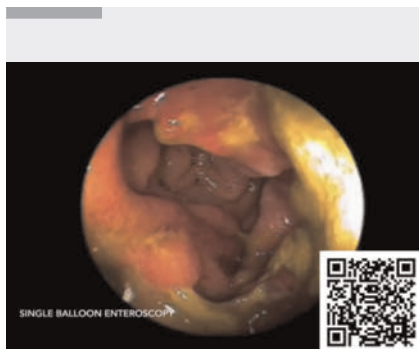


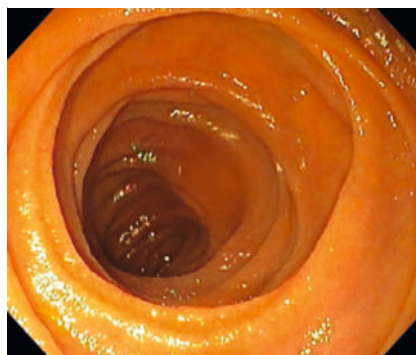
## Finding the needle in a haystack: single-balloon enteroscopy to diagnose diffuse large B-cell lymphoma

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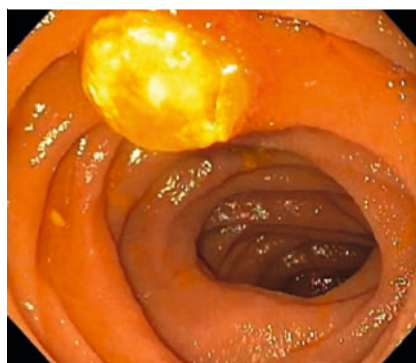


▶ **Video 1** Jejunal diffuse large B-cell lymphoma is diagnosed using single-balloon enteroscopy.

A 74-year-old woman who was on warfarin for a past medical history of atrial fibrillation and a mechanical mitral valve was admitted with symptomatic anemia. The patient reported fatigue, shortness of breath, and epigastric abdominal pain, with associated black stools for a week. Her physical examination was unremarkable. Laboratory investigations were notable for a normocytic anemia (hemoglobin 6.2 g/dL), with an international normalized ratio (INR) of 1.6 and a prothrombin time of 19.5 seconds. The patient underwent esophagogastroduodenoscopy and colonoscopy, with there being no evidence of active bleeding. She continued to have persistent drops in her hemoglobin requiring several transfusions during her admission. Subsequent video capsule endoscopy revealed blood intermittently in the mid-to-distal small bowel (▶ **Video 1**). Computed tomography with enterography of the abdomen and pelvis revealed no acute intra-abdominal process. Push enteroscopy was subsequently performed, with examination of the jejunum being normal (▶ **Fig. 1**). Further evaluation with single-balloon push enteroscopy revealed an ulcerated lesion of 1 cm, with no active bleeding in the jejunum (▶ **Fig. 2**). The lesion was biopsied,

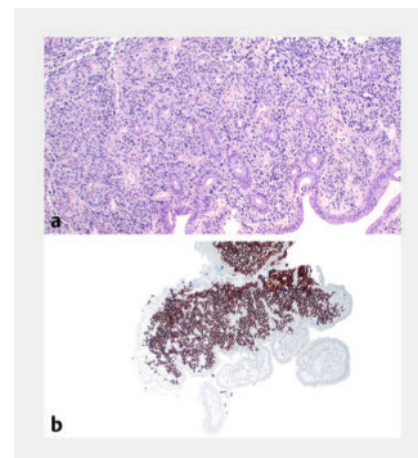


▶ **Fig. 1** Image during push enteroscopy with normal findings in the jejunum.



▶ **Fig. 2** Image during single-balloon push enteroscopy showing a lesion in the jejunum with no evidence of active bleeding.

and the rest of the examination was unremarkable. Biopsies showed an infiltrate of large atypical lymphocytes within the lamina propria of the small bowel with architectural destruction and lymphoepithelial lesions (▶ **Fig. 3 a**). PAX-5 immunohistochemical staining identified these atypical lymphocytes to be B cells (▶ **Fig. 3 b**). The histology and remaining immunohistochemical stains (not shown) were diagnostic of a diffuse large B-cell lymphoma (DLBCL), activated B-cell subtype. DLBCL is the most common type of non-Hodgkin lymphoma [1]. Its presentation may be occult or overt with palpable



▶ **Fig. 3** Microscopic appearance of the endoscopic biopsy of the jejunal lesion showing: **a** on hematoxylin and eosin (H&E) staining, an infiltrate of large atypical lymphocytes with architectural distortion and lymphoepithelial lesions; **b** on PAX-5 immunohistochemical staining, positivity of the large atypical lymphocytes, indicating they were B cells.


lymphadenopathy. It may also present at extranodal sites, including the gastrointestinal tract. The stomach and small bowel are the most affected organs. Symptoms of primary gastrointestinal DLBCL include abdominal pain, bowel obstruction, change in bowel habit, or bleeding [2]. Gastrointestinal bleeding can occur during chemotherapy with an incidence up to 11% [2]; however, there are very few reports in the literature of gastrointestinal bleeding as the presenting symptom of DLBCL.

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### Conflict of Interest

The authors declare that they have no conflict of interest.

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## References

- [1] Susanibar-Adaniya S, Barta SK. 2021 Update on diffuse large B cell lymphoma: A review of current data and potential applications on risk stratification and management. *Am J Hematol* 2021; 96: 617–629. doi:10.1002/ajh.26151
- [2] Zheng W, Song Y, Lin N et al. Primary gastrointestinal mantle lymphoma with massive bleeding: A case report and literature review. *Chin J Cancer Res* 2013; 25: 250–253

## Bibliography

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