

Gastric Cancer: Endoscopic Diagnosis and Staging

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KEYWORDS

- Gastric cancer • Classification • Screening
- Chromoendoscopy • Endoscopy • Endoscopic ultrasound

Gastric cancer is the fourth most common cancer worldwide, leading to more than 700,000 deaths annually, which is second only to lung cancer.^{1,2} Gastric cancer carries a poor prognosis, with 15% to 20% 5-year overall survival even if the disease is limited to the gastric wall.³ Outcomes are favorable if cancers and their precursors are detected early,⁴ and there is a wide window of opportunity for early detection because progression from early to advanced cancer is slow.⁵ However, being asymptomatic until an advanced stage, one-third of gastric cancers are metastatic at time of diagnosis.⁵

This article reviews the role of endoscopy, which is the modality of choice for the diagnosis of gastric cancer. Morphologic classification, the use adjunct technologies that aid in early detection and staging, and screening are also discussed.

CLASSIFICATION AND STAGING

Classification and staging of gastric cancer defines the disease and its behavior, dictates treatment decisions, and determines the prognosis. It also creates common grounds for communication among multiple care providers.

Gastric cancer is classified as early or advanced based on the distinct prognostic differences between these stages. Early gastric cancer (EGC) is limited to the gastric mucosa or submucosa irrespective of lymph node spread⁶ and regardless of clinical presentation. EGC undergoes a period of slow growth with estimated median disease duration of 37 months before progression into advanced cancer.⁷ In advanced cancer,

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tumor cells invade the muscularis propria and beyond. Patients with EGC tend to be younger and tend to have longer symptom duration.⁸

The International Union Against Cancer (UICC) and the American Joint Committee on Cancer (AJCC) use the tumor node metastasis (TNM) system for clinical (c) or pathologic (p) staging of gastric cancer. Proximal gastric tumors whose midpoint is at or within, 5 cm from the gastroesophageal junction follow TNM staging for esophageal adenocarcinoma. Tumors located further distally, in the fundus, body, and antrum of the stomach, follow the gastric TNM staging.

Depth of penetration of the primary tumor designates the T stage. The number of regional lymph nodes comprises the N stage, whereas distant (nonregional) lymph nodes, or peritoneal or other organ involvement, marks the M stage. EGC is a T1 category (**Table 1**).

The Lauren histologic classification into intestinal and diffuse types is traditionally used in the Western world.⁹ The intestinal type, as the name implies, is characterized by the formation of glandular structures (intestinal metaplasia) comprising well-differentiated columnar epithelial cells. The diffuse type is characterized by pangastric

Table 1 TNM staging	
Primary Tumor (T)	
TX	Primary tumor cannot be assessed
T0	No evidence of primary tumor
Tis	Carcinoma in situ: intraepithelial tumor without invasion of the lamina propria
T1	Tumor invades lamina propria, muscularis mucosae, or submucosa
T1a	Tumor invades lamina propria or muscularis mucosae (T1m)
T1b	Tumor invades submucosa (T1sm)
T2	Tumor invades muscularis propria
T3	Tumor penetrates subserosal connective tissue without invasion of visceral peritoneum or adjacent structures
T4	Tumor invades serosa (visceral peritoneum) or adjacent structures
T4o	Tumor invades serosa (visceral peritoneum)
T4b	Tumor invades adjacent structures
Regional Lymph Nodes (N)	
NX	Regional lymph nodes cannot be assessed
N0	No regional lymph nodes
N1	Metastasis in 1–2 regional lymph nodes
N2	Metastasis in 3–6 regional lymph nodes
N3	Metastasis in 7 or more regional lymph nodes
N3a	Metastasis in 7–15 regional lymph nodes
NBb	Metastasis in 16 or more regional lymph nodes
Distant Metastasis	
M0	No distant metastasis
M1	Distant metastasis

Data from Washington K. 7th edition of the AJCC cancer staging manual: stomach. Ann Surg Oncol 2010;17:3077–9.

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