Primary Linitis Plastica of the Colon:
Report of a Case and Review of the Literature*

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LIEUTAUD, in 1779, recognized primary linitis plastica in the stomach. The first case, however, was reported by Andral. Brinton,1 in 1865, named it linitis plastica. Since then, 42 synonyms have been applied to this lesion,2 which, although relatively common in the stomach, is seen rarely elsewhere. Approximately 85 cases of linitis plastica of the colon have been reported, but only seven are known to have involved it primarily.4, 5, 7, 8

It is our purpose to acquaint surgeons with known features of the disease. We will attempt to describe the clinical setting in which it should be suspected, hoping thereby to make possible earlier diagnosis and adequate therapy.

Report of a Case

A 31-year-old white woman was admitted to The Faulkner Hospital for the first time on June 29, 1964. Six months previously, she first experienced intermittent cramping abdominal pain localized in the left lower quadrant, with nausea, a bloated feeling and increasing constipation. A month previous to admission, ribbon-like stools developed and there was a 3-day episode of partial intestinal obstruction. During this month she lost 15 pounds. Past medical and social history and review of systems were negative. She was a well-developed woman, weighing 121 pounds, and in no acute distress. Examination of the chest, abdomen, pelvic organs and rectum was negative. Hemoglobin was 15.2 Gm. and white blood cell count was 8,200. Bromsulfophthalein retention was 7%. Chest x-ray and intravenous pyelogram were normal. Roentgenologic study, after a barium enema, revealed a constricting lesion in the descending portion of the colon, which was interpreted as "findings consist-

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Fig. 1. Roentgenogram showing narrowed segment in midportion of descending colon.

ent with an annular tumor of the mid-descending colon" (Fig. 1).

On July 1, 1964, she underwent an exploratory laparotomy and a mass, 5 cm. in diameter, was palpated in the descending colon approximately 15 cm. caudad to the splenic flexure. The stomach was normal and there was no evidence of liver metastasis or palpable mesenteric lymph nodes. The ovaries and uterus were normal. A left hemicolectomy was performed, leaving a 20-cm. margin of normal bowel on each side of the lesion. The pathologist reported an "infiltrating mucinous carcinoma of the linitis plastica type, with involvement of serosa and regional lymph nodes" (Fig. 2-4). The postoperative course was uncomplicated and she was discharged on the 12th postoperative day.

In May 1965, she noted a return of lower abdominal pain and narrow, ribbonlike stools. With
the use of cathartics, the stool became liquid and blood appeared. She lost 5 pounds. In August 1965, she experienced difficulty initiating urination and, in September, she was re-admitted to the hospital. Examination revealed a large, firm, tender mass which filled the left lower quadrant and extended to the right of the midline. Rectal examination revealed that the mass was narrowing the rectum by external compression. Intravenous pyelogram revealed partial obstruction and displacement of both ureters. Just prior to exploratory laparotomy, the patient was cystoscoped and both ureters were catheterized. Cystoscopy was negative but, at exploration, a recurrent tumor was encountered and a biopsy was performed. A primarily matured midtransverse loop colostomy was performed to relieve obstruction at the previous anastomotic site. Diagnosis was confirmed by the pathologist, and administration of 5-fluorouracil was begun. This resulted in complete resolution of the tumor and relief of symptoms, which lasted until December 1965, when medication was discontinued and the tumor recurred. A 4-week course of irradiation was administered and chlorambucil, 8 mg., was given by mouth daily. The patient did well, but died with subsequent recurrence on October 15, 1966.

Review of Medical Literature

An analysis of the seven reported cases of primary linitis plastica of the colon and our own case suggests certain interesting features common to all. Presenting symptoms were indicative of gastrointestinal tract disease, specifically the colon, in all but one case. One patient complained of pain in the lumbar spine and knee. Common complaints were changes in bowel habits consisting of either ribbonlike stools or diarrhea, colicky pain in the lower quadrant, and loss of weight. In four patients there was a palpable mass in the lower abdomen or rectum. All eight patients had either gross or occult blood in their stools. Two of three patients had nonspecific mucosal inflammatory lesions and a narrowed area of the bowel. One of the two biopsies was diagnosed as ulcerative colitis and not carcinoma. A diagnosis of malignancy was made by roentgenologic examination after a barium enema in two patients. On roentgenologic study, three patients were thought to have ulcerative colitis. In each of these patients, subsequent histologic examination confirmed the diagnosis in association with linitis plastica carcinoma. In four patients, the preoperative diagnosis was ulcerative colitis. A preoperative diagnosis of carcinoma was made in two patients, and in neither was linitis plastica suspected.

The prognosis for these patients is very poor. Five died in less than a year after surgery. Turnbull, Fisher, and Rosenak reported a patient who lived for 6 months. Our patient survived 28 months.

The route of tumor metastasis in all patients was similar. Five had peritoneal involvement. The four women had metastasis to the ovaries and none had hepatic metastases.

Discussion

Approximately 85 cases of linitis plastica carcinoma of the colon have been reported. Sixty-three were secondary to lesions of the stomach, and the condition of the stomach was not reported in 15 cases. Three patients had a linitis plastica-type tumor of the breast, stomach and colon. Saphir,6 in 1941, showed that this type of tumor could occur in the breast.

Only seven tumors have a documented primary origin in the colon. Our case is the eighth. Laufman and Saphir4 reported the first four cases of primary linitis plastica carcinoma of the colon in 1951. Turnbull and associates,7 Nelson,5 and Weintraub and Littman8 subsequently reported