CASE REPORT AND LITERATURE REVIEW

Non hodgkin lymphoma presenting as acute abdomen: perforation peritonitis : a rare case report and literature review

Davinder Kumar[1], Sanjay Marwah[2], Ritesh Kumar [2], Pooja Rathee[2], Shivam verma[2], Zion Tripura[2]
Deepanshu Lather[2], Piyusha Gupta[2]
[1] University College of Medical Science, New Delhi, India
[2] Pt Bhagwat Dayal Sharma PGIMS, Rohtak, Haryana, India

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Abstract

Introduction: Primary gastric lymphoma with spontaneous perforation is rare. Case presentation: We present a case involving a 62-year-old woman who was admitted to the emergency department due to widespread abdominal discomfort, ongoing vomiting, and constipation.. Based on investigations, a diagnosis of peritonitis due to a viscous perforation was made. Patient was operated on and intraoperatively around 1x1 cm perforation surrounded by induration of around 3x3 cm (resembling punched out ulcer) was found on the anterior surface of the body of stomach 7 cm from the pyloric sphincter. Wide local excision of the perforation with its surrounding indurated area was done followed by primary repair of the stomach defect. A Witzel's feeding jejunostomy was created omental and D10 LN biopsy was done. On histopathology of specimens , the gastric wall showed diffuse infiltration involving its full thickness; a group of sizable, unusual lymphoid cells was observed. At the location of the perforation, tumor cells accompanied by necrotic material were detected in conjunction with the base of the ulcer, findings consistent with non-Hodgkin's lymphoma. Immunohistochemical staining were positive for CD20,LCA ,BCL6&2 and negative for Cd3, Cd 10,Cd23, the Ki67 index was- 60_70%. Conclusion: A case report detailing a spontaneous perforation resulting from primary gastric malignant lymphoma has been presented, along with a review of pertinent literature. This case underscores the need for further studies to better understand the association between surgical indications and pathological findings in such scenarios. Additionally, more research is essential to evaluate the clinical implications and management strategies for spontaneous perforation in primary gastric lymphoma.

Introduction

The gastrointestinal (GI) tract is the most commonly affected extranodal site in lymphoma, representing around 5% to 20% of all lymphomas. Primary lymphoma of the stomach is an extremely rare condition, constituting merely 1% to 5% of all gastrointestinal cancers[6,7].Gastrointestinal lymphoma most often occurs as a secondary manifestation of widespread nodal disease. The stomach is the most commonly affected organ, although the condition can arise from any location within the gastrointestinal tract, with the small intestine and ileocecal region being the next commonest site. [1] Histopathological analysis reveals that approximately 90%, are derived from B-cell lineage, while T-cell lymphomas and Hodgkin lymphoma are rare.[8]

Case presentation

We present a 62-year-old woman who came to the emergency department, with a one-day history of generalized abdominal pain, accompanied by vomiting and constipation. Upon examination, the patient appeared unwell, exhibiting signs of sepsis. Her pulse rate was 112 beats per minute, blood pressure was 98/64 mm Hg, respiratory rate was 20 breaths per minute, with a temperature of 101 degrees Fahrenheit. There was no lymphadenopathy. Chest examination was normal. Abdominal examination revealed generalised abdominal distension and tenderness, along with generalised guarding. There was no palpable lump in the abdomen. Bowel sounds were not heard. On per rectal examination, rectum was found to be collapsed with fecal staining of the gloved finger. Her laboratory investigations showed Hb-12.5 g/dL; TLC-3300; DLC-neutrophils:74, lymphocytes:16, monocytes:01, eosinophil:09, basophil:00;Blood urea level is 29 mg/dL, and serum creatinine level is 1.0 mg/dL; prothrombin time-12.9; INR-0.96; RBS-124. Plain X Ray of the abdomen shows free air under the right dome of the diaphragm and some dilated bowel loops(figure 1&2). Ultrasonography of the abdomen revealed free fluid with internal echoes and specks of air seen in the pelvis , few enlarged mesenteric lymph nodes, the largest measuring 1.7x1 cm.,a diagnosis of Perforation Peritonitis was made.

At emergency laparotomy, around 1 litre of bilio-purulent fluid was found in the peritoneal cavity. Thorough warm saline lavage was done. A perforation of about 1cm surrounded by a 3cm indurated area (resembling punched out ulcer) was found on the anterior surface of the body of the

Correspondence: Davinder Kumar
E-mail: Dashay517@gmail.com
https://orcid.org/0000-0003-0148-1849
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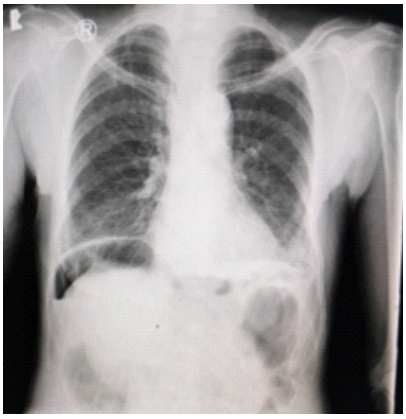

Figure 1

Figure 2

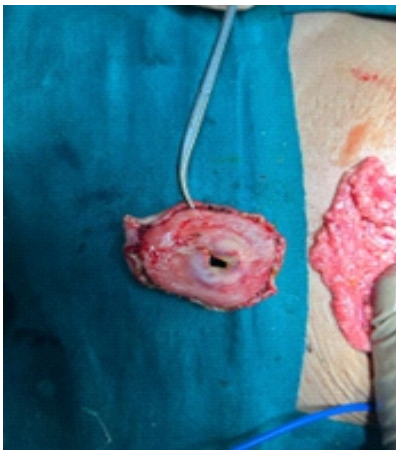

Figure 3

Figure 4

Figure 5

Histopathology reports: Perforated segment of stomach tumor infiltrating muscle layer with ulceration of overlying mucosa reaching upto serosa.

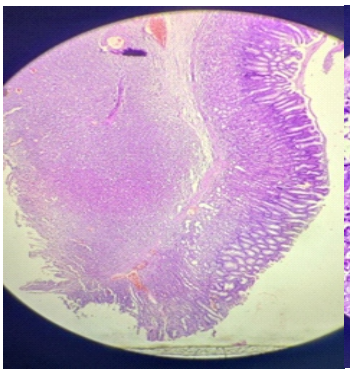

Figure 6

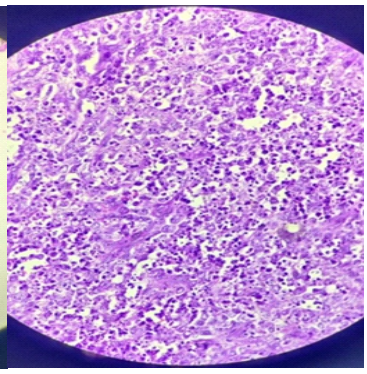

Figure 7

Histological specimen. The gastric wall showed diffuse infiltration through its full thickness by large, atypical lymphoid cells. Surrounding the site of perforation and the ulcer base, tumor cells and necrotic material were observed, indicative of aggressive pathological involvement. (hematoxylin & eosin staining; ×1.25, ×60).Figure 6&7)

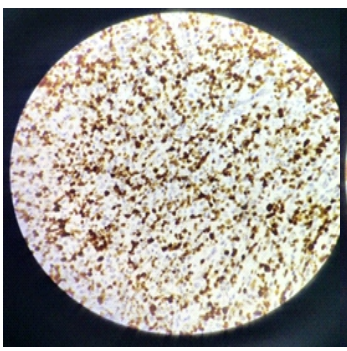

Figure 8

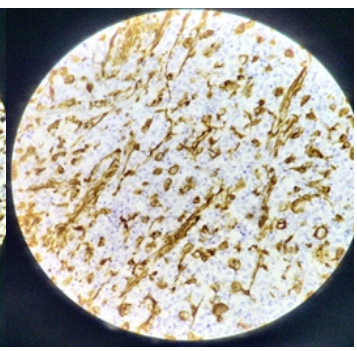

Figure 9

Immunohistochemical staining. The lymphoid nature of the cells was confirmed through strong positive immunohistochemical staining for CD20, LCA, and BCL-6, alongside BCL-2, indicating a B-cell origin. Additionally, the cells showed negative staining for CD3, CD10, and CD23. The Ki-67 index was between 60% and 70%(Figure 8&9).

stomach located 7 cm from pyloric sphincter(Figure 3,4 &5). Wide local excision of the perforation with its surrounding indurated area was done. The defect was primarily repaired with a Witzel's feeding jejunostomy. Omental and D10 lymph node biopsy was also performed.

Discussion

Gastrointestinal non-Hodgkin lymphoma represents the predominant type of extranodal lymphoma, with a significant proportion of gastric lymphomas classified as extranodal marginal zone B-cell lymphomas (MALT lymphoma) and diffuse large B-cell lymphoma (DLBCL). Gastric lymphomas are typically categorized into low-grade and high-grade types. Primary gastric lymphoma is considered uncommon, representing 1% to 5% of all gastric tumors. Gastric lymphomas are strongly associated with Helicobacter pylori infection and is typically considered a low-grade lymphoma, while DLBCL tends to be more aggressive and requires more intensive treatment . [6] Malignant lymphoma of the gastrointestinal tract can be categorized into two main types: nodal and extra nodal. Nodal lymphomas originate in the lymphatic tissues near the gastrointestinal tract andsubsequently spread to the gastrointestinal system. In contrast, extranodal lymphomas, which are more prevalent, originate directly within the gastrointestinal tract. [2]. Dawson and colleagues identified five essential criteria for the diagnosis of primary malignant lymphoma of the intestinal tract: 1) the absence of palpable superficial lymphadenopathy, 2) no enlargement of mediastinal lymph nodes detectable on chest radiographs, 3) normal total and differential white blood cell counts,4) significant bowel lesions noted during laparotomy, and 5) no signs of tumors in the liver or spleen.[3] . The present case, which involved a large gastric ulcer without infiltration of other organs, met all these criteria and was thus classified as primary gastric lymphoma. Primary gastric lymphoma frequently manifests with vague symptoms, including abdominal pain in approximately 50% of cases and dyspepsia in around 30%. The occurrence of B symptoms—such as fever, night sweats, and weight loss—is less prevalent than in nodal lymphomas, which may contribute to a delayed diagnosis. Gastric perforation during chemotherapy for malignant lymphoma is a recognized but rare complication, with an incidence reported to be between 0.9% and 1.1%. [9,10] . Spontaneous gastric perforation occurring without the influence of chemotherapy is an exceedingly uncommon occurrence. As treatment approaches for aggressive gastric lymphoma have transitioned from surgical intervention to chemotherapy, the frequency of primary surgical resections has significantly diminished. However, diagnosing spontaneous perforation of primary gastric lymphoma preoperatively remains challenging. The causes of gastric lymphoma perforation differ significantly between cases receiving chemotherapy and those not treated with chemotherapy. Ono et al. [4] observed that the perforation caused by chemotherapy is mainly due to the deterioration of gastric tissue resulting from swift tumor necrosis, tumor lysis, and excessive granulation. In contrast, Shiomi et al. [5] recognized two distinct patterns of spontaneous perforation in instances where chemotherapy was not administered: the first pattern arises from an ulcer and tumor necrosis extending to the subserosa, while the second pattern occurs due to an ulcer characterized by thin connective tissue, without any tumor involvement. In the current situation, microscopic analysis identified the presence of tumor cells and necrotic tissue surrounding the ulcer and perforation area, thereby corroborating the theory that the perforation was caused by ulceration and tumor necrosis that extended into the subserosa. Gastrectomy should be contemplated in cases where a large ulcer exhibiting necrotic tissue on its floor is identified during upper gastrointestinal endoscopy, owing to the possible risk of gastric perforation.. This is particularly relevant when the endoscopic findings are similar to those observed in primary gastric lymphoma or when complications arise during chemotherapy. If such findings occur during chemotherapy, dose reduction or even gastrectomy may be warranted to prevent perforation and further complications. [11]

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Compliance with ethical standards

All components of the research presented in this manuscript have been carried out with the ethical approval of all pertinent organizations, and these approvals are duly recognized within the manuscript.

Conflict of interest disclosure

There are no identified conflicts of interest associated with the publication of this article. All authors have reviewed and approved the manuscript.

Consent for publication

The manuscript received approval from all authors after being reviewed.

Data with material transparency :yes

Informed consent

was obtained from the patient included in the study.

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Learning Points:

- Primary gastric lymphoma presenting with sponatneous perforation is rare.
- Delayed diagnosis due to less prevalence of B symptoms than other nodal lymphomas.
- Histopathology and immunohistochemistry aids in the diagnosis.
- Gastrectomy should be contemplated in cases which show large ulcer with necrotic base on endoscopy.