

Gastric Heterotopia in the Rectum: *

Report of a Case

WALTER B. GOLDFARB, ** M.D., ROBERT SCHAEFER, *** M.D.

From the Departments of Surgery and Pathology of the John Cochran Veterans Administration Hospital and Washington University School of Medicine, St. Louis, Mo.

WITH THE EXCEPTION of aberrant gastric mucosa in Meckel's diverticulum of the ileum with peptic ulceration and its associated complications, little has been written of other locations and clinical manifestations of heterotopic gastric mucosa. The following is a case report of heterotopic gastric mucosa of a rectal polyp presenting with rectal bleeding. This is believed to be the first report of the presence of gastric mucosa in the rectum.

Case Report

This 45-year-old white man entered the St. Louis Veterans Administration Hospital on the Orthopedic Service on November 8, 1960, with a complaint of chronic dislocation of the right shoulder. The only previous operation was a surgical repair of an epigastric hernia in 1945. There was no history of rectal bleeding or of any change in bowel habits and there was no history suggestive of gastro-intestinal disease. He did have a slight subluxation of the humeral head on abduction of the right arm and a healed upper abdominal midline scar, but no other abnormalities were noted. While in the hospital, the patient passed four blood-streaked bowel movements on three successive days. After these, on November 11, 1960, a sigmoidoscopic examination was performed. A red, velvety-appearing polyp 2.0 cm. in diameter was seen on the posterior rectal wall at 11 cm. from the pectinate line. It was freely movable and grew on a 1.5-cm. stalk. It was not bleeding and there were no ulcerations

on it. The surrounding rectal mucosa and the rest of the visualized segment of colon appeared entirely normal. Two biopsies were taken at this time.

These bits of tissue were reported to contain "heterotopic gastric mucosa." Another sigmoidoscopic examination was performed and more tissue obtained. This was also found to contain gastric mucosa. On November 22, 1960, 2.5 mg. of histamine phosphate was injected subcutaneously in an effort to determine whether this ectopic mucosa was secreting acid. Thirty minutes later, without having previously given the patient enemas, the polyp was again visualized through a sigmoidoscope and nitrazine paper was applied to the polyp's surface. The fluid which wet the paper had a pH of about 7.0. This was repeated at 45, 60 and 75 minutes with the same results.

Barium enema and air contrast enema showed only a filling defect in the low rectum and no other colonic lesions. An upper gastro-intestinal series was interpreted as being normal. On December 6, 1960, the polyp and its base were removed through an anoscope with a polyp snare. The patient did well postoperatively and was discharged from the hospital on the 5th post-operative day.

Pathology

The formalin fixed specimen consisted of several fragments of grayish-pink tissue with a glistening, slightly corrugated surface. The largest fragment measured 1.5 × 1 × 0.6 cm. All fragments had a similar histologic appearance. Microscopic sections show fragments of rectal mucosa and a polyp formed of gastric mucosa (Fig. 1). The gastric portion is distinctly demarcated from the surrounding colonic mucosa

* Submitted for publication January 4, 1961.

** Assistant in Surgery, Washington University School of Medicine, St. Louis, Mo.

*** Instructor in Pathology, Washington University School of Medicine, St. Louis, Mo.

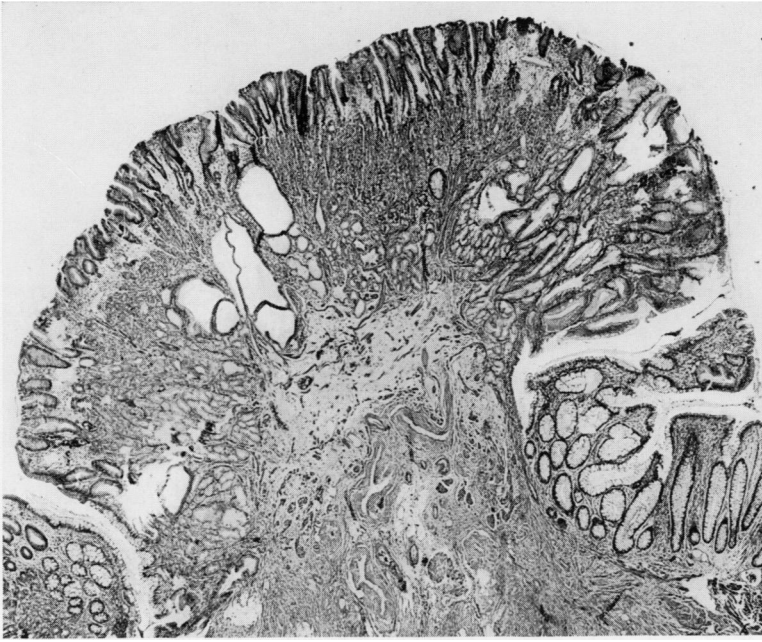


FIG. 1. Low power view of the polypoid lesion showing the gastric mucosa. Normal appearing colonic mucosa as seen at the base. A few dilated glands are noted (Hematoxylin-eosin, from 30 \times . W.U. Ill. 60-8361-A).

which appears normal. In some areas the gastric glands are of the type found in the fundus of the stomach (Fig. 2). Here, they are of the branched tubuloalveolar type, appearing as elongated straight glands with branching processes, the bodies of which are located in the submucosa. Cells characteristic of parietal and chief cells are noted in these glands. Other glands are more characteristic of the pyloric portion of the stomach. Here, they are small, oval and in compact acinar formations lined by tall columnar epithelial cells resembling the mucous secreting cells of the stomach. Also noted are cells containing zymogen granules. The base of the polyp is covered by colonic mucosa. A distinct junction between the colonic and gastric mucosa can be readily seen on the surface of the polyp (Fig. 3). There is no hyperplasia or adenomatous formation of the colonic mucosal component of the polyp and there is no evidence of an inflammatory process. No areas of ulceration or bleeding points are noted on microscopic sections.

Discussion

Heterotopic gastric mucosa is known to occur in the esophagus, gallbladder, duodenum, ileum, Meckel's diverticulum and umbilicus, but the authors were able to find only two previous reports of its presence in the colon. Taylor⁵ described aberrant gastric mucosa in the esophagus in six cases. Nicholson⁴ found gastric epithelium in the esophagus at the level of the cricoid cartilage in 75 per cent of routine autopsies. Gastric mucosa was found to be present in 17 of 24 gallbladders by Nicholson. Aberrant gastric mucosa has been found in duodenal diverticula by Troll⁶ who described one case of fatal hemorrhage from an ulcer in an area of gastric heterotopia in the ileum unassociated with a Meckel's diverticulum. The presence of gastric mucosa in Meckel's diverticulum, with or without peptic ulceration, is widely known, but the exact incidence of heterotopia in this anomaly is not known.² A variation of this anomaly is the presence of gastric tissue at the umbilicus, often found as a polyp with or without a central fistula in

the extra-abdominal portion of the unobliterated vitelline duct.^{4, 5}

Heterotopic gastric mucosa in the colon is extremely rare. Nicholson⁴ described gastric glands in the margin of a tuberculous ulcer of the ascending colon and stated that "except in persistent remnants of the vitelline duct, gastric epithelium has otherwise never been noted in the intestines below the level of the duodenum." Bourne¹ reported a diverticulum of the transverse colon in a 4-year-old girl which resulted in a colocolic intussusception. Gastric and duodenal mucosa as well as aberrant pancreas was found in it, as was tissue that morphologically resembled the vermiform appendix. The causes of gastric heterotopia are unknown. Taylor and Nicholson have discussed the etiologic mechanisms in detail.³⁻⁵

Gastric heterotopia is of more than mere morphologic interest. It is the complications of gastric heterotopia, that is, ulceration and hemorrhage which are the significant factors in this anomaly and which make it manifest clinically. For example, ulceration and bleeding of ectopic gastric tissue in a Meckel's diverticulum is not an infrequent manifestation of this anomaly. Gastric heterotopia at the umbilicus results



FIG. 2. Illustrated are gastric glands similar to those seen in mucosa from the fundus of the stomach (Hematoxylin-eosin, from 175 \times . W.U. Ill. 60-8365).

in a chronic, draining ulcer of the skin. The two previous reports of ectopic gastric tissue in the colon were associated with other diseases. In the present case, although there was neither inflammation nor ulcera-



FIG. 3. Here one observes the junction between colonic and gastric mucosa. In this area, the gastric glands have the appearance of pyloric glands. (Hematoxylin-eosin, 50 \times W.U. Ill. 60-8363).

tion of the polyp on microscopic examination, rectal bleeding was the presenting complaint.

Summary

The first recorded case of gastric heterotopia in the rectum, manifest as rectal bleeding from a polyp, is presented.

References

1. Bourne, J. C.: Pancreatic and Gastric Heterotopia in a Diverticulum of the Transverse Colon. *J. Path. and Bact.*, 75:470, 1958.
2. Curd, H. H.: A Histologic Study of Meckel's Diverticulum. *Arch. Surg.*, 32:506, 1936.
3. Nicholson, G. W.: Gastric Glands in the Extroverted Distal End of the Vitelline Duct. *J. Path. and Bact.*, 25:201, 1922.
4. Nicholson, G. W.: Heteromorphoses (Metaplasia) of the Alimentary Tract. *J. Path. and Bact.*, 26:399, 1923.
5. Taylor, A. L.: The Epithelial Heterotopias of the Alimentary Tract. *J. Path. and Bact.*, 30:415, 1927.
6. Troll, M. M.: Aberrant Pancreatic and Gastric Tissue in the Intestinal Tract. *Arch. Path.*, 38:375, 1944.

In Memoriam

Ellis W. Bacon

April 27, 1874–March 4, 1961

Ellis W. Bacon joined the publishing firm of J. B. Lippincott Company in 1892. From that year until his retirement, a period of 64 years, he was continuously and vigorously active in Company affairs. While Mr. Bacon retired from active service with Lippincott in 1956 his interest in publishing activities never lessened.

Ellis W. Bacon served the Lippincott organization as a member of the Board of Directors, as Treasurer, Vice-President, and as Director of the Medical Department. His first association with ANNALS OF SURGERY began in 1892 when he joined the Company. ANNALS was then comparatively in its

infancy being only seven years from its founding in 1885. Mr. Bacon's active association with and his concern and deep affection for ANNALS OF SURGERY thus covered a period of 64 years—a span which few of us can hope to attain with any institution. During these years he made notable contributions to the development of ANNALS OF SURGERY and to medical publishing in general.

Those of us at Lippincott and on the Editorial Board of ANNALS who worked with Ellis Bacon realize how much our own work rests on the foundations laid down by him during his years of devoted service.