Non-Hodgkin's Lymphoma: Review Questions

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QUESTIONS

Choose the single best answer for each question.

1. **A 60-year-old woman presents with new, asymptomatic left axillary lymphadenopathy. A biopsy reveals follicular lymphoma. Staging computed tomography (CT) scans show multiple mediastinal, axillary, and mesenteric lymph nodes. The largest lymph nodes are 3 cm in diameter and are not compressing surrounding organs. A bone marrow biopsy and aspirate are consistent with follicular lymphoma involvement. She otherwise feels well and has no history of night sweats, fatigue, or weight loss. What is the most appropriate management option for this patient at this time?**
   (A) Close monitoring with repeat CT scans in 3 to 6 months
   (B) Combination chemotherapy and monoclonal antibody therapy
   (C) High-dose chemotherapy with stem cell transplantation
   (D) Single-agent chemotherapy
   (E) Total lymph node irradiation

2. **A 55-year-old man is referred to an oncologist with a longstanding history of gastroesophageal reflux disease. His symptoms have been refractory to proton pump inhibitors, and he underwent esophagogastroduodenoscopy, which revealed a 3-cm mass in the antrum. A biopsy demonstrated marginal zone mucosal-associated lymphoid tissue (MALT) lymphoma. Which of the following infectious agents should this physician test for?**
   (A) *Campylobacter jejuni*
   (B) Extended spectrum β-lactamase–producing *Escherichia coli*
   (C) *Giardia* species
   (D) *Helicobacter pylori*
   (E) *Salmonella* species

3. **A 70-year-old man is referred for colonoscopy as part of an evaluation for mild iron deficiency anemia. The endoscopist notes numerous polyps throughout the colon. A preliminary biopsy report is consistent with lymphoma. What type of lymphoma is the most likely cause of this patient's clinical syndrome?**
   (A) Burkitt's lymphoma
   (B) Diffuse large B-cell lymphoma
   (C) Follicular lymphoma
   (D) Mantle cell lymphoma
   (E) Marginal zone lymphoma

4. **A 30-year-old man presents to the emergency department with a 2-week history of cervical lymphadenopathy, drenching night sweats, and unintentional weight loss of 15 lb. A CT scan shows diffuse, bulky lymphadenopathy in the neck, mediastinum, retroperitoneum, and iliac lymph nodes. Laboratory results reveal a blood urea nitrogen level of 56 mg/dL, serum creatinine level of 2.5 mg/dL, calcium level of 13 mg/dL, and a lactate dehydrogenase level 4 times the upper limit of normal. His complete blood count is normal except for a leukocyte count of 24.6 × 10^3/μL with 70% lymphocytes, some of which are atypical in appearance. He is originally from Jamaica and has no significant past medical history. He has had multiple female sexual partners but has never used intravenous drugs. Which virus is the most likely cause of this patient's illness?**
   (A) Cytomegalovirus
   (B) Dengue virus
   (C) Epstein-Barr virus
   (D) HIV
   (E) Human T-lymphotrophic virus type 1 (HTLV-1)

(turn page for answers)

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ANSWERS AND EXPLANATIONS

1. **(A) Close monitoring with repeat CT scans in 3 to 6 months.** Follicular lymphoma is the most common indolent non-Hodgkin's lymphoma diagnosed in the United States. Follicular lymphoma often grows slowly and can be present for many years without causing significant problems. Even in patients with advanced-stage disease, studies have shown that there is no survival advantage to treating follicular lymphoma at diagnosis compared with treating only when symptoms are present.[1] Treatment is initiated when lymph nodes are sufficiently bulky that they cause pain or cosmetic problems or compromise adjacent organs, or when bone marrow involvement causes significant cytopenias. Other symptoms of follicular lymphoma that often necessitate treatment are fatigue, night sweats, anorexia, and unintentional weight loss. Follicular lymphoma responds very well to single-agent chemotherapy or combination chemotherapy regimens, including the monoclonal anti-CD20 antibody rituximab. High-dose therapy with autologous or allogeneic stem cell transplantation may prolong survival or even cure some patients, although most patients cannot tolerate these aggressive therapies and they are almost never utilized as an initial treatment option. Radiation is rarely utilized, except in localized disease.
2. **(D) *H. pylori*.** Various infectious agents have been associated with lymphomas of the gastrointestinal tract; however, *Giardia* species, *Salmonella* species, and *E. coli* are not known to be among them. *C. jejuni* has been associated with immunoproliferative small intestinal disease, a rare form of lymphoma that arises in small intestinal MALT but not in the stomach.[2] *H. pylori* is the most common causative agent of MALT lymphomas of the stomach. MALT lymphoma is unusual in that, when associated with *H. pylori*, it can frequently be cured with antibiotic/antacid regimens that eliminate the bacterial pathogen.[3] More advanced cases or cases refractory to antibiotics are treated with radiation therapy or chemotherapy. The prognosis is generally good.
3. **(D) Mantle cell lymphoma.** This patient has lymphomatous polyposis (not to be confused with lymphomatoid polyposis) associated with mantle cell lymphoma. For reasons that are unclear, the disease has a predilection for the intestinal tract. Mantle cell lymphoma is a progressive disease that results in death within an average of 3 to 5 years despite aggressive treatment regimens, including stem cell transplantation.[4] Burkitt's lymphoma often presents as a lymph node mass near the cecum in young men but is generally a rapidly growing malignancy that causes symptoms such as night sweats, weight loss, and abdominal pain. Diffuse large B-cell lymphoma, follicular lymphoma, and marginal zone lymphoma rarely present as multiple colonic polyps.
4. **(B) HTLV-1.** This patient has adult T-cell lymphoma/leukemia (ATLL), a T-cell neoplasm associated with infection by HTLV-1, a retrovirus endemic to Japan, the Caribbean basin (including Jamaica), Africa, and the southeastern United States.[5] The virus is spread via sexual contact, breast feeding, and blood transfusion. Patients with the acute form of ATLL present with rapidly developing B symptoms (eg, night sweats, weight loss), with diffuse lymphadenopathy, lymphocytosis, and hypercalcemia often associated with acute renal insufficiency. The disease responds poorly to therapy and is almost universally fatal. HIV, Epstein-Barr virus, and cytomegalovirus can all present with diffuse lymphadenopathy, but lymphocytosis is less common and hypercalcemia is rarely seen. Dengue fever occurs in the Caribbean but causes bone pain, not diffuse lymphadenopathy.

REFERENCES

1. Horning SJ, Rosenberg SA. The natural history of initially untreated low-grade non-Hodgkin's lymphomas. N Engl J Med 1984;311:1471–5.
2. Lecuit M, Abachin E, Martin A, et al. Immunoproliferative small intestinal disease associated with *Campylobacter jejuni*. N Engl J Med 2004;350:239–48.
3. Fischbach W, Goebeler-Kolve ME, Dragosics B, et al. Long term outcome of patients with gastric marginal zone B cell lymphoma of mucosa-associated lymphoid tissue (MALT) following exclusive *Helicobacter pylori* eradication therapy: experience from a large prospective series. Gut 2004;53:34–7.
4. Bertoni F, Zucca E, Cavalli F. Mantle cell lymphoma. Curr Opin Hematol 2004;11:411–8.
5. Jaffe ES, Blattner WA, Blayney DW, et al. The pathologic spectrum of adult T-cell leukemia/lymphoma in the United States. Human T-cell leukemia/lymphoma virus-associated lymphoid malignancies. Am J Surg Pathol 1984;8:263–75.