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Follicular B Cell Lymphoma with Accompanying Ischemic Gastritis Completely Resolved by Rituximab

Authors' Contribution:
Study Design A
Data Collection B
Statistical Analysis C
Data Interpretation D
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Patient: Female, 89
Final Diagnosis: Follicular B-cell lymphoma with accompanying ischemic gastritis completely resolved by rituximab
Symptoms: Nausea • vomiting
Medication: —
Clinical Procedure: —
Specialty: Oncology





Objective: Rare disease
Background: Follicular B cell lymphomas account for a significant portion of all newly diagnosed non-Hodgkin's lymphomas. While involvement can be varied, the most common extranodal presentation is within the gastrointestinal tract beyond the stomach. In addition, the stomach has a diffuse multivessel vascular supply, which decreases the likelihood of developing ischemic gastritis.

Case Report: An 89-year-old woman with history of diabetes, deep venous thromboembolism, and hypertension was referred due to a newly diagnosed retroperitoneal mass. Biopsy of a left para-aortic node was consistent with low-grade follicular B cell lymphoma. Following mainstream treatment guidelines, rituximab was administered. Approximately 12 hours later, the patient presented to the Emergency Department with intractable vomiting and nausea. After admission, an esophagogastroduodenoscopy (EGD) revealed extensive ischemic gastritis. Due to recurrent ascites requiring frequent paracenteses, and the clinical aggressiveness of the patient's underlying lymphoma, a second dose of rituximab was administered with concurrent initiation of total parenteral nutrition. Approximately 1 week later, the patient underwent a repeat EGD for quality of life planning while in hospice. The repeat EGD revealed resolved ischemic gastritis. Her diet was advanced and she was subsequently discharged home.

Conclusions: Rituximab alone shows promise in treating extensive follicular B cell lymphoma complicated by ischemic gastritis, which has not been previously reported in the literature.

MeSH Keywords: Gastritis • Ischemia • Lymphoma, Follicular

Full-text PDF: <http://www.amjcaserep.com/abstract/index/idArt/903506>

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Background

Follicular B cell lymphomas account for 25% of all non-Hodgkin's lymphomas [1]. Involvement of the gastrointestinal tract past the stomach is the most common extranodal site, with a myriad of clinical presentations. Ischemic gastritis is extremely rare due to the stomach's diffuse multivessel vascular supply, which provides resistance to mucosal ischemia.

Case Report

An 89-year-old white woman with past medical history of diabetes, deep venous thromboembolism, and hypertension was referred from outpatient Internal Medicine to Oncology for management of a newly diagnosed retroperitoneal soft tissue mass extending from the pancreas to the pelvis, encasing the abdominal aorta, with extensive lymphadenopathy seen on CT (Figure 1A–1C). Her physical examination was noteworthy for diffuse adenopathy, multiple palpable masses, and a soft, distended abdomen.

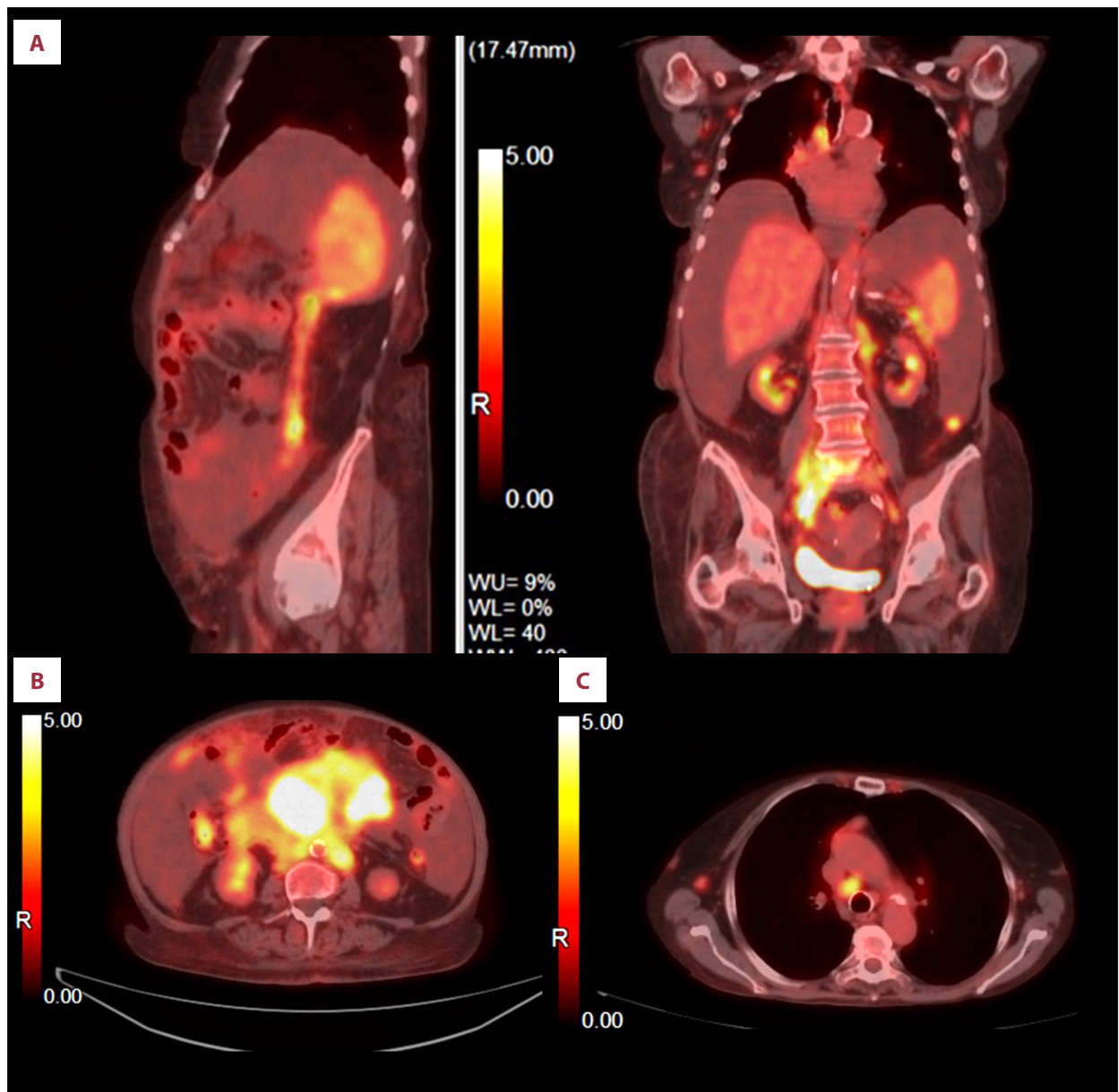


Figure 1. (A–C) The initial abdomen and pelvis CT with contrast, which diagnosed a retroperitoneal soft tissue mass measuring 12.5×7.6 cm extending from the pancreas to the pelvis, encasing the abdominal aorta and multiple mesenteric vessels, with extensive lymphadenopathy within the anterior pericardial space, and the largest lymph node measuring approximately 3 cm.



Figure 2. CT showing portal gas consistent with ischemia.

Biopsy of a left para-aortic node was consistent with low-grade follicular B cell lymphoma. Bone marrow aspirate detected CD10+ monoclonal B cells with few CD5- and CD19+ cells. The patient received rituximab (Dose #1) due to recent clinical trials showing positive outcomes for the lymphoma, and within 12 hours was admitted for intractable nausea and vomiting. Imaging on admission showed diffuse venous gas present in both the portal system and stomach, suspicious for ischemic bowel (Figure 2). Lab test results on admission were significant for mildly elevated blood urea nitrogen of 32 mg/dL (reference 7–25 mg/dL); elevated creatinine (1.58 mg/dL) consistent with acute kidney injury secondary to a combination of intravascular depletion and presence of ascites from the lymphoma; leukocytosis of 16.40 K/uL secondary to chemotherapy; and mildly elevated mean corpuscular volume (105.3 fL) with a normal hemoglobin of 13 g/dL. Esophagogastroduodenoscopy (EGD) revealed extensive ischemia with concomitant ulceration, primarily in the fundus of the stomach, and visualization of the lymphoma in the first portion of the duodenum (Figure 3A). There was no report of appetite loss, nausea, or vomiting in

last 2–3 months before the diagnosis of lymphoma on imaging. Due to the onset of ischemic gastritis, recurrent ascites requiring frequent paracenteses, and the lymphoma's aggressive nature, an additional dose of rituximab (Dose #2) was administered, despite the poor prognosis.

The patient remained unable to tolerate anything orally, and required total parenteral nutrition. The patient and family requested a more definitive prognosis in order to maximize quality of life. A repeat EGD 1 week after the previous EGD showed small, punctate gastritis without evidence of ischemia or ulceration, with the underlying lymphoma appearing unchanged (Figure 3B). Due to the resolution of ischemic gastritis, the patient was taken off total parental nutrition and slowly advanced from clear liquids to a regular diet. She was discharged to home after 28 days. Immediately after discharge, she had a repeat PET (Figure 4A–4C) that showed considerable improvement in tumor burden. She died 9 months later, even though her initial prognosis was for 3–6 months.

To our knowledge, this is the first case report on the use of rituximab to completely resolve ischemic gastritis in the presence of follicular B cell lymphoma.

Discussion

Rituximab is a chimeric type I monoclonal antibody that binds to CD20 found on normal B cells and in most B cell lymphomas [2]. Cyclophosphamide, doxorubicin, vincristine, and prednisone (CHOP), along with rituximab, are mainline treatment regimens for high-grade follicular B cell lymphoma. However, the patient in this report only received rituximab due to poor performance status.

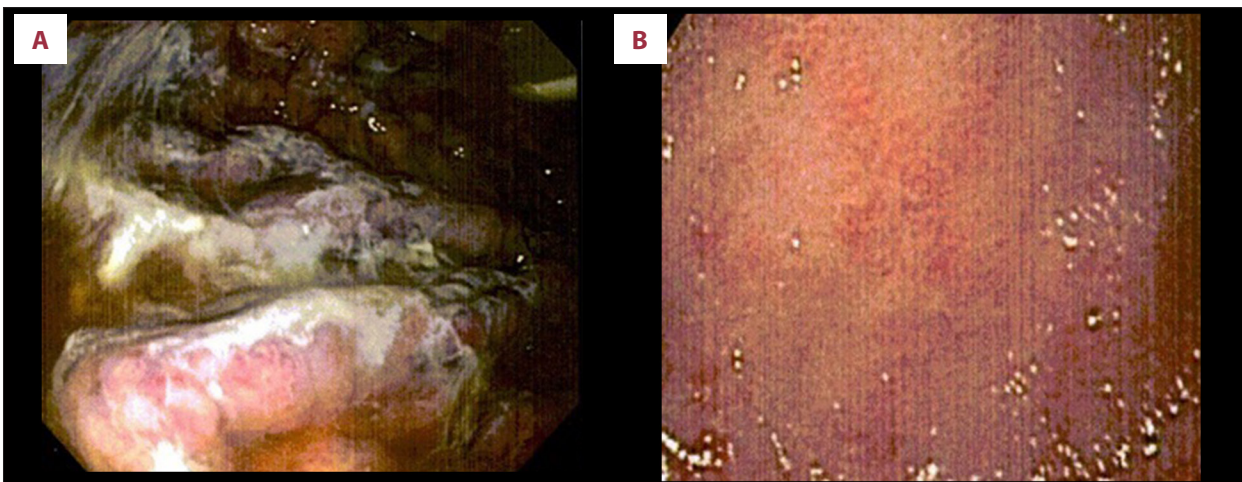


Figure 3. Ischemic gastritis (A) resolved after 2 doses of rituximab (B).

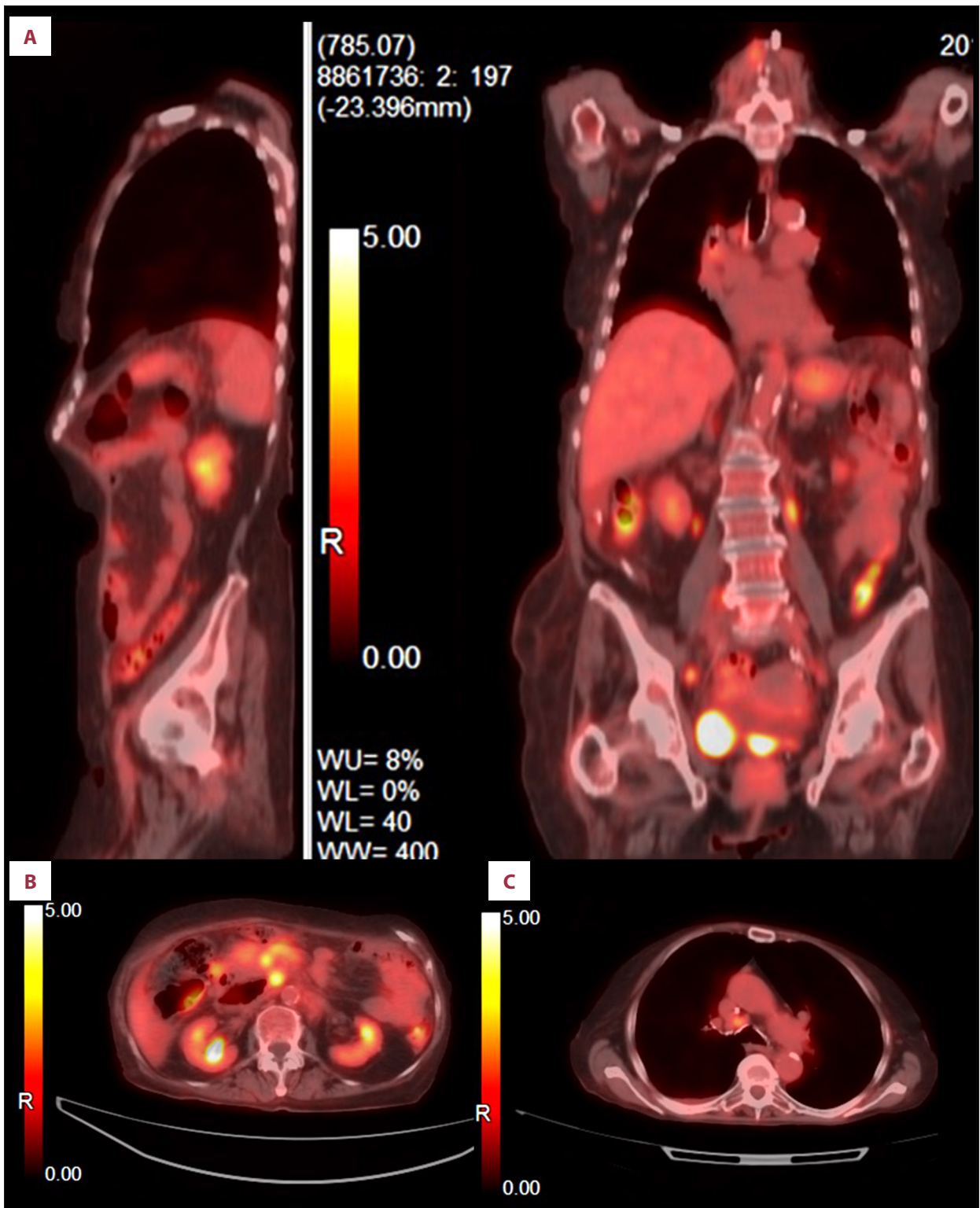


Figure 4. (A–C) Are PET/CT images after rituximab Dose#2, showing a large bulky nodal mass seen previously decreased in size measuring 10.9×6.1 cm but still metabolically active, and improvement in the mediastinal hilar adenopathy, pelvic sidewall lymph nodes, and encasement of the mesenteric vessels. A metabolically active anterior left mesenteric lymph node not seen previously measures 14×10 mm and there is a new focus of increased metabolic activity at the level of the cervix and at the anterior left-sided mesenteric nodule deep to the abdominal wall, with increased metabolic activity involving loops of the small bowel.

It is widely accepted that B cell lymphomas can result in B cell proliferation. Due to the visualization of a lymphoma in the first part of the duodenum, it is likely that the early portion of our patient's small intestine and stomach had a microcellular accumulation of B cells greater than physiological norms, resulting in changes to the vascular and lymphatic structures, which produced ischemia and ascites.

In recent years, the association of follicular B cell lymphoma with the local microenvironment has become better understood [3]; however, its association with varied clinical presentations is still being investigated. Broadly, it is postulated that the proliferation of B cells contributes to a chronic inflammatory-like state through expression and inhibition of various cytokines [4], contributing to the development of localized ischemia. Even though the patient was asymptomatic for a long period of time prior to her diagnosis, her underlying lymphoma likely contributed to the localized inflammatory factors compressing the mesenteric vessels and changing the nature of the gastric mucosa. Although some patients may have adverse effects of nausea or vomiting after administration of chemotherapy, rituximab is generally well tolerated.

Rituximab is a unique chemotherapeutic agent that binds to B cells, promoting apoptosis, decreasing localized inflammation, and restoring perfusion. For this particular patient, the first dose of rituximab coincided with intractable vomiting, which in turn caused intravascular depletion, exacerbating and contributing to the development of ischemic gastritis, which was most likely an indolent result from the growing retroperitoneal soft tissue mass extending from the pancreas to the pelvis.

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More simply, the patient's ischemic gastritis was likely due to a combination of both intravascular depletion and lymphoma induced chronic inflammatory-like state. The complete resolution of ischemic gastritis is attributed to both intravascular repletion with intravenous fluids and rituximab-induced B cell death, which improved localized inflammation and restored perfusion to the stomach.

While digital ischemia and gastric ischemia are different, similarities do exist. A patient with systemic lupus erythematosus and Jaccoud arthritis developed digital ischemia of her hands that did not respond to steroids, immunosuppressants, or vasodilator agents, but resolved after 2 doses of rituximab [5]. Beyond ischemia, B lymphocytes have been found to have a significant role in the development of vasculitides, including ANCA-associated vasculitis that was subsequently resolved after B cell depletion utilizing rituximab [4].

Conclusions

The encouraging results from this case should prompt more consideration of rituximab monotherapy in the treatment of ischemic gastritis or ischemia in general.

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