

Gastrointestinal Radiation Oncology

10 High-Yield Board-Style Practice Questions

Original board-style practice questions for radiation oncology residents, written in ABR single-best-answer format with detailed rationales. These are original questions created for educational review and are not reproductions of actual ABR examination content.

Question 1

A gastroesophageal-junction adenocarcinoma involves the EGJ and has its tumor epicenter 1 cm distal to the junction within the proximal stomach. Under AJCC 8th edition, how should this primary be staged?

- A. As an esophageal/EGJ carcinoma because the epicenter is within 2 cm of the EGJ
- B. As a gastric carcinoma because any extension into the stomach makes it gastric
- C. As both an esophageal and gastric primary
- D. It cannot be staged without applying FIGO criteria
- E. As a gastric carcinoma only if regional nodes are positive

Answer: A. As an esophageal/EGJ carcinoma because the epicenter is within 2 cm of the EGJ

Rationale: AJCC 8th edition uses the location of the tumor epicenter relative to the esophagogastric junction. A tumor that involves the EGJ and has its epicenter no more than 2 cm into the proximal stomach is staged using the esophageal/EGJ staging system. If the epicenter is more than 2 cm distal to the EGJ, the gastric cancer staging system is used. This rule is related to, but is not replaced by, the Siewert classification.

References:

Rice TW, Ishwaran H, Ferguson MK, Blackstone EH, Goldstraw P. Cancer of the esophagus and esophagogastric junction: an eighth edition staging primer. *J Thorac Oncol.* 2017;12(1):36-42.

Rice TW, Patil DT, Blackstone EH. 8th edition AJCC/UICC staging of cancers of the esophagus and esophagogastric junction: application to clinical practice. *Ann Cardiothorac Surg.* 2017;6(2):119-130.

Question 2

A patient undergoes staging laparoscopy for gastric cancer, and peritoneal washings return positive for malignant cells despite no visible peritoneal implants on direct inspection. How should this be staged?

- A. It requires repeat washings before any staging conclusion can be made
- B. N3 disease
- C. This finding is not addressed by the staging system
- D. M1 disease, because positive peritoneal cytology alone is sufficient to define metastatic disease
- E. Stage I disease, because no visible metastatic disease is present

Answer: D. M1 disease, because positive peritoneal cytology alone is sufficient to define metastatic disease

Rationale: Positive peritoneal cytology in gastric cancer is classified as M1 metastatic disease, even in the absence of visible peritoneal implants. Therefore, cytology-positive but macroscopically peritoneal-negative disease is not considered localized gastric cancer.

References:

Amin MB, Edge SB, Greene FL, et al., eds. *AJCC Cancer Staging Manual*. 8th ed. Springer; 2017. Stomach chapter.

Ajani JA, D'Amico TA, Bentrem DJ, et al. Gastric cancer, Version 2.2022, NCCN Clinical Practice Guidelines in Oncology. *J Natl Compr Canc Netw.* 2022;20(2):167-192.

Question 3

A pancreatic head adenocarcinoma is found on multiphase CT to have greater than 180° tumor contact with the superior mesenteric artery. How does this finding most directly affect staging and the initial assessment of resectability?

- A. Surgery should proceed regardless of this finding
- B. It indicates that the tumor is benign
- C. It automatically establishes distant metastatic disease
- D. It has no bearing on resectability assessment
- E. It represents AJCC T4 disease and is generally considered locally advanced and anatomically unresectable at presentation because of major arterial involvement

Answer: E. It represents AJCC T4 disease and is generally considered locally advanced and anatomically unresectable at presentation because of major arterial involvement

Rationale: In pancreatic ductal adenocarcinoma, tumor involvement of the celiac axis, superior mesenteric artery, and/or common hepatic artery defines AJCC T4 disease regardless of primary tumor size. Greater than 180° tumor contact with the SMA is also a classic criterion for locally advanced, anatomically unresectable disease at presentation. Importantly, AJCC T category and clinical resectability are related but distinct frameworks. In highly selected patients, response to systemic therapy may permit subsequent reconsideration of local treatment or surgical options at an experienced multidisciplinary center.

References:

Amin MB, Edge SB, Greene FL, et al., eds. AJCC Cancer Staging Manual. 8th ed. Springer; 2017. Exocrine pancreas chapter.
Grossberg AJ, Chu LC, Deig CR, et al. Multidisciplinary standards of care and recent progress in pancreatic ductal adenocarcinoma. CA Cancer J Clin. 2020;70(5):375-403.

Question 4

In an appropriately at-risk patient, when can multiphase contrast-enhanced CT or MRI establish a noninvasive diagnosis of hepatocellular carcinoma without biopsy?

- A. When a lesion meets accepted definite-HCC imaging criteria, such as LI-RADS 5, based on lesion size and the required combination of major imaging features
- B. Only when the tumor is larger than 10 cm
- C. Imaging can never establish HCC without biopsy
- D. Biopsy is always required regardless of imaging findings
- E. Only in the absence of cirrhosis

Answer: A. When a lesion meets accepted definite-HCC imaging criteria, such as LI-RADS 5, based on lesion size and the required combination of major imaging features

Rationale: In an appropriately at-risk population, HCC can often be diagnosed noninvasively when an observation meets accepted definite-HCC imaging criteria, such as LI-RADS 5, on multiphase CT or MRI. LI-RADS incorporates lesion size and major imaging features such as nonrim arterial-phase hyperenhancement, nonperipheral washout, enhancing capsule, and threshold growth. The exact combination required depends on lesion size and imaging findings. Therefore, the simplified statement that arterial enhancement plus washout always establishes HCC is too broad.

References:

Singal AG, Llovet JM, Yarchoan M, et al. AASLD Practice Guidance on prevention, diagnosis, and treatment of hepatocellular carcinoma. Hepatology. 2023;78(6):1922-1965.
American College of Radiology. CT/MRI LI-RADS®: Liver Imaging Reporting and Data System.

Question 5

A tumor deposit is identified in the pericolic fat without histologic evidence of residual lymph-node structure. How is this finding incorporated into colorectal cancer staging?

- A. It is disregarded because no lymph node is present

- B. It has no established staging significance
- C. It automatically defines M1 disease
- D. It is classified as a component of the T category
- E. It is classified as N1c when tumor deposits are present without regional lymph-node metastases; if regional lymph nodes are positive, the N category is assigned according to the positive-node category rather than N1c

Answer: E. It is classified as N1c when tumor deposits are present without regional lymph-node metastases; if regional lymph nodes are positive, the N category is assigned according to the positive-node category rather than N1c

Rationale: Tumor deposits in the pericolic or perirectal drainage area without identifiable residual lymph-node tissue are incorporated into colorectal N staging. When tumor deposits are present and all regional lymph nodes are negative, the category is N1c. If regional lymph nodes contain metastases, the N category is assigned according to the number of positive regional lymph nodes rather than N1c.

References:

Weiser MR. AJCC 8th edition: colorectal cancer. Ann Surg Oncol. 2018;25(6):1454-1455.

Amin MB, Edge SB, Greene FL, et al., eds. AJCC Cancer Staging Manual. 8th ed. Springer; 2017. Colon and rectum chapter.

Question 6

A patient has a 3.5 cm anal canal squamous cell carcinoma with involvement of an inguinal lymph node. How is the inguinal nodal involvement classified under AJCC Version 9?

- A. It automatically indicates unresectable disease with no curative treatment options
- B. Distant metastatic (M1) disease
- C. T4 disease
- D. It is not addressed by the staging system
- E. Regional nodal disease classified within the N1a nodal category

Answer: E. Regional nodal disease classified within the N1a nodal category

Rationale: Inguinal lymph-node involvement in anal canal cancer represents regional rather than distant metastatic disease. Under AJCC Version 9, N1a includes involvement of inguinal, mesorectal, superior rectal, internal iliac, or obturator lymph nodes. N1b denotes external iliac lymph-node involvement, while N1c denotes external iliac involvement together with involvement of any N1a nodal basin.

Reference:

Janczewski LM, Faski J, Nelson H, et al. Survival outcomes used to generate version 9 American Joint Committee on Cancer staging system for anal cancer. CA Cancer J Clin. 2023;73(5):516-523.

Question 7

What is the standard dose/fractionation for short-course pelvic radiotherapy in rectal cancer?

- A. 25 Gy in 5 fractions
- B. 50 Gy in 25 fractions
- C. 20 Gy in 10 fractions
- D. 40 Gy in 20 fractions

Answer: A. 25 Gy in 5 fractions

Rationale: Standard short-course pelvic radiotherapy consists of 25 Gy in 5 fractions of 5 Gy each, typically delivered over approximately 1 week. Historically, surgery was performed shortly after completion of radiation, as in the Swedish Rectal Cancer and Dutch TME trials. Contemporary treatment approaches may instead use delayed surgery or incorporate short-course RT into a total neoadjuvant therapy (TNT) strategy with systemic chemotherapy administered before surgery.

References:

Swedish Rectal Cancer Trial. Improved survival with preoperative radiotherapy in resectable rectal cancer. *N Engl J Med.* 1997;336(14):980-987.

Kapiteijn E, Marijnen CAM, Nagtegaal ID, et al. Preoperative radiotherapy combined with total mesorectal excision for resectable rectal cancer. *N Engl J Med.* 2001;345(9):638-646.

Question 8

A patient with anal squamous cell carcinoma is treated with definitive chemoradiation using concurrent fluoropyrimidine-based chemotherapy and mitomycin. Which radiation technique is the contemporary standard for treatment planning?

- A. Intensity-modulated radiation therapy (IMRT)
- B. Anterior-posterior/posterior-anterior opposed fields only
- C. Orthovoltage radiation therapy
- D. Proton craniospinal-style matched fields

Answer: A. Intensity-modulated radiation therapy (IMRT)

Rationale: IMRT is the contemporary standard radiation technique for definitive chemoradiation of anal squamous cell carcinoma because it improves dose conformity and reduces exposure of normal tissues such as bowel, bladder, external genitalia, and pelvic bone marrow. In RTOG 0529, dose-painted IMRT significantly reduced grade ≥ 2 hematologic toxicity, grade ≥ 3 gastrointestinal toxicity, and grade ≥ 3 dermatologic toxicity compared with a historical conventional-radiotherapy cohort. However, the study did not meet its prespecified primary endpoint of a $\geq 15\%$ reduction in combined grade ≥ 2 acute gastrointestinal/genitourinary toxicity.

Reference:

Kachnic LA, Winter K, Myerson RJ, et al. RTOG 0529: a phase 2 evaluation of dose-painted intensity modulated radiation therapy in combination with 5-fluorouracil and mitomycin-C for the reduction of acute morbidity in carcinoma of the anal canal. *Int J Radiat Oncol Biol Phys.* 2013;86(1):27-33.

Question 9

The phase III RAPIDO trial compared short-course radiotherapy followed by chemotherapy as total neoadjuvant therapy with conventional long-course chemoradiotherapy in patients with high-risk locally advanced rectal cancer. What did longer-term follow-up demonstrate regarding locoregional control?

- A. Locoregional recurrence was identical between the two treatment strategies
- B. The short-course RT-based TNT strategy was associated with a higher rate of locoregional recurrence despite maintaining a reduction in distant metastases
- C. Long-course chemoradiotherapy resulted in significantly worse local control
- D. The trial was terminated early because short-course radiotherapy caused unacceptable acute toxicity

Answer: B. The short-course RT-based TNT strategy was associated with a higher rate of locoregional recurrence despite maintaining a reduction in distant metastases

Rationale: At a median follow-up of approximately 5.6 years, RAPIDO demonstrated a higher rate of locoregional recurrence after R0/R1 resection with the experimental short-course RT-based TNT strategy: approximately 10% versus 6% with the standard long-course chemoradiotherapy strategy ($P=0.027$). At the same time, the reduction in distant metastases and disease-related treatment failure associated with the experimental strategy persisted. These findings emphasize the need to balance systemic-control advantages with locoregional-control considerations when selecting and sequencing TNT for high-risk locally advanced rectal cancer.

References:

Dijkstra EA, Nilsson PJ, Hospers GAP, et al. Locoregional failure during and after short-course radiotherapy followed by chemotherapy and surgery compared with long-course chemoradiotherapy and surgery: a 5-year follow-up of the RAPIDO trial. *Ann Surg.* 2023;278(4).

Bahadoer RR, Dijkstra EA, van Etten B, et al. Short-course radiotherapy followed by chemotherapy before total mesorectal excision versus preoperative chemoradiotherapy, total mesorectal excision, and optional adjuvant chemotherapy in locally advanced rectal cancer (RAPIDO): a randomised, open-label, phase 3 trial. *Lancet Oncol.* 2021;22(1):29-42.

Question 10

A phase II trial evaluated neoadjuvant dostarlimab, an anti-PD-1 monoclonal antibody, as monotherapy for mismatch repair-deficient (dMMR) locally advanced rectal cancer. What was the key finding?

- A. All patients required chemoradiotherapy and surgery regardless of response to dostarlimab
- B. Dostarlimab produced only partial responses, with no clinical complete responses
- C. Dostarlimab produced clinical complete responses in all evaluable patients in the initial report, allowing patients with sustained clinical complete response to omit chemoradiotherapy and surgery under intensive surveillance; expanded follow-up subsequently confirmed a high rate of durable organ preservation
- D. Dostarlimab was effective only when administered concurrently with radiation therapy

Answer: C. Dostarlimab produced clinical complete responses in all evaluable patients in the initial report, allowing patients with sustained clinical complete response to omit chemoradiotherapy and surgery under intensive surveillance; expanded follow-up subsequently confirmed a high rate of durable organ preservation

Rationale: In the initial phase II report, 6 months of dostarlimab produced a clinical complete response in all 12 patients with dMMR locally advanced rectal cancer who had completed treatment and had sufficient follow-up at the time of publication. None required chemoradiotherapy or surgery. Expanded follow-up subsequently strengthened these findings. In the 2025 report, all 49 patients with dMMR locally advanced rectal cancer who completed dostarlimab treatment achieved a clinical complete response and elected nonoperative management, and 37 had a sustained clinical complete response at 12 months. These results demonstrate the potential for neoadjuvant PD-1 blockade to achieve substantial organ preservation in this highly selected molecular subgroup. Careful response assessment and intensive surveillance remain essential components of a nonoperative strategy.

References:

- Cercek A, Lumish M, Sinopoli J, et al. PD-1 blockade in mismatch repair-deficient, locally advanced rectal cancer. *N Engl J Med*. 2022;386(25):2363-2376.
- Cercek A, Foote MB, Rousseau B, et al. Nonoperative management of mismatch repair-deficient tumors. *N Engl J Med*. 2025;392(23):2297-2308.

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