Staff Meeting Bulletin
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University of Minnesota

NEOPLASTIC BILIARY OBSTRUCTION

Volume XVII | Friday, October 26, 1945 | Number 4

STAFF MEETING BULLETIN
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UNIVERSITY OF MINNESOTA

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INDEX

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I. UNIVERSITY OF MINNESOTA MEDICAL SCHOOL

CALENDAR OF EVENTS

Oct. 29 - Nov. 2, 1945

No. 87 Medical Visitors Welcome

Saturday, Oct. 27

9:00 - 9:50 Pediatrics Grand Rounds, I. McQuarrie and Staff; W-205, U. H.

9:15 - 10:20 Surgery-Roentgenology Conference; O. H. Wangensteen, L. G. Rigler, and Staff; Todd Amphitheater, U. H.

9:00 - 9:50 Medicine Case Presentation; C. J. Watson and Staff; M-515 U. H.

10:00 - 11:50 Medicine Ward Rounds; C. J. Watson and Staff; E-221 U. H.

11:30 - 12:20 Anatomy Seminar; History of Anatomical Bibliography, S. R. Miller; I. A. 226.

Sunday, Oct. 28

11:00 - 1:50 Obstetrics and Gynecology Grand Rounds; J. L. McKelvey and Staff; Station 44, U. H.

Monday, Oct. 29

9:00 - 9:50 Roentgenology-Medicine Conference; L. G. Rigler, C. J. Watson and Staff; Todd Amphitheater, U. H.

9:00 - 10:50 Obstetrics and Gynecology Conference; J. L. McKelvey and Staff; Interns Quarters, U. H.

12:15 - 1:05 Pediatrics Seminar; I. A. McQuarrie and Staff; 6th Floor Eustis.

12:30 - 1:20 Pathology Seminar; Hodgkin's Disease of the Breast, D. H. Peterson; 104 I. A.

12:30 - 1:20 Physiology Seminar; Disuse Atrophy of Bone, W. D. Armstrong, 214 M.H.

4:00 - School of Public Health Seminar: The Rochester Child Health Project; C. Anderson Aldrich; Women's Lounge, 6th Floor Students' Health Service.

Tuesday, Oct. 30

9:00 - 9:50 Roentgenology-Pediatrics Conference; L. G. Rigler, I. McQuarrie and Staff; Eustis Amphitheater, U. H.

12:30 - 1:20 Pathology Conference; Autopsies; Pathology Staff; 104 I. A.

4:00 - 5:20 Obstetrics and Gynecology Conference; J. L. McKelvey and Staff; Station 54, U. H.

4:00 - 4:50 Surgical-Physiology Conference; Amputations and Prosthetics, H. Hall and H. Wells; Eustis Amphitheater.

4:30 - 5:20 Ophthalmology Ward Rounds; Erling Hansen and Staff; E-534, U. H.

5:00 - 5:50 Roentgen Diagnosis Conference; W. K. Stenstrom, Harry Mixer.

Wednesday, Oct. 31

8:00 - 8:50 Surgery Journal Club, O. H. Wangensteen and Staff; M-515 U. H.

9:00 - 10:30 Pediatrics Staff Rounds; W-205 U. H.

9:00 - 10:50 Neuropsychiatry Seminar; J. C. McKinley and Staff; Station 60, Lounge, U. H.

11:00 - 11:50 Pathology-Medicine-Surgery Conference; Chronic Ulcerative Colitis, Cirrhosis of Liver, and Carcinoma of Colon; E. T. Bell, C. J. Watson, O. H. Wangensteen and Staff; Todd Amphitheater, U. H.

12:30 - 1:20 Physiology Chemistry Journal Club; Staff; 116 M. H.

4:30 - 5:20 Neurophysiology Seminar; Spinal Irradiation, Ernst Gellhorn; 113 MeS.

Thursday, Nov. 1

9:00 - 9:50 Medicine Case Presentation; C. J. Watson and Staff; Todd Amphitheater.

12:30 - 1:20 Physiological Chemistry; Biochemistry of Nucleic Acid; Cyrus P. Barnum; 116 M. H.

4:30 - 5:20 Ophthalmology Ward Rounds; Erling Hansen and Staff; E-534, U. H.

5:00 - 5:50 Roentgenology Seminar; Review of Recent Radiological Literature, Radiology Staff; M-515 U. H.

Friday, Nov. 2

9:00 - 9:50 Medicine Grand Rounds; C. J. Watson and Staff; Todd Amphitheater, U.H.

10:00 - 11:50 Medicine Ward Rounds; C. J. Watson and Staff; E-221, U. H.

10:30 - 12:20 Otolaryngology Case Studies; L. R. Boies and Staff; Out-Patient Otolaryngology Department; U. H.

11:50 - 1:15 University of Minnesota Hospitals General Staff Meeting; Schüller-Christians Disease, Solveig Bergh; New Powell Hall Addition Amphi.

2:00 - 3:15 Dermatology and Syphilology; Presentation of Selected Cases of the Week; H. E. Michelson and Staff; W-312, U. H.

1:30 - 2:20 Roentgenology-Neurosurgery Conference; H. O. Peterson, W. T. Peyton, and Staff; Todd Amphitheater, U. H.

II. NEOPLASTIC BILIARY OBSTRUCTION

Clarence Dennis
R. L. Varco

Neoplastic biliary obstruction was generally a hopeless ailment until the introduction of a successful radical operation by Whipple and his associates in 1935[1]. When these workers showed that the pancreatic duct could be occluded without fatal results in resections of the ampulla of Vater, interest was at once aroused in an attack not only on carcinoma of the ampulla but on cancer of the head of the pancreas as well. The impulse of this discovery was perhaps fortuitous in that later experimental work has shown the advisability of reanastomosis of the pancreatic ducts to the intestine.[2]

Diagnosis

This presentation is not primarily concerned with diagnostic considerations. About one third of these cases summarized in this report have presented histories not of classical painless progressive jaundice, but of jaundice preceded or accompanied by bouts of "biliary pain". The diagnostic studies of Dr. Watson and his associates[3] have offered an almost perfect record in this group of cases.

The Development of Radical Pancreatic Duodenectomy

Prior to 1941, Whipple's original plan of performing pancreatico-duodenectomy in two stages was generally followed. The first was primarily for creation of a new passage by which bile could enter the intestine and thus control the abnormal bleeding tendency associated with biliary obstruction. Usually a gastroenterostomy was done at this first sitting also to facilitate both preoperative feeding and the performance of the resection of the tumor at a second stage some weeks later.

With the introduction of vitamin K, it became possible to control this bleeding tendency without relief of the biliary obstruction, and thus, in 1941, Whipple[4] and Trimble and associates[5] independently reported a one-stage operation for the removal of cancers of the head of the pancreas or ampulla of Vater. Aside from the lessened risk of one operation as opposed to two, freedom from the adhesions of a prior stage made complete block resection of these lesions more frequently possible.

Although Whipple has shown that patients usually have good fat digestion after exclusion of pancreatic juice from the intestine, yet some of his patients suffered steatorrhea.[6] Dragstedt noted in animals that a much better nutritive state exists after parital pancreatic resection when a remnant of the pancreas with a duct is left on the duodenum, and suggested implantation of the pancreatic duct into the stomach or intestine as a part of the Whipple procedure.[2] Hunt attempted to anastomose the pancreas into the cut end of the severed jejunum in 1941[7], and a variety of plans for achieving this result has been described by other workers during the past four years.

In line with these findings, the now generally accepted repairs after radical resection of cancer of the head of the pancreas include not only reconstruction of a biliary-intestinal fistula and a gastroenterostomy, but also a pancreaticoenterostomy. The exact types of procedure employed by various authors are of considerable interest, and the most important ones will be briefly sketched later.

Considerations in the Radical Resection

Biliary anastomosis. Upon review of the pertinent literature, several considerations become apparent with regard to the performance of a satisfactory operation. The first of these is the prevention of ascending cholangitis following anastomosis between the biliary and intestinal tracts, a complication of considerable frequency in the best of hands. Trautmann, Robbins, and Stewart showed in experimental studies in dogs that simple side-to-side anastomosis of bowel to gall bladder uniformly is followed by passage of intestinal content into the biliary tract.[8] Cole and Reynolds report the

development of suppurative cholangitis in two cases of radical pancreaticoduodenectomy in whom the biliary anastomosis was made distal to the gastric anastomosis.[9] In both "the chills and fever stopped abruptly when we interrupted the loop of jejunum which had allowed reflux of food into the intrahepatic ducts". We have adopted the plan here of placing the gastric anastomosis well below the biliary one.

Wangensteen made a rather exhaustive study into the literature in connection with the reporting of a case of ascending cholangitis after cholecystenterostomy; his review of all studies on the subject up to 1928 indicates that the avoidance of stenosis at the site of anastomosis is at least as important as the prevention of reflux from the intestine into the biliary tract.[10]

Pancreatic anastomosis. Another consideration of some importance in the radical resection of the duodenum and the head of the pancreas is that of the handling of the pancreatic duct. In Whipple's first cases and in those of most other authors until 1942, including that previously reported from the Univ. of Minnesota the pancreatic duct was simply ligated and the cut end of the gland carefully closed with fine silk. The end result of this was usually degeneration of the acinar portion of the remaining pancreas.[2,6,11] The experimental work of Whipple indicated that most of these patients suffered no serious interference with fat metabolism[4,6]; this was perhaps due to the leaving of portions of the duodenum containing small accessory pancreatic ducts. In the case reported from here[12] and equivocally in some of those of Brunschwig,[13] instances of steatorrhea were observed, with impaired nutrition. Dragstedt has shown that complete blockage of the pancreatic juice from the intestine of the dog results not only in degeneration of the acini, but interferes with the internal secretion, lipocaic, in half the animals, leading to the formation of fatty changes in the livers of these subjects.[2] These findings have led most surgeons to attempt to reanastomose the pancreatic and intestinal lumina in the radical operations.

Simplicity of procedure. A further consideration is the development of the simplest procedure possible, one with a minimum of anastomoses, etc., a factor demanded by the usual poor condition of these patients.

Pre-operative preparation. The preoperative preparation of these poor-risk patients must follow the lines that have already been stressed in publications from the department.[14,15]

Representative Procedures

Cancer of the head of the pancreas or of the ampulla with extension into the duodenum, common duct, or pancreas. The original operation of Whipple, Parsons, and Mullins[1] was done in two stages, the first of which was composed of cholecystogastrostomy and gastroenterostomy, and the second of which was resection of the head of the pancreas and much of the duodenum, with inversion of all cut ends (see figure).

A second type is Whipple's procedure of 1938,[16] in which a wider resection and a Roux Y-plasty permitted him to use the cut end of the jejunum to make an end-to-end anastomosis to the gall bladder.

Hunt (1941)[7] first attempted to anastomose the pancreas to the jejunum in this type of case. An end-to-end pancreatico-jejunostomy was made, and the common bile duct was implanted into the side of the bowel. He suffered from pancreatic fistulae. Implantation of the common bile duct instead of the gall bladder was adopted by Hunt and others because it had been found that the closed end of the duct was prone to blow out, no matter how carefully closed.

The operation of Trimble, Parsons, and Sherman (1941)[5] introduced the use of the cut end of the stomach directly for the gastrojejunostomy, rather than the more clumsy closure of the end of the stomach and side-to-side gastroenterostomy, as previously.

The operation of Dennis (1942)[12] stressed for the first time the use of

a long jejunal loop (40 cm.) between the end-to-end biliary anastomosis and the gastroenterostomy as a means of preventing reflux of intestinal content into the biliary tract. Gastrointestinal studies on these patients failed at any time to show reflux for more than a fraction of the distance from the stomach to the gall bladder. Likelihood of ascending cholangitis was further reduced by use of the end-to-end cholecystojejunostomy, adopted because it was thought to minimize the likelihood of stenosis. This operation was designed to be as simple as possible; whereas all previous operations had involved a minimum of four suture lines, and several as many as six, this required but three. Trouble was encountered with blow-out of the common duct closure.

Whipple's operation of 1943 [17] incorporates this general plan of simplification, but includes a pancreatic anastomosis. Because of the short loop between the common bile duct anastomosis and the gastric anastomosis, it seems to us that it fails adequately to insure against reflux from the stomach into the biliary tract.

Numerous other procedures have been published, but they seem not to be crucial in the development of the ideal operation. An excellent summary of them is given by Orr[21].

The Univ. of Minn. operation. The operation which we have now gradually developed as standard at this clinic has resulted from our own experiences as much as from perusal of ideas expressed in the literature. A radical resection is performed, with removal of the bottom third of the stomach, all the duodenum, the first 15 cm. of jejunum, about 2/3 of the common bile duct, and the head, uncinate process, and neck of the pancreas in one block of tissue. The cut end of the remaining jejunum is temporarily closed and brought through the right side of the transverse mesocolon. An end-to-end anastomosis is made with the common bile duct, and the gall bladder is removed. As the jejunum passes the cut end of the pancreas, an anastomosis of the pancreatic duct to this viscus is made. At a point 40 cm. down the jejunum, a retrocolic Polya gastroenterostomy is performed. Penrose drains are placed adjacent to the pancreatic and biliary anastomoses, and the abdomen is closed.

Anastomosis of the pancreas has been attempted by various manouvers in the past. Coffey attempted it by rather complicated plastic procedures on the bowel prior to implantation of the entire head, or tail, or the organ[18]. He found the difficulty to be that tissue juices activate the proteolytic enzymes of the pancreatic juice, with resultant digestion of the vulnerable suture line. Poth devised a silver button over which anastomosis could be made[19]. Varco's method consists in insertion of a catheter into the pancreatic duct, ligating it securely, and inserting it through a small stab wound into the intestine for 8 or 10 cm [20]. The anterior and posterior capsules of the pancreas are then sutured accurately to the serosa of the intestine about a cm. from the catheter entrance into the bowel. Such a scheme assures healing by delivering the proteolytic juice into the intestine at a distance from the healing suture line.

This final radical operation has been employed in four cases:

Case 1. ., a 73-year-old woman entered the Minneapolis General Hospital with a story of progressive painless jaundice and cardiac failure, which proved to be on an arteriosclerotic basis. Watson tests showed carcinomatous biliary obstruction. Following digitalization and cholecystostomy her condition very slowly improved on our usual preoperative regimen[14]. On 2/18/45 she was explored (Dennis). A well-localized lesion in the head of the pancreas was removed by the radical procedure described, but the gallbladder was left despite the presence of stones because it had been necessary to await return of the pulse and blood pressure to normal levels repeatedly, and gross transfusion had been feared because of her cardiac status. Her postoperative course was surprisingly smooth, although she was slow to gain weight.

She returned to M.G.H. late in September with right upper quadrant pain in attacks. Passage of a gallstone into

the common bile duct with impaction at the anastomosis was diagnosed and verified at operation, 10/10/45. The abdomen was free of evidences of tumor. The gall bladder was removed and the stone pushed into the jejunum. The postoperative course has been marred by some purulent drainage around a wick left in the operative site, but the incision healed nicely, and the patient remains well, afebrile, and free of jaundice.

Case 2. ., a 74-year-old man, came to the Univ. of Minn. Hosp. 4/3/45 with jaundice of 6 months' duration associated at the onset with pain. He had had 3 previous operations on the biliary tract, the last in 1940. Watson tests 4 months earlier had indicated hepatitis, but on this admission extrahepatic obstruction was indicated. Exploration 4/17/45 revealed a cancer of the common duct involving the duodenum (Dennis). Radical resection was done. The patient died suddenly in 48 hours of pulmonary embolism, proven at autopsy. (N.B.This had been feared because of extreme preoperative lethargy. On another occasion the vena cava will be ligated).

Case 3. ...., a 66-year-old man, came to the Univ. of Minn. Hospitals 8/29/45 with a 2-month history of painless jaundice. Studies indicated carcinomatous obstruction and radical resection was done 9/13/45 (Dennis). The postoperative course was complicated by a biliary fistula which closed in a few days. He went home feeling well 10/6/45.

Case 4. , a 66-year-old woman came to the Univ. of Minn. Hospitals 10/10/45 with a 4-month story of painless jaundice. Watson tests indicated a cancerous obstruction and at operation 10/19/45, a radical resection was done for carcinoma apparently of the intramural common duct. Drainage was omitted. The postoperative course has been uneventful to date (10/23/45).

The difficulties inherent in such radical procedures are many, but the ones which have bothered most are:

1) Exposure. We have come to use a long transverse incision plus a vertical upward extension from the center (Brunschwig incision). This is adequate and minimizes the need for retraction. All have healed primarily.

2) Establishment of operability. After exposure of the lesion, it is often impossible to determine whether it involves the wall of the portal vein or the superior mesenteric vein until the operator has been committed to resection by division of the pancreas or the stomach. Involvement of other vessels, as the hepatic artery or splenic vein occurs only a little less frequently, but is less difficult to determine.

3) Dissection of the portal vein and superior mesenteric vein from the pancreas. These vessels are friable and are joined to the pancreas, which partially surrounds them, by numerous fine tributaries which bleed profusely if torn. Adoption of the coagulating current to control these vessels has facilitated this dessection enormously. Dissection is also rendered difficult by the frequency of neoplastic or inflammatory adhesion to the walls of these veins.

4) Vascular anomalies. These are apparently frequent. We have done one procedure in which the celiac axis was absent and the hepatic artery arose from the superior mesenteric artery and traversed the head of the pancreas; in another the portal vein crossed entirely in front of the neck of the pancreas.

Other phases of the operation are straightforward, but timeconsuming.

Carcinoma of the ampulla of Vater

In 1899 Halsted reported a case of successful excision of a carcinoma of the ampulla of Vater by a trans-duodenal approach, utilizing local excision of the lesion and reimplantation of the ducts into the resulting defect in the mucosa of the posterior duodenal wall[21]. To date, this procedure has not been superceded. The single difficulty lies in failure to remove a wide block of tissue surrounding the lesion. A further practical difficulty sometimes has arisen here, namely that more than the mucosa of the posterior duodenal wall may have to be removed, leaving a defect which is difficult of closure.

Report of Cases

In the period from Jan. 1, 1937, to date, we have been able to find 41 cases of biliary tract obstruction due to cancer which have passed through the Main Operating Room at the University of Minn. Hospitals and the Minneapolis General Hospital. Several other cases which have arrived in terminal condition, or have not been subjected to surgery for other reasons are not included. Date are presented in Table I.

Table I
IMMEDIATE RESULTS
of Surgical Procedures for
Neoplastic Biliary Obstruction

	No.	Surg. deaths
Non-resectable lesions		
Exploration only		
Ca. of Pancreas	5	2[1]
Ca. of uncertain origin	2	0
Palliative procedures	13	3
Total	20[2]	5
Local resections		
Ca. of common bile duct	4	1
Ca. of ampulla of Vater	5	0
Total	9[3]	1
Radical Pancreaticoduodenectomy		
Ca. of common bile duct	1	1[4]
Ca. of ampulla of Vater	2	1[5]
Ca. of head of pancreas	9	2[6]
Total	12[7]	4
Grand total	41	10

1) One died on induction of anesthesia alone.
2) 17 Dennis, 1 Dennis and Varco, 2 others.
3) 4 Dennis, 3 Varco, 1 J.R.Paine, 1 O.H.Wangensteen.
4) Pulmonary embolus 2 days p.o.
5) Inexperience (Dennis). Superior mesenteric artery cut.
6) One case of vascular anomaly: hepatic artery traversed head of pancreas (D and V).
   One case had heavy involvement of portal vein found only after commitment to excision; segment resected and vascular anastomosis attempted; anastomosis functioned and remained patent (proved at Post mortem), but patient died of hepatorenal syndrome. (Dennis).

Follow-up of cases has been good only in those subjected to resection; it is being pursued in the others, but is not yet complete. Insofar as the data are now available, they are presented in Table II.

Comment

Review of our results will raise questions as to the value of radical resections for carcinoma of the biliary tract. This question has been studied in some detail by T.G. Orr[21] in a summary of all cases reported in the literature up to Dec. 9, 1944. 104 such radical resections had been reported at that time. Our report concerns 12 cases, one

Table II
Follow-up data on cases of
Neoplastic Biliary Obstruction

	No. surviving surgery	Survival & status
Local excisions		
Common bile duct	3	L 1 yr. L&W 1 mo. D 1 yr.
Ampulla	5	L&W 33 mo. 24 mo. 19 mo. 5 mo. L 12 mo.
Radical excisions		
Ampulla	1	D 8 mo.
Pancreas	7	L&W 8 mo. 2 mo. 4 da. D 6 mo. 5 mo. 3½mo. 3 mo. (Not of tumor)
Non-resectable cases with follow-up	5	D 3 at 4 mo. 2 at 2 mo.

of which is included in the 104 mentioned by Orr.

The surgical mortality incurred in the series of cases reported in primarily of a type which should not again occur, now that further experience has been gained. It seems probable that the risk in the future should fall to about 10 per cent.

The follow-up data on the radical resections will further tend to raise doubts about the advisability of the procedure. Here again, the aquisition of experience will improve our results. Our longest survival was subjected to operation in February, 1945, and, save for two avoidable surgical accidents*, all cases done since that time are now living and apparently free of tumor.

The most promising group of patients, both from the point of view of surgical mortality and of postoperative survival is that comprising local excisions for carcinomas of the ampulla of Vater. There have been no surgical deaths in this group, and all patients are living, although one has evidences now, after a year, of recurrence. Radical resections for this group may prove to be in order; those two here reported were disappointing, but both were extensive tumors not amenable to local excision.

There seems no doubt about the advisability of resection for common bile duct carcinomas.

Conclusions

1) The development of operations for neoplastic biliary obstructions has been outlined.

2) A procedure which we have evelved has been presented. For several reasons, we consider it superior to any heretofore reported. The most important is the simplicity of the plan.

3) Eleven new radical pancreaticoduo-

*Section of the sup. mesenteric artery, and anticipated pulmonary embolus; this was feared because of marked lethargy preoperatively. The vena cava should have been ligated at operation.

denectomies are added to the 104 cases already in the literature, one of which also came from this group.

4) Our experiences with 41 cases of neoplastic biliary obstruction have been presented.

5) Simple exploration carried a 25% mortality in the non-resectable cases, and the survivors of surgery lasted on the average only a little over 3 months.

6) Radical pancreaticoduodenectomy carried a 33% mortality, mostly due to now-avoidable factors. Of the 8 survivors, 5 died in an average of a little over 5 months, and three are living and well at periods up to 8 months.

7) Local resections of lestions of the common duct or ampulla of Vater incurred a mortality rate of only 11%. The ampullary local resections cases are all living, and 2 of 3 common duct resections to survive surgery are still living.

8) With the experience which has now been gained, the mortality rate of surgery in these cases as a whole is expected to drop to less than 10%.

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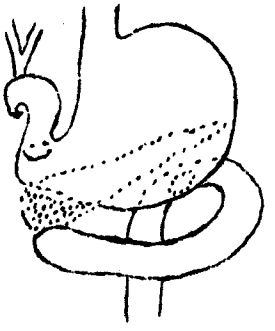
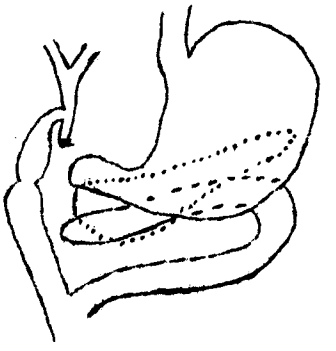
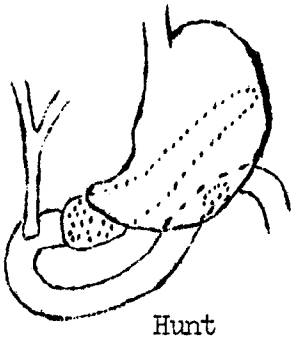


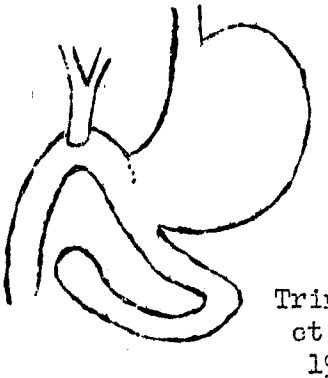
Whipple, Parsons, & Mullens, 1935



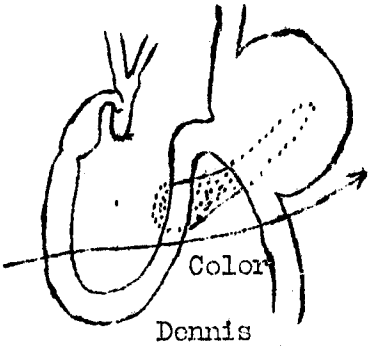
Whipple 1938



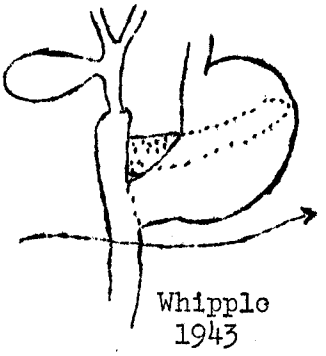
Hunt 1941



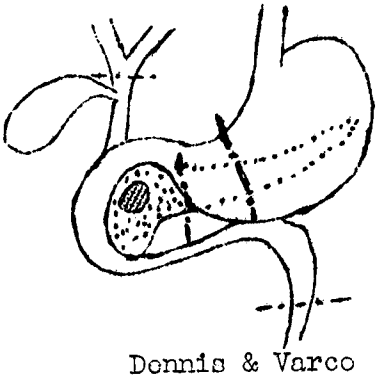
Trimble et al. 1942



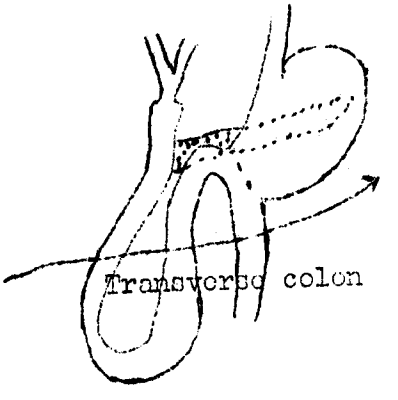
Dennis 1942



Whipple 1943



Dennis & Varco 1945



III. GOSSIP

The Midwest Section of the American Federation for Clinical Research meets in the Drake Hotel Chicago, Thursday November 1, 10 A.M. and 2 P.M. Twenty papers will be presented by representatives from Chicago, Madison, Ann Arbor, Indianapolis, Detroit, Great Falls, Cleveland, Rochester, Minneapolis, Boston, Salt Lake City and Columbus; Minnesota names on the program include E. H. Lambert, C. F. Code, Ivan D. Baronofsky, Richard L. Varco and Charles E. McLennan. This organization represents our junion group who last met a few years ago in connection with the meeting of the American College of Physicians in St. Paul. Secretary is F. W. Hoffbauer. ----Returning medical officers visit the Department of Postgraduate Medical Education daily. The majority are on terminal leave which extends to the end of December or the first part of January; as they cannot start their educational program during this period, they are advised to first become acquainted with their family, to adjust themselves to civilian ways of living, and later to assist a physician in practice, or take a part-time position. Largest number who reported during the past few weeks are from the class of 1939 and most of them have not had much clinical experience beyond their internship, as they have been in service for four and one half years. During their leisure hours they had an opportunity to think about the future and many are asking for special training in surgery. Can it be that the surgical treatment of disease is so much more interesting than the other branches of medicine or is it a question of taking care of your own surgery in general practice? Many general practitioners insist that unless you do your own surgery you lose caste which is in sharp contrast to the old idea that it was entirely an economic factor. The American Specialty Boards have been accepted as the objective by the majority of returning service men who want more training, and only an occasional man asks how much credit he will receive for his army time. The Journal of the American Medical Association published a list of residencies for the entire country in the October 1 issue. Some of the returning medical officers have visited many of these spots only to be told that the places are filled. Others have applied by mail and received the same information. There is a well-founded rumor inactive reserve officers of the Army and Navy now occupying these residencies will vacate them April 1 and July 1, 1946. Hospitals may then fill their vacancies with returning medical officers, 4fs or women. In addition many institutions will increase the number of residencies and new places will be created.....Alan Gregg, Rockefeller Foundation, in discussing "Trends in Medical Education" wonders what is to be done with a man whose training was packed in 36 hurried months in schools and hospitals obviously under staffed. The physician knows that he has forgotten much and missed more of all that goes to make up a good doctor's education. As American medical schools have graduated between five and six thousand doctors each year from these programs, it will be necessary to reprocess between fifteen and twenty-five thousand physicians who will need and want postgraduate training. The American Medical Association survey indicates that 80% of the graduates of the last five years are asking for such opportunities. These men want residencies that will guarantee them first rate teaching and guidance. They are in a hurry because they have been in the service a long time and they are anxious to get started. Like most returned soldiers seeking further education, they will be eager to work, critical of poor teaching, and terribly in earnest. Our medical schools and teaching hospitals do not have the space, staffs or teaching material to meet the expected demand. The answer is to convert non-teaching hospitals into teaching institutions. Dr. Gregg points out that the public can expect the best care in those hospitals which give closest attention to teaching. Instead of hospitals rewarding the men who can bring the most patients, hospital staffs should appoint members for their ability to teach. This helps the teachers as well as the students and the patients. But hospitals are only one means of furthering medical education. Trained men should take on associates in their private practice for the same purpose. Dr. Gregg is also a believer in the"autopsy method" of working up a patient. He once said

that if he were taken to a hospital which was unknown to him, he would ask for their postmortem percentages. If it was high, he would know that the whole system revolved around complete work-ups, so that if the case came to post no one would be bawled out and all would be praised for their efforts--and strangely enough under such a system the recovery rate would be higher. Dr. Gregg urges hospitals to affiliate with medical schools even at a distance. The teaching hospital is the focal point in all trends in medical education; it is not just a postwar measure as it represents a forceful, permanent type of medical training. The tide of medical education is turned in the direction of the teaching hospital and the facilities must be developed.-----We have sent nearly 400 requests for information concerning our postwar plans. This does not include the letters which have been held in departmental offices. Large number of requests come from our own men and others from those outside the district. The following suggestions are made to those asking for information. Secure a residency if possible and come back for your basic training later. Only a limited number can do this, so to the balance we suggest that they start their review courses at the Center for Continuation Study now and take their residency later. They will have 2 choices of courses. A. Clinical review course in medicine and medical specialties one quarter, followed by clinical review course in surgery and surgical specialties one quarter. B. Pre-clinical (basic science) review courses and attendance at departmental seminars, conferences, two quarters. In both cases the student will have his tuition paid by the Veterans Administration and will receive books and maintenance ($50 or $75 a month). A student could spend four quarters in this way in preparation for the future. If the residencies open up July 1, 1946, those men would be in a good position to qualify for them. In our plans for the future every effort should be made to increase our staff and facilities to the point where we can handle undergraduate, graduate, and continuation study students at the same time. A distinction is made between a graduate student who receives a regular appointment as medical fellow and whose program is planned and arranged entirely by us and one that we assist in planning by offering review courses in clinical branches and basic sciences and help in securing a residency in another institution. Fellowships are primarily for those interested in teaching and research and residencies for those who will engage in clinical practice. Some of our clinical departments are arranging programs which will include a rotating schedule between Minneapolis General, Ancker Hospitals, and University Hospitals. The question of integrating residencies in private hospitals and fellowships in our Hospitals has also been discussed...Staff meetings are off to a good start and the return of many former staff men from the service makes it look like old times ....The Center for Continuation study will present a special continuation course for pediatricians November 7, 8, 9 and 10. Nov. 7 will feature a symposium on convulsive disorders by Irvine McQuarrie, Max Seham, Forrest H. Adams, Mildred Ziegler, John M. Adams, R. A. Jensen, and H. M. Keith. In the afternoon the relationship between child psychiatry and teaching, community, and school service will be discussed; also speech problems and the relationship between mental development and clinical problems. Participants, R. A. Jensen, H. S. Lippman, Harold B. Hanson, Starke R. Hathawwy, and Bryng Bryngelson. Nov. 8 will be devoted to psychosomatic pediatrics with Dr. Milton J. E. Senn of Cornell as the leader. Thursday afternoon Dr. C. A. Aldrich will present his findings on development in the first two years of life. November 9 there will be a symposium on congenital and acquired heart disease in children. Dr. Helen B. Taussig, Baltimore and Dr. Hugh McCulloch, St. Louis will be the discussion leaders. Participants will be Leo G. Rigler, George E. Fahr, M. J. Shapiro, O. H. Wangensteen, Paul F. Dwan, W. W. Spink, B. J. Clawson, J. M. Adams and others. On Saturday, November 10, Chronic Constrictive Pericarditis will be presented.....