**Perforated gastric lymphoma presenting a life-threatening condition in an adult patient: A case report**

Mohamed Zayati, Mohamed Ali Chaouch, Iyed Kraiem, Faiez Boughanmi, Khadija Zouari, Faouzi Noomen

Department of visceral and digestive surgery, Monastir University Hospital, Monastir, Tunisia

**ABSTRACT**

**Introduction:**

Gastric lymphomas were non-Hodgkin's lymphomas developed from mucosa-associated lymphoid tissue. Surgery is advocated in case of complicated cases by an obstruction, bleeding, or perforation and the treatment could be controversial, and could present a life-threatening condition. This case report aims to report a complicated gastric MALT lymphoma by a perforation undergoing surgical treatment.

 **Case presentation:**

A 47-year-old patient, with a history of extranodal marginal zone B cell lymphoma, presented to the Emergency Department for epigastric pain. Physical examination revealed an unstable patient with hemodynamic failure and a general abdominal guardness. The biological data found a high white blood cell count and a high C- reactive protein level. The abdominal CT scan found an intraperitoneal gaze and an intraperitoneal effusion. We noticed a gastric parietal defect. We performed an emergent laparotomy. We found generalized purulent peritonitis secondary to a centimetric perforation of the anterior wall of the stomach near the lesser curvature. After a peritoneal lavage, we sutured the perforation; external drainage was performed after excision for pathological examination. The postoperative course was marked by renal failure, and the patient died two days after surgery.

**Conclusion:**

Bowel perforation in gastric lymphomas contributes significantly to morbidity and mortality. An emergent surgery is mandatory to avoid complications even in young patients.

**Keywords: Gastric lymphoma; surgery; mortality; morbidity**

**MANUSCRIPT**

**Introduction:**

Gastric lymphomas were non-Hodgkin's lymphomas developed from mucosa-associated lymphoid tissue (1). This pathology remains rare and often misdiagnosed due to unspecific digestive tract symptoms. Chronic gastritis secondary to Helicobacter pylori (H pylori) infection is considered the major predisposing factor for mucosa-associated lymphoid tissue (MALT) lymphoma (2). Gastric MALT lymphoma accounts for 40% of primary gastric lymphoma. It essentially affects patients aged between 50 to 60 years old. The diagnosis of this affection is based on endoscopy and pathological examination (3). The treatment is based on the eradication of H pylori. For other types of lymphoma are treated by chemotherapy. Surgery is advocated in case of complicated cases by an obstruction, bleeding, or perforation and the treatment could be controversial with several difficulties. This case report aims to report a complicated gastric MALT lymphoma by a perforation undergoing surgical treatment.

 **Case presentation:**

A 47-year-old patient, with a history of extranodal marginal zone B cell lymphoma, presented to the Emergency Department for epigastric pain. Physical examination revealed an unstable patient with hemodynamic failure and a general abdominal guardness. The biological data found a high white blood cell count at 20000 E/mm3 and a high C- reactive protein level at 232 mg/L. The abdominal CT scan found an intraperitoneal gaze and an intraperitoneal effusion. We noticed a gastric parietal defect **(Figure 1)**. Regarding the haemodynamic failure, emergency surgery was performed. We used the laparotomy approach. Intra-operatively, we found generalized purulent peritonitis secondary to a centimetric perforation of the anterior wall of the stomach near the lesser curvature **(Figure 2)**. After a peritoneal lavage, we sutured the perforation; external drainage was performed after excision for pathological examination. The postoperative course was marked by renal failure, and the patient died two days after surgery.

**Discussion:**

Gastric lymphomas are non-Hodgkin's lymphomas which develop from mucosa-associated lymphoid tissue. Most cases occur in individuals older than 50 years secondary to H pylori infection, the major predisposing factor for MALT lymphoma. Other factors were also increminated, such as HIV, Epstein-Barr virus, hepatitis B virus, and human T-cell lymphotropic virus 1. Campylobacter jejuni (C jejuni). The most frequently affected organ is the stomach, where MALT lymphoma is incontrovertibly associated with chronic gastritis induced by a microbial pathogen, Helicobacter pylori (3). The diagnosis of this affection is based on endoscopy and histopathology. The clinical signs were not specific and could mimic other tumors (4). The endoscopic signs were erosion, erythema, discolouration, atrophy, ulcer, and subepithelial lesion (1), as the endoscopic features of gastric MALT lymphoma, are variable and non-specific (3,5). Endoscopic biopsy using forceps and histopathologic examination is the most basic test for diagnosing gastric MALT lymphoma. The literature has reported that approximately 75% of H pylori-positive gastric MALT lymphomas obtain complete remission after the eradication of these bacteria with antibiotic therapy, supporting the association between H pylori infection and the presence of MALT (2). the most widely accepted initial treatment option for localized disease is the eradication of H pylori using triple therapy based on the combination of proton-pump inhibitors, clarithromycin with either amoxicillin or metronidazole for 10 to 14 days (6). The use of chemotherapy and immunotherapy has been reported in gastric MALT lymphoma of all stages; however, there is no evidence to indicate the most effective regimen. Patients with localized disease, who did not respond to antibiotic therapy or radiation therapy, should be considered for systemic chemotherapy. In our case, the cause of gastric lymphoma is an infection of Helicobacter Pylori, so an antibiotherapic course was initiated but unsuccessful. The resistance to anti-biotherapy pushes us to pursue a chemotherapy course. The most common complication of this affection is a bleeding stomach and perforation. Although unusual, the occurrence of perforations is potentially life-threatening. It leads to considerable morbidity from sepsis, multi-organ failure, prolonged hospitalization, complications of wound healing, delays in the initiation of chemotherapy and mortality. Several studies have reported an inferior outcome of GI lymphomas when complicated by perforation (7). In the case of our patient, the complication is the perforation of the stomach which is complicated by generalized peritonitis. On the one hand, perforation can be caused by lymphoma. On the other hand, chemotherapy can lead to this complication. No events occurred within the first two days of chemotherapy, dispelling a common notion that these perforations occur very early after chemotherapy. In our series, about half of the perforations post-chemotherapy occurred in the first month/cycle, with the other half occurring >4 weeks after starting chemotherapy. These included perforations from the lymphoma and treatment-related complications such as neutropenic [colitis](https://www.sciencedirect.com/topics/medicine-and-dentistry/colitis), infectious colitis, [radiation enteritis](https://www.sciencedirect.com/topics/medicine-and-dentistry/radiation-enteropathy) and colonic [pseudo-obstruction](https://www.sciencedirect.com/topics/medicine-and-dentistry/pseudoobstruction). Other small series of perforation events in GI lymphoma also report a range of time to perforation from 4 days to >5 weeks from the initiation of chemotherapy (8). The treatment, in this case, is the suture of the perforation.

**Conclusion:**

Bowel perforation in gastric lymphomas contributes significantly to morbidity and mortality. An emergent surgery is mandatory to avoid complications even in young patients.

**Funding**

This research received no specific grant from the public, commercial,

or not-for-profit sectors.

**Ethical approval**

Not applicable.

**Consent**

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request

**Author contributions**

All the authors participate in the treatment of the patients, writing, and approved the manuscript.

**Conflict of interest**

No conflict of interest to disclose.

**Acknowledgments**

None.

**References:**

1. Gong EJ, Choi KD. Diagnosis and treatment of gastric mucosa-associated lymphoid tissue lymphoma. Korean J Gastroenterol. 2019;74(6):304‑13.

2. Zullo A, Hassan C, Ridola L, Repici A, Manta R, Andriani A. Gastric MALT lymphoma: old and new insights. Ann Gastroenterol. 2014;27(1):27.

3. Park BS, Lee SH. Endoscopic features aiding the diagnosis of gastric mucosa-associated lymphoid tissue lymphoma. Yeungnam Univ J Med. 2019;36(2):85‑91.

4. Chaouch MA, Dougaz MW, Ferjaoui W, Gouta EL, Nouira R, Bouasker I, et al. A Case Report of a Primary Neuroendocrine Tumour of the Proximal Common Bile Duct. J Gastrointest Cancer. 2019;50(4):1048‑50.

5. Wejih DM, Leila GE, Ali CM, Ramzi N, Ibtissem B, Chadli D. Rectal stromal tumor with an exceptional liver and bone metastatic locations. Pan Afr Med J. 2019;32(1).

6. Chahil N, Bloom P, Tyson J, Jazwari S, Robilotti J, Gaultieri N. Novel approach to treatment of rectal mucosa-associated lymphoid tissue lymphoma. Case Rep. 2011;2011:bcr0520102969.

7. Gou HF, Zang J, Jiang M, Yang Y, Cao D, Chen XC. Clinical prognostic analysis of 116 patients with primary intestinal non-Hodgkin lymphoma. Med Oncol. 2012;29(1):227‑34.

8. Wada M, Onda M, Tokunaga A, Kiyama T, Yoshiyuki T, Matsukura N, et al. Spontaneous gastrointestinal perforation in patients with lymphoma receiving chemotherapy and steroids Report of three cases. J Nippon Med Sch. 1999;66(1):37‑40.

**Figures list:**

**Figure 1:** Axial abdominal CT scan view showing the gastric wall defect (red arrow) and a peritoneal fluid

**Figure 2:** Intraoperative view showing a centimetric perforation of the anterior gastric wall causing the peritonitis