

The Role of Endoscopy in the Management of Dyspepsia: Indications, Benefits, Risks, and Considerations in Older Patients and Those with Alarm Features

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ABSTRACT

Dyspepsia, characterized by epigastric discomfort, postprandial fullness, and early satiety, is a common disorder affecting a significant proportion of the population worldwide. Its management hinges on appropriately distinguishing functional from organic causes—where structural lesions or malignancies may be involved. Endoscopy serves as a crucial diagnostic tool, but its utilization should be guided by patient age and the presence of alarm features to ensure optimal benefit and avoid unnecessary risks. This review discusses current evidence regarding indications, diagnostic yield, and potential complications of endoscopy, emphasizing a risk-based approach tailored to individual clinical profiles.

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1. INTRODUCTION

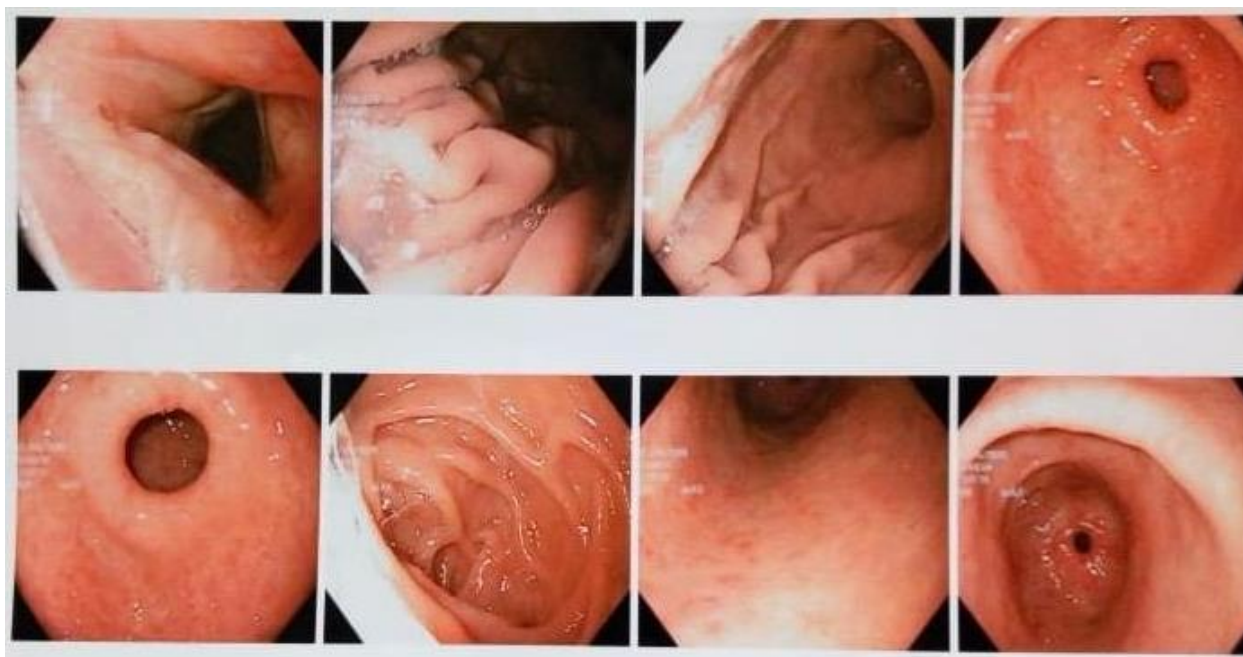


Figure 1. Gastritis findings in endoscopy

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Dyspepsia encompasses a broad spectrum of upper gastrointestinal (GI) symptoms. Most cases are functional, with no identifiable organic cause after thorough evaluation [1]. However, a subset represents organic pathology, including peptic ulcer disease, *Helicobacter pylori* infection, and malignancies. Given the significant prognostic implications of early cancer detection, identifying patients who warrant endoscopic investigation is critical. While endoscopy offers direct visualization and tissue sampling, its overuse in low-risk populations bears costs and potential adverse events. Therefore, clinical guidelines advocate for a targeted approach based on patient age and alarm features.

2. INDICATIONS FOR ENDOSCOPY IN DYSPEPSIA

A. Age-Based Recommendations
The risk of upper GI malignancy increases with age. Evidence indicates that patients over 55–60 years have a higher prevalence of significant organic disease, including gastric and esophageal cancers [4]. Consequently, guidelines recommend

endoscopy for patients within this age group presenting with new-onset dyspepsia or refractory symptoms.

- B. Alarm Features
- Alarm signs strongly suggest serious underlying conditions such as malignancy, peptic ulcers, or structural abnormalities. These features include:
- Unintentional weight loss
 - Persistent or recurrent vomiting
 - Dysphagia or odynophagia
 - Gastrointestinal bleeding or anemia
 - Family history of upper GI cancers

In patients exhibiting these, prompt endoscopic evaluation is warranted. Multiple studies consistently demonstrate that alarm features, particularly in older individuals, significantly increase the likelihood of significant pathology [1, 2, 4].

C. Additional Considerations
In cases of persistent symptoms unresponsive to empiric management, or when suspicion persists for specific conditions, endoscopy becomes a valuable diagnostic tool.

Criteria	Recommendation	Details
Age	Endoscopy recommended for patients 55 years and older	Increased risk of malignancies warrants endoscopy to identify potential serious pathologies.
Alarm Features	Endoscopy indicated	Includes weight loss, anemia, dysphagia, persistent vomiting; suggests higher risk of significant UGI pathologies.
Younger Patients (without alarms)	Routine endoscopy not recommended	"Test-and-treat" strategy for <i>H. pylori</i> is preferred; cost-effective and provides symptom relief.
<i>H. pylori</i>	Routine biopsy during endoscopy if status unknown	Helps in symptom management and reduces gastric cancer risk.
Potential Complications	Consider risk factors in elderly	Increased risk of gastrointestinal/perforation, cardiovascular events, and sedation-related complications; requires careful patient evaluation.

3. NON-INVASIVE STRATEGIES VERSUS ENDOSCOPY IN LOW-RISK PATIENTS

In younger patients (<55 years) without alarm features, the probability of finding malignancy is very low. These patients

benefit from non-invasive approaches such as *Helicobacter pylori* testing—via urea breath tests or stool antigen—and targeted eradication therapy [2].

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The "test-and-treat" strategy for *H. pylori* has been shown to be cost-effective, reduces unnecessary procedures, and often relieves symptoms [2, 4]. During endoscopy, biopsies can be taken to detect *H. pylori* if infection status is unknown, offering a combined diagnostic and therapeutic benefit.

4. RISKS AND COMPLICATIONS OF ENDOSCOPY IN ELDERLY OR ALARM-FEATURE PATIENTS

While generally considered safe, endoscopy presents increased risks in older adults and those with alarm features [3]. Potential complications include:

- Gastrointestinal injuries:
 - Perforation: Incidence is low but increases with age and procedural complexity, especially with therapeutic interventions [1, 2].
 - Bleeding: More common in biopsy or therapeutic procedures, with higher rates in patients on anticoagulation or with vascular abnormalities [1, 2].
- Non-gastrointestinal adverse events:
 - Cardiovascular events: Myocardial infarction, arrhythmias, or ischemic stroke can occur post-procedure, particularly in individuals over 65 [3].
 - Sedation-related complications: Respiratory depression, hypoxia, hypotension, or aspiration pneumonia risk are elevated due to age-related physiological changes [3, 4].

In older patients or those with multiple comorbidities, careful risk assessment, tailored sedation protocols, and close monitoring are essential to mitigate these risks [1, 2, 4].

5. CONCLUSION

Endoscopy remains a cornerstone in the diagnostic evaluation of dyspepsia, predominantly in patients over 55–60 years or those exhibiting alarm features. In these groups, early detection of conditions like gastric or esophageal cancer can be life-saving. Conversely, in younger patients with low-risk profiles, a conservative management approach focusing on *H. pylori* testing and empirical therapy is appropriate, reducing unnecessary exposure to procedural risks.

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