety of ways, using all types of interrupted and continuous suture materials, and exactly the same principles cover œsophagogastric anastomoses as apply to anastomoses in other parts of the gut. Irrespective of the suture material, or of the technique of stitching, the healing is rapid and satisfactory provided tension is avoided. It has been stated by other surgeons that the tendency for the stoma to contract, which may occur

firmed Heller's results. Part of the problem, of course, was the unknown etiology of achalasia, the absence of a histologic lesion, the arguments over the nature of the physiological disturbance, and hence of the purpose of operation.

Fromme[12] of Dresden said as early as 1929 that operative experience in achalasia was difficult to come by because the otolaryngologists saw the patients first, a complaint which Santy of Lyon[13] echoed in 1956, and which is not unknown to us today. As it happened, planning to include a photograph of Professor Heller in our paper, we wrote to Leipzig requesting such a photograph and were rewarded not only with a photograph, but with a letter from Dr. Heller, at the age of 82, who then joined Steichen and me as co-author. In response to our question, he said it was his thought that the many patients seen first by otolaryngologists were treated by dilatation, and that if patients were to be operated upon, the authoritative masters of German surgery preferred esophagogastric anastomoses. Since World War II, Heller thought some surgeons, with the very great advances in thoracic surgery and in anesthesia, simply preferred the more extensive and spectacular operations that they could now perform safely.

In short, for a variety of reasons, some understandable, some not, an operation suggested in 1901,[14] successfully performed in 1913 and widely known, was not universally accepted until after some 36 years of neglect, despite continuing and abundant evidence that the alternative operative procedures were substantially less satisfactory. For that matter, and for the reasons cited by Fromme, Santy, and Heller with respect to the otolaryngologists, and today applicable to the gastroenterologists, blind balloon disruption of the esophageal musculature is still widely used, rather than precise operative division, despite less predictable results, frequent need for repeated balloon dilation sessions, and the significant incidence of bleeding and rupture.

Dr. Sabiston and I had a somewhat similar experience. In 1947,[15] (he was Mr. Sabiston then), we published a technique for an endorectal, mucosa stripping, pull-through, sphincter preserving operation (Fig. 4A), suggesting that it was applicable to conditions in which the mucosa of the colon needed to be removed, specifically familial polypoid adenomatosis and ulcerative colitis. That first paper, from the Hunterian Laboratory, contained a footnote concerning the successful application of the technique to a patient with ulcerative colitis. There followed over the next 7 years a series of eight clinical reports (Figs. 4B and C),[16–23] one of them before this Association, recounting experience with one-stage pancolectomy for the two diseases, and the indications for, and the results

SURGERY
GYNECOLOGY AND OBSTETRICS

VOLUME 84 JUNE, 1947 NUMBER 6

ANAL ILEOSTOMY WITH PRESERVATION OF THE SPHINCTER

A Proposed Operation in Patients Requiring Total Colectomy for Benign Lesions

MARK M. RAVITCH, M.D., F.A.C.S., and DAVID C. SABISTON, Jr., Baltimore, Maryland

THE operation of total colectomy is most often performed for one of two conditions—multiple polypoid adenomatosis of the colon, and chronic nonspecific ulcerative colitis.

Multiple polypoid adenomatosis of the colon, or multiple polyposis, has been well established to be a familial disease, beginning with the report of Cripps. While it can make its appearance, symptomatically, as early as the age of 2 years (11) it is more often diagnosed in the second and third decades (9).

The therapeutic approach to multiple polypoid adenomatosis limited to the colon must be governed by the known facts concerning the condition—specifically, the high incidence of malignancy developing in such polypoid adenomas, and the high mortality reported. Various authors report an incidence of proved malignancy, in such patients, of from 26 per cent (15) to 62.5 per cent (2), with 35 to 40 per cent (6) as the most frequently reported figure. In 127 collected cases (6), 76 treated medically had a mortality of 56.5 per cent and 51 cases treated by any surgical means had a mortality of 35.1 per cent. The youngest patient diagnosed as having cancer was 12 years (7), the youngest dying of cancer was 15 years (11). Lockhart-Mummery states that in all such patients cancer will develop if they survive. The usually recommended surgical treatment is resection of the involved bowel, which often means a total colectomy and permanent ileostomy. A number of authors recommend fulguration of polyps in the area accessible to a sigmoidoscope and resection of the remainder of the colon with ileosigmoidostomy. Lilienthal, Soper, Erdmann, Tom Jones (12), and Lockhart-Mummery all have reported successful cases by this method. Stone and Rankin have also had such cases. However, in a good number of such patients cancer has been reported to develop subsequently in the remaining rectal segment. We have had such an experience in this hospital.

From the Surgical Hunterian Laboratory of the Department of Surgery, The Johns Hopkins University.

Presented before The Society of Clinical Surgery, Baltimore, Md., November, 1, 1946.

Since this report was submitted the procedure described has been applied to a patient with ulcerative colitis. The result, 3 months after operation, is encouraging.

CASE REPORT

F. K., No. 100268, a white girl of 16 years, entered the Johns Hopkins Hospital September 29, 1936,

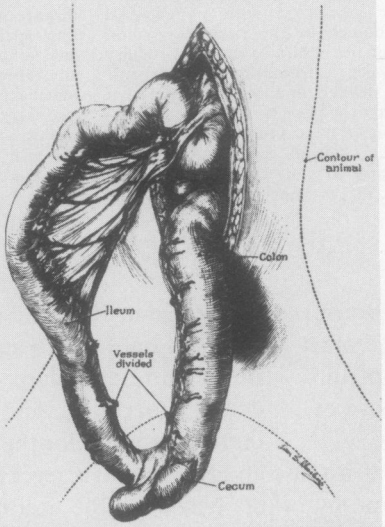
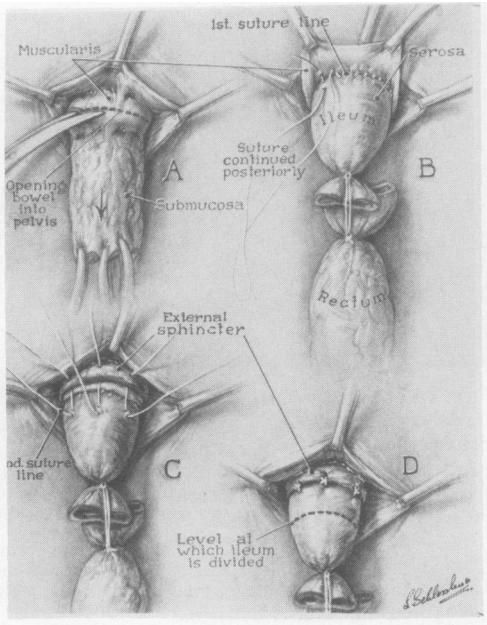
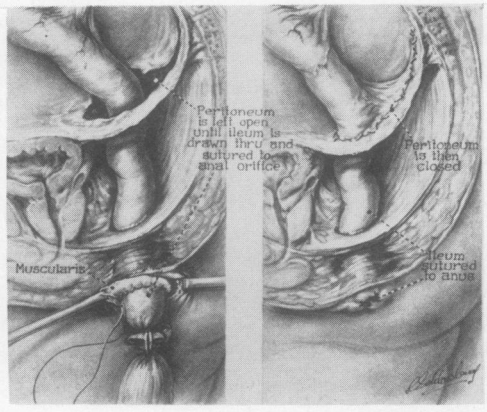


Fig. 1. Mesocolon and vessels ligated and divided. Terminal ileum mobilized by division of two arcuate vessels.





FIGS. 4A–C. Anal ileostomy. *A, left.* Title page of Ravitch and Sabiston 1947 paper from the Hunterian Laboratory.[15] The footnote indicates the successful performance of the first clinical procedure. *B, top right and C, bottom right.* Illustrations from two of the eight subsequent clinical reports discussing pancolectomy with endorectal, mucosa stripping, ileal pull-through, and ileoanal anastomosis. *B.* Fig. 17 (Case 1),—B. G. *A.* After dissection of mucosa-submucosa cuff two to three inches in length the outer coats of rectum are divided above the levator ani. This frees the rectum. *B.* The rectum is delivered with ileum tied to it. First suture line (0000 catgut) ileum, including submucosa, to everted rectal muscularis. *C,* Second suture line (0000 catgut) (first has been permitted to retract) external sphincter to ileum, including submucosa. *D,* Ileum transected. From: Ravitch MM. Surgery 1948; 24:170–177. *C.* Fig. 6. c. The ileum has been drawn through the cylinder of rectal musculature and the ileal serosa is tacked to the rectal muscle. d. Two additional rows of sutures are placed, (1) between ileum and external sphincter and (2) between the end of ileum and the anal skin. The pelvic peritoneum is simultaneously repaired from above. Usually several loops of ileum lie beneath the peritoneum. From: Ravitch MM, Handelsman JC. Bull Johns Hopkins Hospital 1951; 88:59–82.

with, the endorectal pull-through procedure. The reception of the one-stage pancolectomy, not immediately and universally favorable, presently became so. The reception was different for the anal ileostomy, the technically correct term that I had chosen, but with its unfortunate evocation of an ileostomy sited at the anus, rather than of an anastomosis between the ileum and the anus. Gaston, a student of the physiology of continence, confirmed[24] that true continence was achieved, but was concerned about the lack of a reservoir.

There were other factors. I must say my own papers did not make light of the trials and tribulations of the anal ileostomy patients. The operation was devised to answer the problem of polyposis and was logically ex-

Revista Paulista de Medicina

Volume 57 Agôsto 1960

NOTAS Prévias

RETOSSIGMOIDECTOMIA ENDOANAL COM RESSECÇÃO DE MUCOSA RETAL

OSCAR SIMONSEN
ANGELITA HABR PEDRO GAZAL

Os autores propõem uma variação técnica na retossigmoidectomia endoanal. visando à melhor conservação do sistema muscular perineal constituído pelos elevadores e esfincteres externo e interno do ânus.

Nos abaixamentos endoanais preconizados por Bacon e Babcock para carcinomas do reto e por Dimitriu e Stoia para retites estenosantes, verificam-se com freqüência alterações mais ou menos intensas da continência fecal. Essas alterações foram por nós interpretadas como conseqüentes a lesões nos músculos elevadores e esfincter interno do ânus, as quais ocorriam sistemàticamente na técnica dos autores mencionados. Visando à melhor conservação dêste sistema muscular. para nós de grande importância no mecanismo da continência fecal, introduzimos esta variação onde o mesmo é perfeitamente conservado.

Anais do
I Congresso Latino-Americano,
II Internacional e
X Brasileiro de Proctologia
S. PAULO – 11 A 17 DE SETEMBRO DE 1960

V — MEGACOLO ADQUIRIDO

(Tratamento Cirúrgico)

Dr. ARRIGO RAIA (*)
(SÃO PAULO — BRASIL)

O tratamento cirúrgico do megacolo variou nestas últimas décadas, segundo a concepção patogênica admitida pelos vários autores. Não nos deteremos na análise das primeiras operações empregadas, cuja indicação, em face dos conhecimentos atuais da etiopatogenia, não tem razão de ser: a colotomia, praticada com a finalidade de retirar o bôlo fecal do intestino, a colostomia, feita a montante da parte dilatada do cólon, visando manter um esvaziamento intestinal pela fístula cólica, a coloplicatura, a colopexia, as operações de circuito e a simpatectomia abdômino-lombar. Analisaremos, apenas, os resultados das esfincterectomias e das retossigmoidectomias de que temos experiência apreciável.

Arch. Dis. Childh., 1964, **39**, 116.

HIRSCHSPRUNG'S DISEASE: A NEW SURGICAL TECHNIQUE*

BY

F. SOAVE
From the Department of Paediatric Surgery, Institute 'G. Gaslini', Genova, Italy

The purpose of this communication is to describe a new surgical technique for Hirschsprung's disease. This consists in pulling down the colon, and passing it through the rectal canal whose structure is preserved intact. In this way mobilization of the narrowed recto-sigmoid segment is effected entirely by an extramucosal approach, without pelvic trauma. The colon is then resected from the perineal side.

The choice of the extramucosal route for mobilization of the recto-sigmoid segment was prompted by papers by Rehbein and Romualdi on the treatment of cases of high-level imperforate anus with recto-urethral fistula or prostatic anus: after opening, cleaning and cutting across the upper rectum they removed the mucous membrane at the level of fistula.

* A paper read at a meeting of the British Association of Paediatric Surgeons in Sheffield, July 1963.

Method

The operation is by a combined abdomino-perineal approach.

Abdominal Stage. After laparotomy the narrowed recto-sigmoid segment is prepared above the intact pelvic floor with the tract of the colon to be resected (Fig. 1). If the colon is considerably distended by gas, it is emptied by introducing a needle at a tangent to the colon axis: no suture is needed where the needle is introduced. Novocain in 0·5% solution is infiltrated into the seromuscular coat of the recto-sigmoid segment above the pelvic floor, care being taken to avoid involvement of the mucous coat. In this way the entire circumference of the recto-sigmoid dilates at the desired point due to infiltration of the serous and muscular coats.

A longitudinal incision is made with a scalpel above the intact pelvic floor into the infiltrated region, and separation of the seromuscular layer from the mucous layer is carried out with dissecting scissors and with the

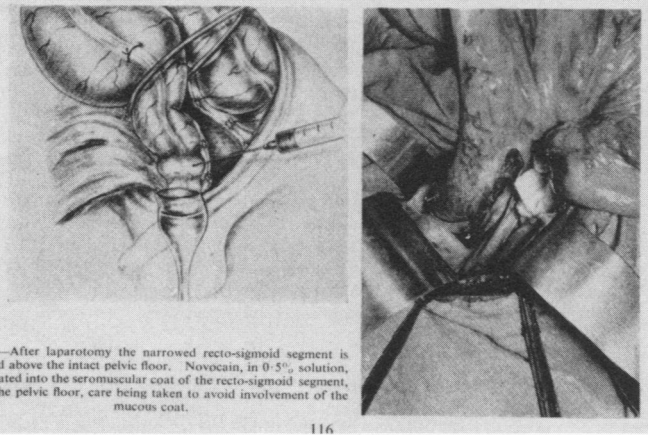


FIG. 1.—After laparotomy the narrowed recto-sigmoid segment is prepared above the intact pelvic floor. Novocain, in 0·5% solution, is infiltrated into the seromuscular coat of the recto-sigmoid segment, above the pelvic floor, care being taken to avoid involvement of the mucous coat.

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FIGS. 5A–C. Endorectal mucosa stripping pull-through for Hirschsprung's disease. *A, upper left,* and *B, bottom left.* Simonsen[25] and Raia[26] from Brazil reported the use of the anal ileostomy technique for patients with congenital Hirschsprung's disease and with the Hirschsprung's disease of South American trypanosomiasis, respectively. *C, right.* Independently, Franco Soave published his endorectal mucosa stripping pull-through for Hirschsprung's disease,[28] which at once was accepted by many pediatric surgeons, finally convincing the medical world that true continence was achieved by the technique involved.

tended to ulcerative colitis, which was much more common. It is clear from the photographs of the specimens in my collection that a number of those patients had, a condition not differentiated at that time, granulomatous colitis, a transmural and not a mucosal disease, making the operation exceedingly difficult, although at least one such patient had a good result for some years. Finally, our early experience came just at the time when ileostomy appliances were rapidly improving and were permitting an abdominal ileostomy to be compatible with a normal social and sexual life.

Nevertheless, the endorectal mucosal stripping technique was picked up in Brazil by Simonsen[25] for the resection of the rectum and sigmoid in Hirschsprung's disease, and by Raia[26] for the acquired Hirschsprung's disorder in Chagas' disease (Figs. 5A and B). As I came upon their accounts, I could not help recalling that at the same New Orleans meeting of the Society of University Surgeons in 1948, at which I made my first platform report on the pull-through procedure, Orvar Swenson[27] presented his brilliant solution to the problem of Hirschsprung's disease, a surgical triumph of our era. One of the Boston contingent said to me that Swenson, seeing the title of my paper, had feared I too had an operation for Hirschsprung's disease. Secure in my knowledge of pediatric surgery, I commented that my technique would leave behind the muscle of the "spastic" segment, as we then thought it was, and that Swenson ought to have known the operation could not have succeeded in Hirschsprung's disease! That was not the first time Orvar Swenson proved he was smarter than I. The clincher, of course, came with Soave's publication[28] of the use of the endorectal mucosa stripping procedure for Hirschsprung's disease (Fig. 5C), unaware, I am confident, of our work

Volume 136
Number 2

Annals of Surgery
August, 1952

SPLENIC STUDIES

I. SUSCEPTIBILITY TO INFECTION AFTER SPLENECTOMY PERFORMED IN INFANCY*

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AMONG APPROXIMATELY 100 splenectomies performed at the Indiana University Medical Center, five have been carried out in infants under the age of six months. It is specifically with this group of five cases, and more particularly with their susceptibility to infection after operation, that this paper is concerned. Four of the five infants developed either meningitis or overwhelming meningococcemia in from six weeks to three years after operation and one of the four died of the infection. The fifth child was returned to the hospital a few days after discharge following splenectomy with a rapidly fatal febrile illness, suggestively

birth for acute thrombocytopenic purpura. The child made a good recovery from the operation and the platelet count rose to a normal level. The baby continued to do well until the twenty-first postoperative day, when there suddenly developed an overwhelming bacteremia. Death occurred in spite of intensive antibiotic therapy. Postmortem examination revealed only evidence of severe sepsis.

CASE REPORTS

Each of the five cases had a well established diagnosis of congenital hemolytic

The Conservative Management of Splenic Trauma

By GARY JOHN DOUGLAS AND JAMES STANLEY SIMPSON

SPLENECTOMY IS CONSIDERED by most authorities to be mandatory for rupture of the spleen following blunt abdominal trauma.[1-3] Recently, some interest has been shown in the possibility of conservative or nonoperative management of this injury. Past experience at the Hospital for Sick Children has demonstrated that selected cases of splenic trauma in children can be successfully treated without surgery. The purpose of this report is to document this experience and to emphasize some of the limitations in the application of this method to the splenic injuries of today.

Splenic rupture from blunt abdominal trauma was suspected in 32 patients admitted to the hospital between 1948 and 1955. In 20 cases, rupture resulted from falls and outdoor sports activities and in 12 cases from automobile accidents. Splenectomy was performed on six patients and, in each case, the clinical diagnosis was confirmed. A minor laceration of the spleen was noted at necropsy in one additional child dying of a crush injury to the chest. This was the only death in the series. The remaining 25 patients were managed without surgery and all survived. Of these, 16 were selected for detailed study because the severity of trauma, symptoms, signs, and clinical course made the diagnosis of ruptured spleen highly probable, although unconfirmed by exploration.

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FIGS. 6A and B. Splenectomy. Thousands of spleens had been removed and the possible effect on the patient's resistance to infection had been argued for decades. *A, top.* The 1952 paper of King and Shumacker[44] convinced the surgical world that, at least in children, splenectomy was demonstrably associated with the subsequent occurrence in some patients of massive overwhelming sepsis. *B, bottom.* It was 19 years later before the paper of Douglas and Simpson[45] emphasized both the possibility of saving the injured spleen and the wisdom of doing it. It was another decade before this practice was widely accepted by pediatric surgeons.

or that of the Brazilians. Soave let the redundant end of the pulled-through bowel hang out the anus for later amputation, as opposed to our primary anastomosis. His results were good and many pediatric surgeons now observed that the operation did preserve continence. There had, of course, been some scattered publications on the anal ileostomy by, among others, Devine of Australia,[29] Funderburg from Ohio,[30] Carlson from California,[31] and Schneider from St. Louis.[32] After Soave, Ekesparre of Hamburg[33] provided a significant report of success in children with ulcerative colitis, and in the last decade there has been an explosion of reports in this country and in England.[34-38]

A side issue to my theme is the modification of new operations and the frequency with which several workers, often years apart, evolve similar modifications. The three "new" directions, with the anal ileostomy, taken in recent years, have involved: the use of a complementary temporary ileostomy; conducting the mucosa stripping from above, *à la* Soave; and experimentation with a variety of pouch reservoirs, stimulated by the work of Kock.[39] The greater success achieved today, apart from the possibly greater skill of the operators, is probably due to the use of a diverting temporary ileostomy. In fact, Schneider in St. Louis[32] in 1951 performed complementary ileostomy with anal ileostomy for ulcerative colitis and commended it to me. As for the pouch, in 1957, at the time of the meeting of the Society of University Surgeons in Columbus, our quondam President, Robert Zollinger, took me on the wards to show me a patient in whom he had recently performed an endorectal mucosa stripping pull-through for polyposis, with a pelvic pouch reservoir. As for stripping the mucosa from above, I have a letter from Indianapolis from Harry Shumacker, within a year or two of the New Orleans presentation, saying he had done the stripping from above and was pleased with it.

At all events, the current widespread interest in this continence-preserving operation for benign mucosal disease of the colon is resulting in a large clinical experience from which the ultimate worth of the procedure may be determined. Completely successful outcomes for 30 years can be achieved, but we have seen, both early and very late, presacral abscesses perhaps associated with stasis and ulceration in that dilated bowel, which is the response to placing a competent sphincter at the end of the small intestine. Even more disturbing is the information, recently telephoned me from St. Louis, that two of Dr. Schneider's patients have turned up, many years after operation, one with adenocarcinoma of the neorectum, one with squamous cell carcinoma.

It is this matter of the long delay in our accurate appreciation of the value, risks, and complications of operative procedures to which I now turn. There is a long list of operations, the recognition of the inefficacies and hazards of which required a generation or two.

For splenectomy it was much more than half a century. We can ignore the biblical and ancient Greek references to the destruction with hot irons of what were probably malarial spleens. Splenectomy, called splenotomy, was performed with occasional success in pre-Listerian days,[40] after the first reported deliberate splenectomy by Quittenbaum of Rostock,[41] because, like the ovary, the vascular pedicle could be relatively easily ligated, although a number of disasters resulted from casual neglect of the short gastric vessels. In the Listerian explosion of abdom-

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No. 45. Sonnabend, den 12. November. 1881.

Gastro-Enterostomie.

Mitgetheilt von

Dr. **Anton Wölfler,**

Assistenzarzt an Prof. Billroth's Klinik.

Mit diesem Namen möchte ich eine Operation bezeichnen, welche ich am 28. September d. J. bei einem Kranken ausführte, der an einem inoperablen Karcinome des Pylorus litt.

Durch die Güte des Herrn Dr. Kauder's, Assistenten an Hofrath Bamberger's Klinik, wurde am 27. September d. J. in die Klinik des Herrn Prof. Billroth ein 38jähriger Mann, Michael Gold, gebracht, welcher seit einem halben Jahre an den Beschwerden eines Magenkrebses litt.

FIGS. 7A–C. Gastroenterostomy. *A, top left.* Anton Wölfler (1850–1917). From: Hurwitz A, ed. Milestones in Modern Surgery. New York: Paul B. Hoeber, Inc., Harper & Brothers, 1958. *B, right.* Wölfler's performance of the first gastroenterostomy for an obstructing distal gastric cancer, as is well known, was suggested to him in the operating room by Nicoladoni.[46] *C, bottom left.* Eugene L. Doyen (1859–1916), generally credited with having performed the first gastroenterostomy for ulcer in 1892, himself credited Rydygier of Poland (1884) with the first such procedure. Doyen presently recommended and performed gastroenterostomy for all manifestations of ulcer and this became the standard operation for duodenal ulcer for the next 50 years. From: Album Mariani, Angelo Mariani, 1902. Library of the College of Physicians of Philadelphia.

inal surgery, splenectomy was tried for a wide variety of diseases, pernicious anemia for example. Although the indications for splenectomy have probably been reduced in number since the clinical experiments at the turn of the century, clearly tens of thousands of splenectomies were performed before 1952. There had indeed long been some concern over the effect of splenectomy on the patient's resistance to infection, as evidenced by F. Bessel Hagen's ringing denial of that in 1900,[42] with the statement that "removal of the spleen is followed by no recognizable effect upon the patients . . . and in retrospect, has not once led to later infectious disease." In 1919, Morris and Bullock[43] from Columbia University, in a paper entitled "The Importance of the Spleen in Resistance to Infection," reviewed the experimental and clinical evidence going back to 1890, concluding ". . . some of the fatalities following splenectomy, especially where death was attributed to infection, may find a ready explanation and tend to increase our caution in the removal of this organ." It was thousands of splenectomies later, in 1952, that King and Shumacker[44] focused attention on what we now call postsplenectomy sepsis (Figs. 6A and B). It then took almost 20 years for this to be translated into practice by the preservation of the injured spleen in children,[45] and we are only now beginning to admit that postsplenectomy sepsis occurs in adults as well.

Each successive operation for duodenal ulcer could provide a separate chapter in this story. I will cite only gastroenterostomy (Figs. 7A–C). In 1881, Wölfler,[46] in a case of cancerous obstruction of the pylorus, performed the first gastroenterostomy. Doyen,[47] universally credited with having done the first gastroenterostomy for ulcer in 1892, himself gives that honor to Rydygier of Poland (1884). These gastroenterostomies were for cicatricial stenosis, but very shortly Doyen began advocating gastroenterostomy for relief of duodenal ulcer in all its manifestations, and he was widely followed. In 1900, most of a session of the Deutsche Gesellschaft für Chirurgie was devoted to gastroenterostomy. At the meeting the previous year, anastomotic ulcers had been reported in the practice

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Volume XL
1925

THE FREQUENCY OF GASTROJEJUNAL ULCERS

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GASTROJEJUNAL ulcer is undoubtedly one of the most serious of the sequelæ attendant upon gastro-enterostomy. It is in most instances a very painful condition, much more painful than the original ulcer for the relief of which the gastro-enterostomy was performed. In addition to the pains, the patients suffer from mental anguish because of the fact that in spite of their having submitted to a supposedly radical operation for the cure of their gastric or duodenal ulcer, the former symptoms of ulcer have returned in a much more aggravated form. They naturally feel very reluctant to submit to another operation and defer this until the increasing severity of the symptoms compels them to seek again an operative cure.

walls of the new stoma, its excision could often be effected without disturbing the posterior margin of the gastro-enterostomy. After such excision, the remaining portion of the stoma, properly enlarged so as to overcome the effects of the stenosis above mentioned and the loss of substance occasioned by the excision, is closed by two rows of sutures. In other instances, when the whole stoma had to be sacrificed, the jejunal opening was closed and a new gastro-enterostomy was established by using part of the jejunum slightly distal to the site of the ulcer. In some cases a temporary jejunostomy was added, in order to insure immediate feeding for these often very debilitated patients.

954 Zentralblatt für Chirurgie. Nr. 52. 1918

V.

Aus dem Garnisonsspital Nr. 2 in Wien.
Kommandant Oberstabsarzt Dr. Scheidl.

Über die Bedeutung der Magenresektion beim Ulcus duodeni.

Von

Stabsarzt Dozent Dr. Hans Finsterer,
Chefarzt der chirurgischen Abteilung.

In einer kurzen Mitteilung im Zentralblatt für Chirurgie habe ich auf Grund meiner Erfahrungen den Vorschlag gemacht, beim Ulcus duodeni zur Vermeidung der Hyperazidität in jedem Falle einen großen Teil des Magens (bis zu zwei Drittel) zu resezieren. Nun hat v. Haberer in Nr. 39 des Zentralblattes in einem ausführlichen Artikel diese Mitteilung in einer Weise kritisiert, so daß absolut eine Richtigstellung erforderlich ist. Würde es sich um die Priorität handeln, die ich nie in Anspruch genommen habe, so würde ich selbstverständlich schweigen; da aber damit neuerdings ein Angriff gegen die Art meines wissenschaftlichen Arbeitens und damit gegen meinen Charakter gemacht wird, so kann ich dazu unmöglich schweigen.

v. Haberer geht von der Behauptung aus, ich hätte ihn insofern unrichtig zitiert, als auch er schon früher ausgedehnte Magenresektionen beim Ulcus duodeni ausgeführt habe, was aus seinen Arbeiten hervorgehe und mir bei aufmerksamerem Studium derselben nicht hätte entgehen können. Dabei bezieht er sich auf die in der neuesten Arbeit erschienenen Krankengeschichten. Da das Heft 3 des CIX. Bandes des Archivs für Chirurgie am 5. April 1918 ausgegeben worden und am 17. April in der Gesellschaft der Ärzte eingelangt, zu dieser Zeit meine kurze Mitteilung aber längst an die Redaktion des Zentralblattes abgeschickt worden war[1], so konnten für mich selbstverständlich nur die früheren Arbeiten v. Haberer's, die ich trotz des Zeitmangels während des Krieges und trotz ihres

FIGS. 8A–D. Complications of gastroenterostomy for ulcer. *A, top left.* Richard Lewisohn (1875–1962). From: Hurwitz A, ed. Milestones in Modern Surgery. New York: Paul B. Hoeber, Inc., Harper & Brothers, 1958. *B, top right.* Title page of Lewisohn's 1925 paper.[62] Lewisohn demonstrated a 34% incidence of anastomotic ulcer at the Mount Sinai Hospital in New York and brought from Vienna the use of gastrectomy. *C, bottom left.* Hans Finsterer (1877–1955) From: Leonardo RA. American Surgeon Abroad. New York: Froben Press, Inc., 1942. *D, bottom right.* Title page of Finsterer's 1918 espousal of gastric resection for duodenal ulcer.[66] Finsterer, von Haberer, and von Eiselsberg had by 1920 all abandoned gastroenterostomy for partial gastrectomy.

FIGS. 9A and B. The beginning of gastrectomy for ulcer in the United States. *A, left.* Albert A. Berg (1872–1950). From: Journal of the International College of Surgeons 1943; 6:420. *B, right.* Title page of Berg's presentation before the New York Surgical Society where he came under acerbic attack.[68]

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Vol. XCII JULY, 1930 No. 1

THE MORTALITY AND LATE RESULTS OF SUBTOTAL GASTRECTOMY FOR THE RADICAL CURE OF GASTRIC AND DUODENAL ULCER*

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IT IS well, at the very outset of this paper, to state emphatically that ulcer of the stomach is the same disease as ulcer of the duodenum. So far as we know, an ulcer situated in either viscus depends upon the same causes for its formation, has the same life history, is amenable to the same methods of treatment, and in the chronic stages can be radically cured in only one way, and that is by surgical operative methods. This statement is made because it has become the practice of a good many internists and surgeons to deal with ulcer of the stomach as though it were an entirely different disease from ulcer of the duodenum. Thus, for example, a great many surgeons advise and carry out a subtotal gastrectomy for the radical cure of gastric ulcer but strongly object to this operation for the radical cure of duodenal ulcer. Such surgeons are perfectly willing to resort to deforming and mutilating operations upon the stomach to get rid of a gastric ulcer but they are unwilling to employ such mutilating and deforming operations on the stomach for the radical cure of duodenal ulcer. It would seem logical that if a particular kind of operation is used to bring about a cure in gastric ulcer the same kind of operation should be employed to bring about this result in a similar disease when it is situated in the duodenum.

of Mikulicz of Breslau,[48] Braun from Göttingen,[49] and Hahn from Berlin,[50] occurring 4 months, 11 months, and 12 months after gastroenterostomy. Now two more cases[51,52] of anastomotic ulcer were reported, one of them fatal 10 days after gastroenterostomy for ulcer. As it happens, the world's first two survivals after operation for congenital hypertrophic pyloric stenosis, both with gastroenterostomy, were reported at the same session by Kehr of Halberstadt,[53] and Löbker of Bochum.[54,55] Only 7 years later, Fredet[56] could point out that anastomotic ulcers had already been seen in children who as infants had had gastroenterostomy for pyloric stenosis, and these were, of course, not patients with hyperacidity. Reports of anastomotic ulcers and gastrojejunocolic fistulas appeared, citing wildly varying frequencies: Mayo (1910),[57] 0.26% of 1141 gastroenterostomies for ulcer; Judd (1921),[58] 1.2% of 4324; Balfour (1926),[59] 1.6%, all at the Mayo Clinic; Moynihan of Leeds (1928),[60] 4%; De Takats of Budapest (1926),[61] 18%.

Lewisohn, of the Mount Sinai Hospital in New York, in 1925,[62] thought these figures vastly underrated the problem (Figs. 8A and B). He reported an incidence of 34%, although he was able to follow only one-half of his patients. Bland-Sutton, in England,[63] had earlier decried gastroenterostomy alone because of the risk of jejunal ulcer, but had gone no further than to propose pylorectomy. In point of fact, von Haberer,[64] von Eiselsberg,[65] and Finsterer,[66] had by 1920 abandoned gastroenterostomy for partial gastrectomy (Figs. 8C and D). Lorenz and Schur in 1922,[67] who claimed to have begun their series in 1915, clearly demonstrated that resection of the antrum was necessary to abolish hypersecretion. In New York, as one understands, Richard Lewisohn persuaded A. A. Berg of the soundness of this approach. As Lewisohn said,[62] "The vast majority of surgeons at the present time consider gastroenterostomy, with or without exclusion, to be the method of choice in the treatment of pyloric and duodenal ulcer." When, in 1930, Berg presented before the New York Surgical Society[68] the results of the technique he had been using for 10 years (Figs. 9A and B), Seward Erdman quoted Moynihan's 1928[60] statement that "gastrectomy for duodenal ulcer is neither safe nor simple, and does not give better end results than gastroenterostomy. The worst of gastroenterostomy is known, and the best is unsurpassable. We have yet to learn the worst of gastrectomy, and what we know, is unfavorable." [Moynihan subsequently became an enthusiastic gastrectomist.]

It is only fair to say that this devotion to gastroenterostomy has to be considered in the light of the remarkable record of relief from ulcer pain afforded by simple gastroenterostomy, however clearly you, in this sophisticated

TRANSACTIONS
of the
AMERICAN
SURGICAL ASSOCIATION

VOLUME THE SEVENTY-SECOND

1954

AN EXPERIMENTAL EVALUATION OF THE NUTRITIONAL IMPORTANCE OF PROXIMAL AND DISTAL SMALL INTESTINE*

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ACCUMULATED CLINICAL experience has long suggested that man not uncommonly survives the sacrifice of large segments of small intestine.[2, 4, 6, 9, 11, 14] The results, however, are variable, and for every favorable case that finds its way into the literature, there are without question a considerable but unknown number of patients who do not survive such a catastrophe. Since in clinical practices, resections for the most part are performed under uncontrolled conditions, usually for extensive neoplastic disease or after sacrifice of comparable segments of proximal and distal small intestine. As a result of these studies it is apparent that in the dog, the major discernible abnormality after loss of the distal small bowel is a marked diminution in efficiency of fat absorption associated with loss of weight. On the other hand, after sacrifice of comparable lengths of the proximal small intestine, the animal's weight is satisfactorily maintained near preoperative levels, and no great interference with fat absorption is observed.

FIG. 10. The operative attack upon morbid obesity. Title page of Kremen's 1954 paper before the American Surgical Association.[70] He presented his experimental studies of various types of resection in the small intestine of dogs and in the discussion described the single patient who had had a jejunoileal shunt. It required some 30 years of extensive clinical application of a variety of techniques of intestinal bypass before the recognition of the cost in terms of morbidity and mortality, and the uncertainty of the results, led to the abandonment of the procedure.

audience, steeped in the intricacies of gastric physiology, know that such relief could not have occurred from a physiologically unsound operation. In Baltimore, too, the standard operation for duodenal ulcer until the late 1930s was simple gastroenterostomy. Your President can recall, as a medical student, hearing Dean Lewis say, in speaking of the treatment of duodenal ulcer, "There's a man in New York who resects the whole stomach [he exaggerated a little for effect] for a little ulcer in the duodenum," and we smiled as Lewis chuckled at the absurdity of the proposal. And in 1936, Trimble and Reeves from the Johns Hopkins[69] were still enthusiastic about the obsolescent procedure, saying that gastroenterostomy "should be applied in the majority of these lesions occurring as they do in the pyloric portion of the stomach and the first portion of the duodenum . . . it is one of the most satisfactory operations in the armamentarium of the surgeon." It was not until the end of the 1930s that the long-term risk of anastomotic ulcer and its complications was accepted as outweighing the virtues of gastroenterostomy with its operative simplicity and frequent symptomatic relief. That was a good 40 years of massive experience with the operation before its defects were acknowledged and generally accepted, and 20 years after a superior operation was espoused and widely known. Of ulcer operations I shall say no more but that in today's accelerated accumulation of large series with detailed follow-up studies, our successive operations for duodenal ulcer have been discredited more rapidly. But given these very factors, the unnecessary toll of human wretchedness imposed by the learning curve of our collective clinical consciousness may be comparably as great as in the earlier days of which I have been speaking.

Intestinal bypasses for extreme obesity had their genesis in Kremen's presentation[70] before this Association just 40 years ago (Fig. 10). It took perhaps 30 years of careful follow-up studies, and a very large experience with such intestinal bypass operations, before the general conclusion was reached that the risks, the complications, and the side effects offset the benefits of the operation.[71] We are now still in the era of various types of gastric bypasses and compartmentation procedures. What has chiefly distinguished these is what one might call the "operation of the year." This is the phenomenon of a large and carefully studied series of patients operated upon by a given technique, reported in a paper at the end of which the author states, "because of some concern over these factors [risks, complications, unpredictable weight loss, gradual return of the weight that has been lost . . .], we have begun employing a new modification which consists of the following. . . . The early results are extremely promising." The following year an entirely similar paper is written about the new procedure. The complications and the dissatisfactions with it are perhaps different, and still another procedure is proposed.

Operative surgery is indeed the application of mechanical principles to the cure of disease processes, and diseases like morbid obesity that are not basically mechanical should ultimately be treated otherwise. Yet the cures, for instance, of hyperthyroidism and hyperpara-

thyroidism by ablative procedures are justifiably listed as among the triumphs of surgery. Nor is it even yet certain to all that we have a nonoperative therapy for hyperthyroidism, which for many patients is superior to thyroidectomy.

An enormous proportion of surgical effort in the last century has been expended in the operative attack upon cancer. For at least one-half of that time, we have been intellectually certain that this approach was only a way station in the progress of the treatment of cancer. But what a brilliant way station! How many patients have been relieved of suffering, had useful prolongation of their lives, or even lived out their normal life spans despite the illogic of the resectional therapy of cancer! Given human nature, and the unpredictable behavior of cancers, we can confidently expect that even in that future day when a sharply focused attack on the enzymatic or immunologic Achilles heel of every cancer will be possible with appropriate injections, pills, or potions, neglected or occult cancers will continue to occur. Those neglected tumors will still then bleed, perforate, and obstruct, and require operative relief.

I made more than tentative plans some years ago, not totally abandoned to be sure, to write a history of extirpative surgery. I had a sentence or two in mind for the foreword, something like, "Now that it has proved possible to resect half the brain, an entire lung, any endocrine organ, much of the liver, any part of the digestive or urinary tract, to include the upper hemithorax in a forequarter amputation and to amputate the lower half of the body, it can be comfortably asserted that extirpative surgery has reached its final limits." Fortunately, that foreword was never written. I do not believe I envisioned, then, removal of the heart, the heart and both lungs, the liver, the pancreas with the spleen, as part of organ transplantation, let alone the heart and the liver in the same patient. This is as brilliant an episode as there is in the history of surgery. Organ transplantation is applied only to end-stage disease, or irreparable malfunction, in which case this essentially mechanical solution is appropriate. The elimination of the need for transplantation is in the prevention or correction of the genetic defects, and the prevention and cure of the acquired and degenerative diseases, the destructive effects of which ultimately leave no remedy but replacement of the diseased organ.

History provides more examples of diseases for which operations are no longer being performed because the diseases and their complications have been prevented, than it provides of conditions so well treated by other means that operations no longer are necessary.

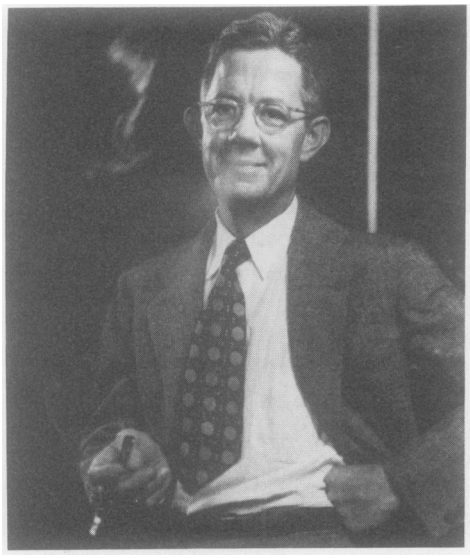
I suppose the pharmacologic control of hypertension, which terminated the interest in various types of sympathectomy for the relief of hypertension, is one of the better examples of nonoperative therapy obviating resort to operation.

The story of sympathectomy for other purposes is somewhat different. Cervical sympathectomy was tried, from the turn of the century, for epilepsy, exophthalmos, angina pectoris, bronchial asthma, the gastric crises of tabes, and gynecologic disease, and long since abandoned. Hunter[72] and Royle,[73] in Australia, seeking to affect spastic paralysis in children by lumbar ganglionectomy and ramisection, demonstrated the resultant increased circulation and abolition of sweating in the extremities. The operation was immediately taken up for every sort of vascular disease, including Buerger's and that due to arteriosclerosis, and in the late 1920s and the 1930s, paravertebral sympathectomy for peripheral vascular disease was an operation posted almost daily. The operation was easy to perform; the risk to the patient was very small; the dissection was attractive to anatomically minded surgeons. It is not to be doubted that in many instances the operations were employed on an insufficient scientific basis and persisted in without a record of good results to justify the persistence. Except in Raynaud's disease and in patients with hyperhidrosis, and the occasional patient with peripheral vascular disease to whom nothing else can be offered, the operations have fallen into disuse. The rise and fall took perhaps 15 years.

Particularly fascinating to me is the story of lumbar sympathectomy for Hirschsprung's disease, following the 1924 Australian observations that lumbar sympathectomy in spastic children, aimed at decreasing their spasticity, relieved their often stubborn constipation. The operation for this purpose was in vogue 15 to 20 years and was then totally abandoned, even before Swenson provided the first rational operation for Hirschsprung's disease. But please note that virtually every published report of sympathectomy for Hirschsprung's disease reported good results. It is puzzling and painful to me to recall my own enthusiasm for the procedure and for the results I achieved, of course, without a positive diagnosis, not possible till the publication of Bodian and Stephens.[74]

We need not, I suppose, speak of operations that never should have been undertaken and for which there was insufficient rational basis, and which, in fact, were suspect almost from the first, like suspension of the uterus, nephropexy, gastropexy, colopexy. Nor are we speaking of the occasional limited popularity of procedures sponsored by a surgical extremist on the basis of idiosyncratic theory, such as Arbuthnot Lane's[75] subtotal colectomy and his bypassing ileosigmoidostomy, both for "autointoxication."

It is clear enough that if an operation is an unqualified disaster, it is either not reported or very quickly falls from favor. By the same token, if the results of an operation



J. A. M. A.
May 19, 1945

VOLUME 128
NUMBER 3

THE SURGICAL TREATMENT OF MALFORMATIONS OF THE HEART

IN WHICH THERE IS PULMONARY STENOSIS OR PULMONARY ATRESIA

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Heretofore there has been no satisfactory treatment for pulmonary stenosis and pulmonary atresia. A "blue" baby with a malformed heart was considered beyond the reach of surgical aid. During the past three months we have operated on 3 children with severe degrees of pulmonary stenosis and each of the patients appears to be greatly benefited. In the second and third cases, in which there was deep persistent cyanosis, the cyanosis has greatly diminished or has disappeared and the general condition of the patients is proportionally improved. The results are sufficiently encouraging to warrant an early report.

The operation here reported and the studies leading thereto were undertaken with the conviction that even though the structure of the heart was grossly abnormal, in many instances it might be possible to alter the course

alveoli. The importance of this factor can be demonstrated by the prolonged inhalation of oxygen. In almost every case in which there is polycythemia, cyanosis can be greatly lessened by the prolonged inhalation of oxygen. The fact that all of the blood which circulated through the lungs is not fully oxygenated made it seem improbable that if more blood circulated through the lungs a larger proportion of the blood would be oxygenated. Thus the demonstration of the a factor completely overshadowed another vitally important factor, namely the volume of blood which reaches the lungs for aeration.[18]

Expressed in the simplest terms, the circulation of the blood through the lungs after birth is essential for life; any one deprived of such circulation dies. Indeed there is a point at which, even though none of the other pulmonary factors are operative in the production of cyanosis and all of the blood that passes through the lungs is fully oxygenated, the volume of blood that reaches the lungs for aeration and hence the volume of oxygenated blood returned to the systemic circulation is insufficient for the maintenance of life. For example, in all cases of pulmonary atresia in which the circulation to the lungs is by way of the ductus arteriosus the closure of the ductus arteriosus renders the condition incompatible with life.

FIGS. 11A and B. Operations that are immediately accepted–the systemic pulmonary anastomosis for the relief of cyanotic heart disease. *A, left.* Alfred Blalock (1899–1964). *B, right.* Title page of original paper by Blalock and Taussig in 1945.[76] Although at first blush it seemed that the addition of a fistula between the high-pressure systemic circulation and the low-pressure pulmonic circulation would even further embarrass children with complicated cardiac defects, the immediately observable benefit to the patients led to the almost instantaneous acceptance of the operation.

are of immediate and dramatic benefit, as in the case of Blalock's subclavian pulmonary anastomosis for cyanotic heart disease, it is immediately adopted. In this connection, I recall coming quite accidentally upon Blalock's report,[76] in the *Journal of the American Medical Association,* at the Library of the Royal Society of Medicine during a wartime leave in London (Figs. 11A and B). No one had written me about the operation. My immediate reaction was that it was bold, but miscast in that the production of a new physiologic anomaly, a fistula between the high pressure systemic and low pressure pulmonic systems, would convert a tetralogy of Fallot into a pentalogy of defects. I returned to Baltimore full of skepticism, which I was fairly careful to keep to myself. I was at once converted, as everyone had to be, by the transformation of handicapped cyanotic babies into apparently well, normally pink-lipped children.

This brings us to the question of the rapidity of the adoption of experimental new procedures. The public, of course, constantly clamors for the instant application of new techniques and the administration of new drugs that seem promising. If Jonathan Swift were to describe the visit of some Gulliver to a kingdom of the wise, he might conceivably be tempted to admire the fact that when new operations and new medicines were devised, a commission was appointed by royal edict to examine these and directed not to make its report until sufficient experience had been acquired and sufficient time had been expended to permit a definitive judgment. Swift's Gulliver might also have wondered whether this sort of scientific censorship might not be stultifying and discourage progress.

As one looks back, in the early years of cardiac surgery there may have been what appeared to be unseemly haste in adopting one new operation and technique after another, and indeed many new ones for the same purpose, almost simultaneously. This poses an interesting philosophical question. Let us ignore the matter of the reason for the rapid clinical trial and publication of a profusion of new methods, whether motivated by a pure-minded quest for improvement in therapy, or by the drive to promote the interests of the investigator or of his or her institution, or for that matter of his or her country. Let us instead consider the essentially moral problem involved. Obviously, for the patient threatened by an imminent or not-long postponable death, a problem did not exist. On the other hand, a patient who needed the correction of a cardiac defect, but was getting along moderately well, might conceivably have been carried along without dangerous deterioration for a year or 2 or 3 until a new technique had been perfected, or results were found to justify the risk, in the knowledge too, that with each year the risks declined. As most of you know, one of the problems of the early days of cardiac surgery was that the patients selected for operation were generally those so gravely ill that they were not expected to survive much longer without operation, and such patients were indeed at grave risk from operation. It was difficult to achieve good results and provide encouraging statistics when operating only on the extremely ill. Yet to accept for op-

eration those who were not critically ill, and who might not suffer gravely from delay, was to include some such patients among those who succumbed to the operation, given the substantial mortality of cardiac surgery in those days. I bear on my conscience today the deaths of specific children operated upon by me or referred by me to others for operation, in either case with fatal outcome, children who while severely handicapped and gravely threatened were yet short of the point of no return. Block, of Danzig, that visionary innovator and experimenter in cardiac and pulmonary surgery, felt the pioneer's burden with particular weight. Just 100 years ago, sharing with a few others the precocious belief that apical pulmonary resection would cure tuberculosis, he put his theory to the test. In the 1887 words of Roswell Park,[77] our President in 1901, "Block . . . believed so firmly in the infallibility of pneumectomy that he would fain practice it on man. Accordingly he operated on both apices of a young lady relative who was supposed to have apical lesions. She quickly succumbed, and her death led to a medico-legal inquiry, in the course of which it was claimed that her lungs were not affected. Chagrined and distressed he sought solace in suicide, his death quickly following hers."

The other side of the moral philosophical argument, of course, is that one can state with considerable assurance that, while in its early days the headlong development of cardiac surgery did in fact result in the deaths of some patients who might have survived for several years until cardiac surgery was much safer, yet the very rapidity of the development of cardiac surgery meant in the end, that over a given period of time, a great many lives were saved, because techniques were so rapidly developed as to become available for those patients for whom the period of permissible delay was always short, and who would otherwise have died before the appropriate operation had been developed. Taken in this way, the argument is that the rapid exploitation of a new technique of surgery, whether in cardiac surgery or transplantation, or neurosurgery, may well save more lives over, let us say, a decade of development, than would be saved by slower, more deliberate progress.

In the words of the old ballad, "This story has no moral, this story has no end," but I would say that we have at times too long from custom persisted in procedures no longer justified. We have sometimes not examined closely enough new procedures that have ultimately proved useful. At times, we have adopted new operations, persuaded more by hope for our patients than by clear-eyed appraisal of the evidence, or have undertaken them before the time was ripe. It behooves each of us every day to justify every operation we do, to be learned enough, thoughtful enough, rigorous enough in our thinking, and compassionate enough, to do the right thing by our patients, at the same time that we strive to advance our healing art.

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