

## **History of Gastroenterology in Lancaster County**

By David Weston, M.D. and James Fred Young, M.D.

Dr. Edward Hand, Adjutant General for George Washington's Revolutionary army, was a practicing physician in Lancaster County, but was also into farming (which is a somewhat circuitous route that brings us early into the field of gastroenterology here). For it was the produce of this and bordering counties that sustained the ensconced colonial troops at Valley Forge during that terrible winter of 1776. Without food for the digestive system to utilize, the battle would have been lost.

Lancaster County has been a veritable haven for the human GI tract by providing a wide variety of smells, goodies and nutrients that continue to this day in drawing visitors far and wide to its succulent tables. So we might say that the GI system starts even before our lips touch the morsel being offered.

Gastroenterology is the discipline within Internal Medicine which deals with the ingestion, digestion, utilization and elimination of that which we eat. It starts at the mouth and tongue, saliva, esophagus, stomach, small and large bowel, along with side organs of liver, biliary and pancreatic systems (which provide digestive chemicals), and finally ends up in the rectum for elimination. The food we eat never really enters within our body cavity, per se, but simply passes through. Along the way we enjoy the taste and the pleasant sensation of satiety and even that of elimination. However, the mysteries of assimilation and inter-working of organs even now are not fully understood. The gastroenterologist (GE) then is that specialist who devotes his time and talents to unravel this mystery.

The first formal organization that centered its attention to the GI tract was the American Gastroenterological Association (AGA) which was organized in 1897. It operates to this day, holding its annual meetings each May and gathering 7,000 to 8,000 attendees which include medical as well as surgical specialists. During the first 50 years, membership grew slowly. A more so-called esoteric organization, the American College of Gastroenterology (ACG) was then organized to oversee the training and accreditation of GE's along the way. Further sub-groups within this discipline include the American Society for Gastroenteral Endoscopy (ASGE) and the American Liver Association, and others.

Most physicians other than surgeons considered themselves "generalists." Following World War 2, the number of medical specialists in every field grew rapidly, and gastroenterology followed this trend. At universities, training programs in cardiology, allergy, pulmonary disease, and rheumatology as well as gastroenterology were formed. These programs grew rapidly to meet the demand. These divisions were all part of the larger "Internal Medicine" discipline.

Gastroenterology never included surgery as part of the necessary training to become a gastroenterologist. In the 1950's, the required training beyond four years of medical school included one year of internship, three years of general internal medicine, then one to two years of a fellowship in gastroenterology. No surgical training was included.

The only procedures performed by the gastroenterologist were procto-sigmoidoscopy and liver biopsy, small bowel biopsy and gastric analysis. Gastroscopic examination, the direct visualization of the stomach, was in its early stages and the first fiber optic flexible scopes entered use in the 1960's. GE's did radiological exams as well.

Training centered around hospital care. Outpatient care was almost a sideline. Hospital admission was often a part of a complete evaluation. For an undiagnosed illness the necessary x-rays and other studies could be done promptly with more frequent observation of the patient's progress than could be accomplished as an outpatient. Of course, over the years as costs increased, this practice of admission to the hospital for tests was discontinued.

In Lancaster County the specialty started in the 1940's because surgeons in the Atlee group (Drs. John and William and others) desired to have a "medical" specialist evaluate their patients. They hired Dr. Henry Walter to join them. Soon thereafter, in 1948, Dr. John Helm (trained at Harvard) came back to Lancaster. However, endoscopy with flexible instruments had not yet been invented and the passage of solid pipes from above was a specialty only done in major medical centers, whereas the sigmoidoscopy from below was performed mainly by surgeons.

The early medical work-up centered around symptom evaluation, x-ray studies with barium from above and below, gastric acid analysis from NG tubes and finally blind biopsies of stomach, duodenum and liver by wire controlled flexible mirrors or blind needle biopsies. Most GE's were also generalists and would also treat a wide variety of other diseases. Main treatment for GI problems centered around antacids for acid peptic disease, belladonna for irritable bowel syndrome, cascara and mineral oil for constipation, or codeine extract for diarrhea.

Then in the late 1960's/early 1970's, the field became enthralled with the discovery of flexible fiber optic endoscopy and GE as we know it today mushroomed. The earliest flexible gastroscope (from ACMI) was purchased in the late 1960's by the then St. Joseph Hospital (now the Lancaster Regional Medical Center) and was used by Dr. Fred Young trained by Dr. Henry Bockus from Philadelphia. James (Fred) Young began in Lancaster in 1960. During his first 10 years he did not limit his practice to gastroenterology. Then in 1971, Dr. David Weston brought endoscopy to the Lancaster General Hospital, having been trained by Dr. Leslie Zieve and Dr. Jack Vennes at the University of Minnesota. Colonoscopy had not yet been invented until 1971-1972, and training programs sprung up around the country as the field drew more and more specialists.

Biliary Endoscopy (looking at the main bile ducts and the pancreatic duct) was then brought to Lancaster General Hospital by Dr. Rick Altman in 1979, later to be followed by Dr. Bruce Pokorney and Dr. Ben Lazarus. These ended up with three separate GI groups initially in three hospitals – LGH, St. Joe's and Community Osteopathic. Ephrata Hospital did not yet have a group, but soon Ephrata and Columbia Hospitals were covered when two of the groups joined together to widen their scope. Currently there are 28 trained GE's in Lancaster County who are credentialed to perform endoscopy.

Prior to the field of fiberoptic endoscopy, there was the concept of “gastric freezing” to control acid release in the stomach. Dr. Tom Davis from Ephrata brought this technique to Lancaster County by use of the gastric freezing tube which was passed through the mouth. Freezing water was pumped into and out of the gastric tube. However, this controlled acid production for 6-8 months and then was discarded in favor of antacids and medications.

After Dr. Weston arrived, he and Dr. Young concentrated their practice in gastroenterology. Endoscopy flourished with the new addition of the ERCP in which the biliary tree was able to be visualized and treated stone removal, biopsy, dilation and stenting. In 1982, Dr. Rick Altman performed the first stone extraction, later joined by Dr. Weston in 1983.

The next trained gastroenterologists were Bruce Pokorney, Raymond Foley, Frederick Saunders, and Clifford Lomboy. In the 1980's, Drs. Lazarus, Elkin, Rosenberg, Whitebloom, and Gibas came. In the 1990's, Chen, Colton, Connell, Devenyi, and Parikh were added, and in the years since 2000, Drs. Allegretti, Cheshty, Harberson, Johnston, Kulkarni, Lalani, Smith, Farrell, Morgan, Horvath and Shih were added. So currently, there are 28 boarded GE's with two having retired (Drs. Weston and Young).

Ben Lazarus, DO recalls the beginning of GI coverage at Ephrata Community Hospital: In August of 1984, I was approached by Richard Mellinger, Norman Axelrod, and Larry Scanlon, who was then the president of Ephrata Community Hospital (ECH). I received my immediate temporary privileges at ECH. Previously, GI coverage was on an intermittent basis provided by a Reading GI group, Drs. Levy and Chaudry. Within one month of my obtaining staff privileges at ECH, a full-service gastroenterology division was established at the hospital. It was during that year that I performed the first ERCP at ECH.

In 1986, Rick Elkin joined my practice and we became Regional Gastroenterology Associates (RGA). During 1986, Rick performed the first ERCP with a stone extraction at ECH. RGA continued to flourish and Dale Whitebloom joined the practice in 1990.

In 1990, ECH built a single-purpose endoscopy suite in its short stay unit. Subsequently, in 1993 RGA merged with Gastroenterology Associates of Lancaster (GAL) to form RGAL.

Today, RGAL is a group of 17 providers, 15 physicians and 2 nurse practitioners. The group, in all of its iterations beginning with me as a solo practitioner of GI in 1984, has been providing uninterrupted GI service to ECH and the surrounding community for 30 years.

There have been some remarkable advances in the practice of gastroenterology in the past 50 years. The most dramatic has been the development of fiber optic endoscopy. The early scopes consisted of a series of mirrors and allowed a very limited ability to see beyond the direct line of vision. With fiber optics it became possible to bend instruments so visibility was increased to 360 degrees. Studies to visualize the gastrointestinal tract depended on x-rays for many years combined with barium contrast material.

These studies were quite accurate in finding pathology such as ulcers, polyps or tumors in the stomach, duodenum or colon. But with the new scopes these abnormalities could be seen directly. A wire was passed through the scope and biopsies taken if necessary. Bleeding sources were seen through the scope which could not be identified on x-rays. Bleeding ulcers could be

injected or cauterized to stop the bleeding thereby avoiding an operation. Early tumors of the esophagus or stomach could be detected. Upper G.I. endoscopy opened a whole new world of diagnosis and treatment of the upper intestinal tract.

The next step in the development of endoscopy was the ability to inject dye into the ducts of the biliary tract and pancreas. Through a modification of the standard gastroscope, it became possible to pass a small tube through the instrument, identify the opening in the duodenum where bile and pancreatic secretion emptied into the intestine and inject dye into these ducts and take x-rays to visualize the ducts. This technique could demonstrate early cancer in the pancreas and stones or other abnormalities in the bile ducts leading from the liver into the intestine. A wire could be inserted into the tiny opening, then the duct and stones could be grasped and removed. This technique saved the patient from going through a difficult operation to remove stones from the bile ducts.

Colonoscopy became important in the 1970's. It made a huge change in the practice of gastroenterology. Colon cancer had always been an important disease and early diagnosis was always the goal for the gastroenterologist. Sigmoidoscopy to 25 cm. with a rigid scope was often part of the routine physical examination during the decades of the 1950's and 1960's. The remainder of the colon could be seen with barium contrast x-rays. For a number of years, 100 cm fiber optic scopes became popular and replaced the rigid scope in office examinations. But in the early 1970's, the long colonoscope became available and the shorter scope was abandoned. At the same time, barium x-rays of the colon were utilized less and less.

Most cancers of the colon begin as polyps. These are small growths coming off the inner lining of the colon and form with a pedicle or stalk. These polyps grow usually without symptoms. The tips of some of them change and become malignant. This malignancy in turn can grow into the wall of the colon and from there spread to other parts of the body.

If these polyps can be removed before they become malignant, the cancer will be prevented. This is essentially the reason for the growth in use of colonoscopy. Studies showed that indeed there was a reduced incidence of colon cancer in patients who had polyps removed. Routine colonoscopy for cancer screening for persons over age 50 became the standard of care. This in turn resulted in an explosion of the demand for the procedure. More gastroenterologists were needed and, in fact, separate endoscopy buildings appeared.

In the 1950's and '60's, the diagnosis of peptic ulcer disease was made by the patient's history and confirmed with barium contrast x-rays. Treatment was centered on diet supplemented by frequent doses of antacids and the Sippy diet, the latter losing favor around 1960. Failure to heal often resulted in surgery to remove a portion of the stomach and severing of a nerve that supplied the stomach that was responsible for the secretion of acid. Bleeding from an ulcer frequently resulted in surgery as the only method to stop the bleeding.

Ulcer surgery was a large part of a general surgeon's practice during those years. It was known for many years that the stomach secreted hydrochloric acid and that acid was necessary for the formation of peptic ulcers. Research therefore emphasized methods to prevent the

stomach from secreting acid. Histamine is necessary to stimulate the gastric cells to form acid. But ordinary antihistamines do not prevent acid formation.

The scientists at SmithKline laboratories found a different type of receptor in the gastric cell that they called an H<sub>2</sub> receptor. The search then centered on a substance that would block that receptor. They developed Cimetidine (trade name of Tagamet) which was the first drug of its type to markedly suppress acid secretion in the stomach. This was first marketed in the United Kingdom in 1976, and was a major breakthrough in the treatment of ulcer disease. Other more potent acid suppressant drugs followed. These were called proton pump inhibitors (PPI's) because of the point of action in the gastric cells where their action took place. These drugs were found to be quite useful in treating other disorders of the G. I. tract such as esophageal inflammation caused by reflux acid from the stomach into the esophagus.

This was not the end of the ulcer story. In 1982, Drs. Barry Marshall and Robin Warren of Perth, Australia, found a bacterium, later known as *Helicobacter pylori*, in the stomach and demonstrated that this organism was responsible for gastritis and ulcer disease. This was revolutionary in the field of gastroenterology. Drs. Marshall and Warren received the Nobel Prize in medicine for their work.

In 1987, Dr. Thomas Borody showed that triple antibiotic therapy was useful in the treatment of duodenal ulcers. In 1994, our National Institute of Health stated that most ulcers were caused by *H. pylori* and that antibiotics were useful in their treatment.

The treatment of liver disease in Lancaster has followed the national trends. Liver transplantation has been the most dramatic therapy to be developed in the past 50 years. A program for transplantation has never been developed here, but we have always had cooperation with transplant centers in Pittsburgh, Philadelphia and Hershey.

The first liver transplant was done by Dr. Starzl in Denver. The first one-year survivor was in 1967. By the 1970's, the one-year survival was 25%. Now it is about 80%. Two types of hepatitis were known at the time of World War 2. They were ordinary infectious hepatitis and serum hepatitis. The latter was known to be transmitted by blood or infected needles or serum. These are now known as Hepatitis A and B. The incidences of these have decreased markedly over the years due to available vaccines and careful screening of transfusion products and the use of disposable needles. Now Hepatitis C has been more prominent. This infection is a long term chronic illness. Some patients are helped by antiviral therapy, but Hepatitis C remains a leading cause of end stage liver disease and the need for liver transplantation.

There are many other disorders of the gastrointestinal tract not mentioned here but include diseases of the esophagus, inflammatory bowel disease (ulcerative colitis and Crohn's disease), and various tumors, both benign and malignant. Progress has been slow but steady over the past 50 years. In many cases, a team approach is necessary to provide the best care. This involves a primary care physician, gastroenterologist, surgeon, and oncologist when necessary.

The major change in the practice of gastroenterology has been the shift from a specialty centered on diagnosis with somewhat limited choices of medical therapy to one centered on

endoscopic procedures. The challenges for the future are many but finding a cause and cure for ulcerative colitis and regional enteritis, a vaccine or cure for hepatitis C, and the never-ending search for the causes and cure of gastrointestinal malignancies are perhaps the most urgent at this time.

The modern GE is now able to perform tasks which were unheard of 20 years ago, such as freezing out esophageal cancers and Barrett's esophageal lining – a pre-malignant lesion; placing "Wall stents" (which was invented by our own Dr. Mark Johnston) in the esophagus when strictured; cauterizing and clipping bleeding vessels in the stomach and duodenum; reading the results of a tiny pill cam-recorder which takes 7,000-8,000 pictures as it travels through the small and large bowel; removing large polyps or small cancers from the colon; placing stents in the colon or rectum when strictured; removing gall stones caught in the biliary ducts and placing stents in those ducts if strictured; doing fine needle biopsies of the pancreas by use of endoscopic ultrasonography; and even going through the stomach to perform removal of the appendix and gall bladder and then closing up the rent made in the stomach thus leaving no external scar.

In addition to these amazing technical advances, the modern GE will also read esophageal manometry recordings for esophageal dyssynergia (trouble swallowing); smart pill readings as this pill travels through the GI tract to determine mobility problems that can lead to unexplained bloating and constipation; administering medication to fight auto-immune diseases such as ulcerative colitis, Crohn's disease and hepatitis; running tests looking for mal-absorption or mal-digestion disorders; giving medicines to cure Hepatitis B and C and more common problems such as heartburn, bloating, gaseousness, constipation and diarrhea; and simply being a listening ear to absorb the complaints of irritable bowel and irritable spouse problems.

A newer member of the GE team is incorporating the help of GI trained nurse practitioners or "doctor extenders" to screen patients who should have endoscopy but are otherwise healthy and who have a bad family history of GI cancer; those patients undergoing treatment for Hepatitis C which drug treatment can lead to severe symptom side effects needing care from a trained ear; and genetic counseling concerning certain known familial syndromes such as familial polyposis, inflammatory bowel disease or gluten enteropathy.

Therefore, one can see that Lancaster County is indeed ideally situated not only as a "bread basket" to produce such a wide variety of nutrients from its soil, from its cows, chickens and beef, but also the chefs and down-home cooks, that bring all of this for us to enjoy. Then finally, we have the gastroenterologist here to allow us to fully enjoy the experience without suffering untoward after-effects.