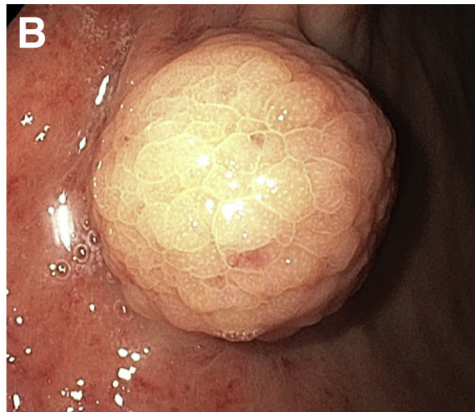
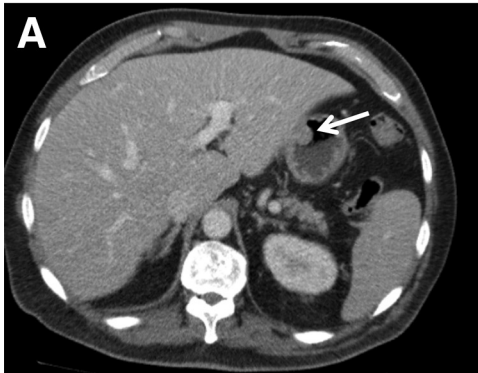


A Middle-Aged Man With Jaundice and a Gastric Tumor



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Question: A 63-year old man was referred to our center because of jaundice, malaise, and progressive weight loss for 4 weeks. His medical history included hypertension, diabetes mellitus type 2, and rheumatoid arthritis for which he received weekly methotrexate injections. Physical examination showed a jaundiced, cachectic male (10-kg weight loss in 4

weeks). Laboratory results showed a conjugated hyperbilirubinemia (total bilirubin, 112 $\mu\text{mol/L}$ [normal range, 0–17 $\mu\text{mol/L}$]), elevated markers of cholestasis (alkaline phosphatase, 582 U/L [normal range, 0–115 U/L]; gamma-glutamyl transferase, 895 U/L [normal range, 0–55 U/L]), and elevated aminotransferases (aspartate aminotransferase, 180 U/L; alanine aminotransferase, 226 U/L [normal ranges, 0–40 U/L]). Viral hepatitis and autoimmune hepatitis serology were negative. Furthermore, cancer antigen 19.9 was elevated (CA-19.9, 327 kU/L [normal range, 0–27 kU/L]). Last, complete peripheral blood count revealed a marked leukocytosis ($42 \times 10^9/\text{L}$), anemia (5.2 mmol/L), and thrombocytopenia ($60 \times 10^9/\text{L}$). Leukocyte differentiation showed peripheral blood blasts ($15 \times 10^9/\text{L}$), which stained positively for myeloperoxidase. A computed tomography scan of the abdomen showed no signs of pancreatic mass or bile duct obstruction. However, a polypoid lesion in the gastric body (Figure A) as well as a prominent portocaval lymph node was detected. An esophagogastroduodenoscopy was performed and showed a white, submucosal lesion of 20 mm in the gastric body (Figure B), corresponding with the location on the abdominal computed tomography scan. A keyhole biopsy of this lesion was performed.

What is your diagnosis?

Look on page 1700 for the answer and see the *Gastroenterology* web site (www.gastrojournal.org) for more information on submitting your favorite image to Clinical Challenges and Images in GI.

Conflicts of interest

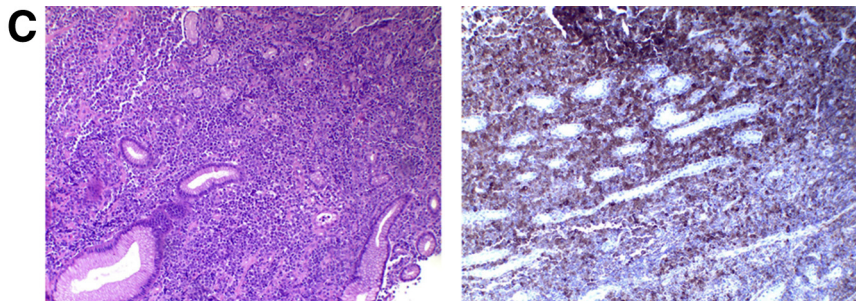
The authors disclose no conflicts.

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Answer to: Image 3 (Page 1699): Acute Myeloid Leukemia With a Gastric Myeloid Sarcoma



The presence of myeloperoxidase-positive blasts in the peripheral blood smear led to a bone marrow biopsy, showing predominantly myelomonocytic blasts with a marked eosinophilia with aberrant appearance. Immunoflow cytometry conformed the diagnosis of an acute myeloid leukemia. Moreover, cytogenetic analysis revealed an inversion of chromosome 16. Therefore, according to the FAB classification system, this leukemia was classified as acute myelomonocytic leukemia with eosinophilia (AML M4eo/inv16). Biopsies from the gastric lesion also showed the presence of these blasts in the submucosa (Figure C) without any alterations in the cells of the gastric epithelium. Therefore, this lesion was diagnosed as a gastric myeloid sarcoma (also known as chloroma), representing extramedullary proliferation of leukemic blasts. Myeloid sarcomas are found in 2%–8% of patients with AML, and are usually confined to skin, bones, testes, and lymph nodes.¹ Gastrointestinal involvement is reported, but mostly confined to case reports.

Myeloid sarcoma can present as a solitary lesion, or in concurrence with leukemic infiltration of the bone marrow. In this case, there was systemic leukemic disease with involvement of the gastrointestinal tract. Furthermore, the initial presentation of this patient with jaundice and marked liver biochemistry abnormalities; in the absence of a pancreatic mass, bile duct obstruction, or viral/autoimmune hepatitis, suggests leukemic infiltration of the liver to be the cause of these symptoms. A post mortem study showed liver infiltration in 75% of AML cases.² Moreover, most reported cases of AML with liver involvement show a similar predominant cholestatic picture as in this patient.³ Finally, after induction treatment with cytarabine, because anthracyclines could not be given considering the hyperbilirubinemia, liver biochemistry normalized and the patient showed hematologic remission.

This case is noteworthy because of the involvement of both the liver and gastrointestinal tract in a disease of purely hematologic origin.

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