

# Lymphoma of the gastric stump: Report of a case

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## ABSTRACT

We report a case of primary lymphoma on a previously resected stomach in a 62-year-old man. The patient was treated 22 years earlier with a partial gastrectomy and Billroth II reconstruction for a benign gastric ulcer. The rarity of this entity and its possible relationship with pseudolymphoma or lymphoid nodular hyperplasia is discussed, and the literature is reviewed.

## INTRODUCTION

Gastric surgery for stomach or duodenal lesions is considered a risk factor in the long-term development of gastric cancer.<sup>1</sup> Although adenocarcinoma of the gastric stump is relatively frequent, primary lymphoma on a resected stomach is an exceptional finding, and only a few cases have been reported in the literature.<sup>2-5</sup>

We present a new case of lymphoma appearing on the gastric stump of a patient who had been treated 22 years earlier with gastrectomy and Billroth II reconstruction for benign gastric ulcer.

## CASE REPORT

A 62-year-old man was seen in March 1989 after a 3-month history of diffuse abdominal pain. Significant history included partial gastrectomy for gastric ulcer in 1966, hepatic steatosis, cholelithiasis, and abdominal eventration. The only analytic finding was elevation of alkaline phosphatase and  $\gamma$ -glutamyl-transferase levels. Gastroscopy revealed an ulcerated tumor of the distal half of the gastric stump, affecting lesser gastric curvature and both anterior and posterior gastric walls. Cytology and biopsy studies of the mass were compatible with malignancy. Computerized tomography scan showed peripancreatic adenopathies; the spleen and liver were normal.

Laparotomy revealed an ulcerated lesion of the remaining stomach behind the anterior wall of the pancreas, with marked peripancreatic adenopathies. The liver was grossly cirrhotic. Surgical treatment consisted of total gastrectomy with Rouxen-Y reconstruction and intraoperative radiotherapy (dose: 1500 Gy) over the celiac and pancreatic areas.

After the pathologic diagnosis of lymphoma, polychemotherapy was started with BACOP\* plus high-dose methotrexate. The patient remained free of disease 6 months after surgery.

\* Bleomycin, Adriamycin (doxorubicin), cyclophosphamine, Oncovine (vincristine), and prednisone.

## **HISTOPATHOLOGIC STUDY**

The surgical specimen consisted of a 14 X 9 cm gastric stump. A 3 cm ulcer was found on the distal lesser gastric curvature, on the border between body and antrum. Another smaller ulcer measuring 1.8 cm was found on the gastric body. In both lesions the adjacent gastric mucosa was edematous and lightly elevated and showed confluence of the gastric folds. The rest of the gastric mucosa was macroscopically normal. The cut surface revealed an invasion of the gastric wall by tissue covered by a whitish mucosa, which extended distally from the ulcerated areas.

Microscopic examination revealed the presence of centroblastic lymphoma within the ulcerated areas composed of large cells with lobulated nuclei, one or more nucleoli, and basophilic cytoplasm. Among the lymphoid cells a number of macrophages were found with debris of phagocytosed necrotic cells (Fig. 1). The tumor extended vertically through the muscle layer up to the serosa and laterally through the submucosa not involving the mucosa. The surface presented areas of recent ulceration with fibrin deposits over the granulation tissue.

The rest of the gastric mucosa presented dense inflammatory infiltration of the mucosa and submucosa, frequently traversing the muscularis mucosae, which were composed predominantly of lymphocytes organized occasionally in lymphoid follicles with germinal center, plasma cells, and occasional polymorphonuclear leukocytes and eosinophils, consistent with lymphoid follicular hyperplasia or pseudolymphoma. Also present in the gastric mucosa were large areas of complete enteric metaplasia.

**Immunohistochemical study.** An immunohistochemical study of the paraffin-embedded tissue was also done with polyclonal antibodies against common lymphocyte antigen, keratin, heavy-chain immunoglobulin (Ig) M, IgG, IgE, and IgA, and light-chain  $\lambda$  and  $\kappa$ .

Tumor cells showed intense positivity for common lymphocyte antigen, heavy-chain IgM, and occasionally for light-chain X, demonstrating a monoclonal origin. The rest of the inflammatory infiltrate has some nonspecific polyclonal characteristics.

## DISCUSSION

Adenocarcinoma of the gastric stump is a relatively frequent complication of surgery for benign gastric lesions.<sup>1</sup> Although it usually occurs after Billroth II surgery, adenocarcinoma of the gastric stump has also occurred after a Billroth I procedure, simple gastrojejunostomy, or vagotomy and pyloroplasty.<sup>3</sup>

On the contrary, primary lymphoma in a stomach after surgery exceptional, with six cases were published in the literature we reviewed.<sup>2-5</sup> In one of the cases, no gastric resection was done, but the lymphoma had developed 39 years after vagotomy and pyloroplasty.<sup>2</sup> In the other five cases, partial gastrectomy had been done 4 to 20 years before the development of the tumor.

It is interesting to note that in four of the six cases, pseudolymphoma or lymphoid nodular hyperplasia preceded the appearance of malignant lymphoma, which suggested a possible correlation between these entities.

Six other cases of the coexistence of malignant lymphoma and pseudolymphoma have been described in literature, favoring the hypothesis of the prelymphomatous nature of pseudolymphoma proposed by many authors because of the lack of conclusive clinical data.<sup>4, 6, 7</sup>

Although in our case we could not study the surgical specimen of the first operation or observe areas of transition from one pathologic entity to another, the presence of lymphoid nodular hyperplasia in areas far from the main tumor mass supports a relationship between the two entities.

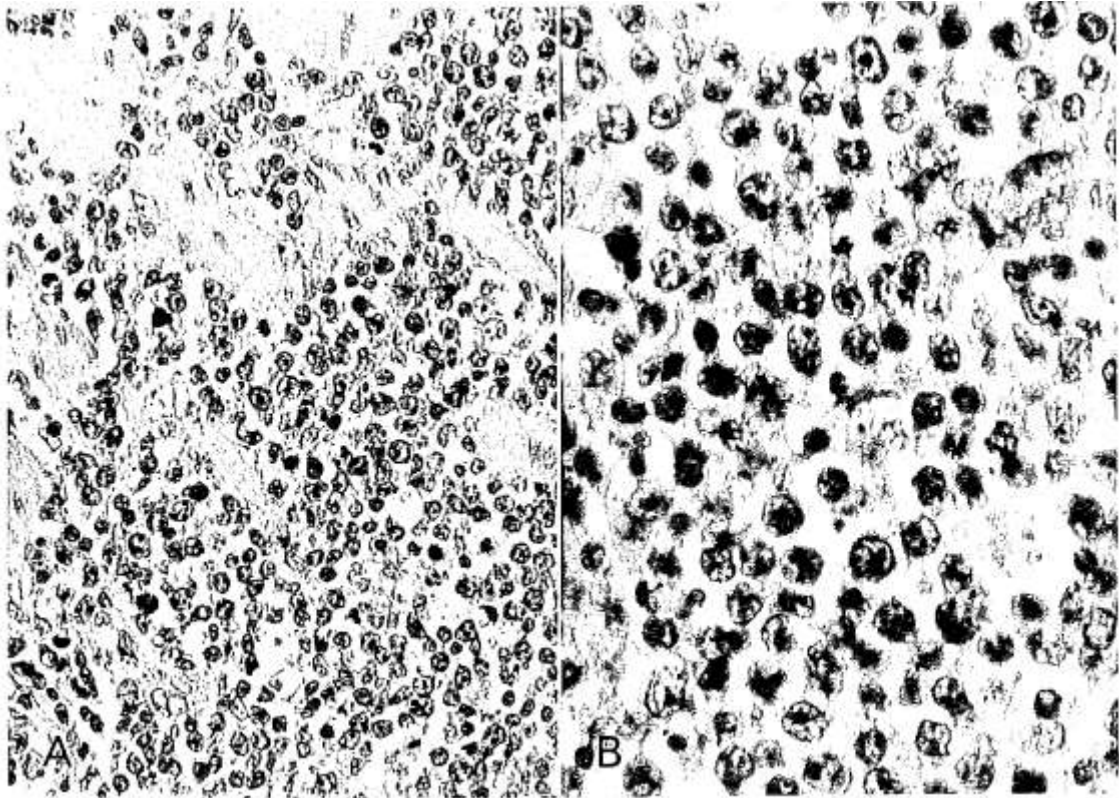
The preoperative diagnosis of lymphoma is usually difficult.<sup>8,9</sup> Endoscopic biopsies had at one time been suggestive of carcinoma; the definitive diagnosis was made after the study of the surgical specimen, as in our case.

In primary gastric lymphoma the treatment of choice is surgical resection followed by adjuvant radiotherapy or chemotherapy according to the stage of disease.<sup>10</sup> In our patient, intraoperative radiotherapy was practiced, following the protocol of gastric carcinoma established in our Center,<sup>11</sup> and the diagnosis of lymphoma was made after the resection. Subsequently, treatment was completed with chemotherapy.

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**Figure 1. A,** Diffuse proliferation of neoplastic lymphoid cells infiltrates muscle. (Hematoxylin-eosin; original magnification x250.) **B,** The cells are small, with scanty cytoplasm and round, vesiculous nuclei. They have prominent nucleoli, some of which are attached to the nuclear membrane. (Hematoxylin-eosin; original magnification x450.)