

DISCUSSION

DR. BENTLEY P. COLCOCK (Boston): I am happy to discuss these fine papers, because I think this is a very important subject. As you have heard, carcinoma of the colon is the most common form of malignant disease, in terms of the number of lives destroyed every year by cancer. I will confine my remarks largely to the first two papers since both Dr. Cohn and Dr. Glenn were kind enough to send me their papers before this meeting.

Dr. Cohn had a tremendous amount of data, all of which have been very carefully analyzed. Until you read the paper I do not think you can appreciate how extensively these data have been reviewed and analyzed. I compliment him on his 99%-plus follow up. We cannot do that well in Boston.

It cannot be said that the treatment of carcinoma of the colon makes very little difference in the end results (as has been said about carcinoma of the breast) when 52% survive for 5 years after resection, and less than 2% survive after palliation or no treatment.

I am sure (slide) that all of us are concerned about the fact that the 5-year survival rate reported in all of these papers (and in our hands) for a number of years has remained around 40 to 45 to 50%.

This is an analysis of a year's experience that I made a few years ago, and I want to draw your attention to the last two lines on this slide. A good many years ago William Mayo made the statement: "Show me a clinic where the operability rate is high, and I'll show you a clinic where the mortality rate is high."

We have been able to overcome that, just as was reported in these papers. In most surgeons' hands, the operability rate today for carcinoma of the colon and rectum is more than 90%. I am afraid we will not save many more patients with cancer of the colon and rectum by operating on more of these patients. The mortality rate for 1961 was 6%. Occasionally it has been down to 5%, and some years to 4%—not quite as low as Dr. Glenn's mortality rate (2.7%), but not too different. It is not going to go much lower because these patients are not dying from their disease or from postoperative peritonitis as they did years ago. They are dying from associated disease—heart, liver and kidney disease—that cannot be avoided if we operate on patients in their eighties and nineties.

Where are we going to turn, then, for improvement in this 5-year survival rate? There are two points that I would like to make regarding Dr. Cohn's paper and two regarding Dr. Glenn's paper.

There were 29 patients in the series reported by Dr. Cohn in whom carcinoma was present at the line of resection. Surely we, as surgeons, can slowly but steadily eliminate that group. Even if it means doing an abdominoperineal resection, it will be better than leaving carcinoma in the colon or rectum. None of these patients in whom car-

cinoma was present at the line of resection survived 5 years.

I would also like to say a few words about carcinoma of the cecum and ascending colon. In Dr. Cohn's study 15% of the patients had carcinoma of the cecum and ascending colon, and he pointed out the silent nature of this lesion.

(Slide) The patient with carcinoma of the cecum or the ascending colon is the forgotten man in carcinoma of the colon and rectum. He does not have the symptoms which Dr. Glenn showed on his slide, that you and I associate with cancer of the bowel. He rarely has any bleeding. He does not have much pain, and he does not have much change in bowel habits.

When I reviewed our patients with carcinoma of the right colon, I found that, contrary to the usual delay (I selected an arbitrary period of 6 weeks between the time the patient first saw his doctor and the time the correct diagnosis was made) of 28% for all patients with carcinoma of the colon, it was 68% for those with carcinoma of the cecum and ascending colon!

Why? (Slide) As I have said before, the diagnosis is delayed because the symptoms are different. They are not related to the gastro-intestinal tract. Unless we remember this, the diagnosis of carcinoma of the cecum and ascending colon will continue to be made late. In 68% the diagnosis was missed for 6 weeks or more, and many of these patients went into a hospital. Some even had repeated transfusions weeks before a barium enema X-ray study was made and this lesion discovered. The discomfort and the pain are not well localized. The pain may be just a vague, often intermittent discomfort in the right lower quadrant.

Now turning to Dr. Glenn's paper—in his discussion today he only touched on polyps. I think they are very important because there is a great deal of confusion today as to just how significant polyps are.

I agree with Dr. Glenn that a polyp, if under 1 cm. in diameter in a 90-year-old man, can safely be watched; but how many do we see under 1 cm.? Usually by the time we detect a polyp it is over 1 cm. Dr. Moyer, Dr. Ackerman, and others say that it is not important to remove polyps when they are under 1 cm. in diameter, but they believe they should be removed when they are over 1 cm.

We can cut through today's confusion about the importance of polyps and their relationship to carcinoma, and say that only microscopic examination will tell whether the lesion is a polyp or a polypoid carcinoma, and it should be removed in most patients whether it is 9 or 12 mm. If we are to improve our 5-year survival rate, this is the kind of lesion that we should detect and eliminate early, because we can cure 90% of patients with a lesion this size.

Again, referring to Dr. Glenn's paper, the operability rate is 92 per cent. That cannot be pushed much higher. The five-year salvage, again, is

around 40%. His operative mortality is down to 3 to 4%. It cannot be pushed much lower.

Dr. Glenn has emphasized earlier diagnosis. We come back to this so often that it is trite—but it is so true. In cancer of the colon and rectum we are handed a golden opportunity—two-thirds of the patients who come into your office will have a lesion which can be seen and biopsied the first day because the polyps are within reach of the proctoscope. This is the way we will find the early asymptomatic lesions. This is the best means we have to improve the 5-year salvage of carcinoma of the colon and rectum.

DR. WARREN H. COLE (Chicago): I shall confine my remarks to Dr. Glenn's paper for the sake of time, because I had the opportunity to read his paper. I thought this was a splendid contribution, as were the others, and there are many fine points in this paper which are worthy of emphasis.

In the first place, I agree with him that we have made only slight improvement in the 5-year survival rates, although considerable improvement has been made in the mortality rate after operation. There are several features which explain this decrease in mortality rate from 20 to 25% down to 2 to 5% during the past 35 years.

In my opinion one of the important features in this explanation is the correction of malnutrition preoperatively. I believe this is the most important feature in preoperative and postoperative care—as it exerts influence on the mortality rate. A second important factor is the use of silk on the outside layer of the anastomosis, and third is improved anesthesia.

I do not include blood transfusions, because blood transfusions were being used liberally 35 years ago. I can speak with authority on that because I was a house officer during that time, when we were giving a lot of blood transfusions.

But why is there so little improvement in the 5-year survival rate? We did achieve some improvement in the 5-year survival rate? We did achieve some improvement, I am sure, when we increased the extent of our resection. We cannot go any further with that. We are already out to the limit of our extent of resection, but we can improve our technic somewhat. For example, by improved technic I am convinced we can practically eliminate local recurrences at the suture line.

The most important reason for the lack of improvement in the 5-year survival rate is that there has been very little improvement in reducing the duration of the symptoms between the time of onset and the time of operation.

For example, 20 or 25 years ago we studied a series of about 75 patients at our hospital, and found that the average duration of symptoms between onset and the operating room was 11.3 months. Just a couple of years ago we made another study of patients with cancer of the colon, and found

that the average duration of symptoms between onset and operation was 10.2 months.

That is just too long! We have to correct that, and as doctors and surgeons we must do something to reduce this dreadful delay before operation.

I am convinced this delay is an important feature in the lack of improvement in the 5-year survival rate. This view is supported by a small series of patients reported by Emerson Day, of the Strang Clinic, a short time ago. He had found tumors in these patients by detection examination, and in that series the 5-year survival rate was 85%, and, of course, they were relatively early cases, since the tumors were found by detection examination.

Now there may be another break. Some of you may have heard the rumors about the spectacular improvement of results being obtained in female patients in the NCI adjuvant chemotherapy series, but not in male patients. Since this is purely a rumor (although I think it can be substantiated) I will say nothing more about it; but I am waiting to hear the actual results of that study.

Now please recall that the curative operation possible in Dr. Glenn's series was only 65%. Also, he performed palliative colostomy in 18% of cases. The average survival rate in these palliative colostomies was 9.4 months, much longer than I expected; and three of those survived longer than 5 years. I suppose one or two of those might have been equivalent to a spontaneous regression, but at least we do know that palliative colostomy in patients with cancer of the colon is worthwhile. It is more effective than a gastrostomy in cancer of the esophagus.

In his paper Dr. Glenn dodges somewhat the controversy over transformation of polyps to carcinoma, but he does say in principle he recommends removal of polyps. I agree. Even though there may be only a small percentage of them which transform into carcinoma, I think we should remove them, if the patient has more than a few years' life expectancy.

DR. EUGENE M. BRICKER (St. Louis): I would like to make a few comments and interject, perhaps, another couple of points into the discussion that might pertain particularly to the factor of urinary complications and the incidence of pelvic perineal recurrence after resection.

It is widely known that there is a biologic peculiarity of some carcinomas of the low colon and rectum which allows some of these tumors to grow to enormous size and involve contiguous viscera without ever having metastasized to the regional lymph nodes. It may be very difficult to determine with certainty whether or not regional lymph node extension is present, but if one is alert to the possibility that a large tumor which has grown into the uterus, vagina, or bladder may be of this favorable type it is possible for radical removal to offer a fair chance of salvage. In our

experience with carcinoma of the rectum and low sigmoid the 5-year salvage rate has been 33% of those patients selected for an extended operation because of the nature and extent of the lesions.

We have found the complications incident to sacrifice of the lower urinary tract and urinary diversion to be of significance enough to contraindicate the extended operation. Indeed, in females the vagina and uterus may act as a barrier and the lower urinary tract may not be involved. In males there is no such barrier and the lower urinary tract is frequently involved. As a matter of fact, in *elderly* males with very large lesions we are inclined to include the bladder, seminal vesicles, and prostate with the specimen if there is only a strong suggestion of involvement. This is because we have found the complications incident to urinary diversion to an ileal segment are less in these patients than those resulting from the retained urinary bladder after an extensive pelvic dissection. Many of these elderly patients may already have some degree of urinary tract incapacitation before operation. An extensive resection—in which the seminal vesicles are dissected out and the nerve supply of the bladder extensively damaged—invites severe postoperative urinary complications. Furthermore, we believe an extended operation in this type of individual affords a much better cancer operation and a decreased chance of perineal recurrence.

Then there is one other point I would like to make in this discussion, and it concerns the matter of palliative resections—a subject with which I have had some experience. Although it is a common teaching that effective palliation results from removal of the primary colon and rectal cancer even if incurable, it takes the greatest of care and judgment in the selection of patients for this kind of palliative effort. For instance, it hardly seems good palliation if removal of an extensive primary lesion can only be expected to be followed by prompt local recurrence. The factor of effective palliation should be kept in mind particularly in dealing with service patients. There is hardly a place in surgery where more mature judgment is desirable, and an understandable eagerness to operate should not be allowed to influence the decision whether or not to proceed with a palliative resection. Furthermore, quite gratifying palliation may result from colostomy followed by irradiation of an advanced lesion of the rectum and lower colon.

DR. JONATHAN E. RHOADS (Philadelphia): It is difficult, as Dr. Colcock brought out, always to know whether a shadow seen on a barium enema above the reach of the sigmoidoscope is an adenomatous polyp or is some other type of lesion. In our own material we have 37 polypoid lesions which either the radiologist or the surgeon or the pathologist on gross examination judged to be a polyp and which turned out to be 100% carcinoma; one of these was as small as 0.5 cm.

Likewise, 15% of our villous adenomas were above the sigmoid, and half, or a little better than half, of our villous adenomas have been malignant.

So that, while I agree fully that one should not do a transabdominal operation for a small polypoid lesion on a bad risk patient, I am not satisfied to leave all of these in although they may only be 1 cm. in diameter. It seems to me better to remove them.

I think one should keep these procedures simple, and in general be satisfied with a colotomy and lift the polyp out; and if it has a stalk, simply cut it off and get a frozen section. If one encounters a situation in which the paraffin section shows carcinoma after the frozen section has failed to do so, we have thought that you did not have to go back—that the risk of a very early carcinoma—separated this far from the bowel—having metastasized was so small that one could afford to accept it. In that connection I was interested in Dr. Cohn's statistics, in which he showed a rather large group of carcinomas confined to the mucosa with a considerable fall-off in survival over 5 years. I wonder if he could tell us whether this fall-off was due to recurrent carcinoma from these lesions confined to the mucosa or if these deaths were due to other causes.

DR. C. EDWARD FLOYD (closing): In answer to Dr. Colcock's question, the surgeon did not know there was tumor at the line of resection at the time of surgery. This was a microscopic diagnosis and was not made on frozen section. This occurred primarily in the patients who had palliative resections.

In answer to Dr. Rhoads' question, we have not analyzed all this data, but are in the process of doing this.

(Slide) Histologically, the great majority of the lesions encountered were adenocarcinoma. Within this group there were 127 which were classified as mucoid adenocarcinoma. The remainder were scattered as epithelial cell carcinoma, carcinoids, lymphoma, basal cell carcinoma, melanoma, angiosarcoma, and leiomyosarcoma.

(Slide) One of the most interesting aspects of our study was the variety of surgical procedures used by a large visiting and resident staff in handling cancer of the colon and rectum. The most frequent operative procedure was an abdominoperineal resection, being used in 472 cases, which correlates with the frequency with which cancer was found in the rectum. Most of our staff believe that abdominoperineal resection is the procedure of choice below the peritoneal reflection, and this is demonstrated by only 174 anterior resections being done during this 16-year period.

Twenty-eight % of our cases presented with either partial or complete intestinal obstruction and justified the 408 colostomies which were performed. The majority of these lesions which presented with intestinal obstruction were found on the left side of the colon. In the cases that had incomplete or

partial obstruction, 26% were in the sigmoid and 27% in the rectum. However, when complete obstruction was present, 43% were in the sigmoid and 13% on the rectum. An extremely poor prognosis is associated with any element of obstruction but is especially poor with obstructing rectal cancers.

DR. CHARLES K. MCSHERRY (Closing): There are several features of this study, some of which are not emphasized in the formal text, which merit consideration. The follow-up data on these 1,026 patients were obtained in large measure by periodic scheduled examination of these patients. Pavilion patients at The New York Hospital-Cornell Medical Center who have been subjected to operation are followed in a special clinic without charge. This follow-up clinic, which has a current enrollment of 10,331 patients, meets on the mornings of the second and third Sundays every month from September through June. The attendance at any one of these Sunday morning clinics is approximately 400 patients. The entire surgical house staff assigned to the pavilion service attends this clinic to assess the results of our operative procedures. Patients operated upon for malig-

nant lesions are followed for life. This method of follow up is much more meaningful than the frequently employed postal card reply type of study.

In reviewing these charts over a 32-year span, another aspect of this disease became apparent. Patients in the early years of this study resisted their surgeon's efforts and suggestions to undergo an operation that left them with a permanent colostomy. Often it appeared from the notes in the chart that perineal resection was done rather than abdomino-perineal coloproctectomy because of the resistance and aversion of the patient to a permanent colostomy. This fear of a permanent colostomy, though still present, is much less in the later years of this study. It would appear that the newer appliances and a better informed public have greatly aided in reducing the fear of social ostracism for patients with a permanent colostomy.

Finally, and most importantly, this study again emphasizes the fact that patients with lesions that have not spread beyond the bowel wall have the best prognosis. Surgeons have the obligation of supporting community efforts that strive to inform the public of the importance of prompt medical investigation for symptoms suggestive of malignant lesions.

(Continued from page 837)

- Survival after Laceration of Abdominal Aorta: Case Report and Study of Intact Abdominal Wall as Tamponade, *A. J. Richards*
- Effect of Portacaval Shunt on Gastric Acid Secretion in Dogs with Liver Disease, Portal Hypertension and Massive Ascites, *Marshall J. Orloff*
- Barium Granuloma Obstructing Ureter 7 Years after Barium Enema with Perforated Colon, *J. Lynwood Herrington, Jr.*
- Adenocarcinomas of the Anal Canal and Peri-anal Tissues, *Aurelio Cabrera*
- Temporary Use of Ex-vivo Heterologous Liver for Hepatic Insufficiency: Metabolic Effects and Sensitivity to Perfused Protein in Dogs, *D. B. Bibler*
- Biosynthesis of Intestinal Mucin in Shock: Relationship to Tryptic Hemorrhagic Enteritis and Permeability to Curare, *Gustavo Bounous*
- Mechanical Small Bowel Obstruction due to Acute Appendicitis: Review of Ten Cases, *Leslie E. Rudolf*
- Digestion and Absorption Following Gastrectomy Using Reversed Jejunal Segments: Follow Up of 50 Cases, *Edgar Poth*
- Fluorescence Inducing Corticosteroids in the Peripheral Blood of Newborn Infants: Response to ACTH and Operation, *Richard W. Steenburg*
- Biochemical and Biophysical Aspects of Joint Stiffness: Role of New Collagen Synthesis as Opposed to Altered Molecular Bonding, *Erle E. Peacock*
- Gastrointestinal Pacing: Experimental Evaluation in Man, *T. Berger*
- Relationship of Gastric Secretion to Gastric Blood Flow and Oxygen Consumption, *Worthington G. Schenk, Jr.*
- Pathogenesis of Calcium Bilirubinate Gallstone: Role of E. Coli, β glucuronidase and Coagulation by Inorganic Ions, Polyelectrolytes and Rotating Movement, *Tetsuo Maki*

(Continued on page 865)