A deep dive on endoscopy

Learn more about recommendations for endoscopy in patients with eosinophilic esophagitis (EoE)

Developed in collaboration with

Professor Seema Aceves, Rady Children's Hospital, University of California San Diego, CA, USA;

Professor Arjan Bredenoord, Amsterdam University Medical Center and the University of Amsterdam, Netherlands

Professor Evan Dellon, University of North Carolina, Chapel Hill, NC, USA

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The diagnosis of EoE includes clinical assessment, endoscopy/histology and the exclusion of other disorders

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Three-step criteria for diagnosis[1]

Identification of oesophageal dysfunction symptoms in adolescents and adults[1,2]

- Dysphagia*
- Food impaction*
- Adaptive eating behaviours (IMPACT)†
- Heartburn
- Chest pain or discomfort

Endoscopic/histological assessment[1–3]

Endoscopy

- Findings (eg **e**dema, **r**ings, **e**xudates, **f**urrows and **s**trictures) should be evaluated using **EREFS**

Histology

- EoE diagnosis requires oesophageal biopsies demonstrating at least 15 eos/hpf
- At least six biopsies from at least two oesophageal levels is recommended

Evaluation of non-EoE disorders[1]

- Exclude other disorders that can potentially cause or contribute to oesophageal eosinophilia
- Such disorders include: GORD, HES, non-EoE EGIDs, achalasia, Crohn's disease, pill oesophagitis, drug hypersensitivity reactions, infections, connective tissue or autoimmune diseases

*Symptoms of oesophageal dysfunction, such as dysphagia to solid foods and food impaction are hallmark indicators of the disease[2,3]

†The IMPACT acronym denotes adaptive eating behaviours: **I**mbibe fluids; **M**odify food; **P**rolong mealtimes; **A**void hard texture foods; **C**hew excessively; **T**urn away tablets/pills[1]

EGID, eosinophilic gastrointestinal disorder; EoE, eosinophilic esophagitis; eos/hpf, eosinophils per high-powered field; EREFS, endoscopic reference score; GORD, gastroesophageal reflux disease; HES, hypereosinophilic syndrome

1. Dellon ES, et al. Am J Gastroenterol 2025;120:31–59; 2. Farah A, et al. Diagnostics (Basel) 2025;15:240; 3. de Bortoli N, et al. Dig Liver Dis 2024;56:951–963

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Endoscopy in EoE

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An oesophageal examination is critical for the diagnosis of EoE and to assess treatment response[1,2]

- Studies have shown that of patients undergoing upper endoscopy, those with symptoms of oesophageal dysfunction were then diagnosed with EoE based on endoscopic findings
  - Between 12–23% of patients who underwent endoscopy due to dysphagia
  - Over 50% of patients who underwent endoscopy due to oesophageal food bolus impaction

Endoscopic findings alone are not a reliable predictor of EoE, especially in children[3]

- In children, a significant proportion will present with a macroscopically normal oesophagus; in a meta-analysis of 1015 patients with EoE, 21% of children had a macroscopically normal oesophagus
- Taking a biopsy is essential for accurate diagnosis

The presence or absence of EoE features should be recorded with EREFS at each endoscopy[1,4–6]

- EREFS identifies and grades the severity of the common, reproducible and identifiable endoscopic features
- The findings from EREFS have been found to discriminate EoE from other conditions with high accuracy

EoE, eosinophilic esophagitis; EREFS, endoscopic reference score

1. Dellon ES. Clin Gastroenterol Hepatol 2021;19:2489–2492.e1; 2. Dellon ES, Hirano I. Gastroenterology 2018;154:319–332; 3. Dhar A, et al. Gut 2022;71:1459–1487;
4. Ahuja N, et al. J Pediatr Gastroenterol Nutr 2020;71:328–332; 5. Kia L, Hirano I. Curr Opin Gastroenterol 2016;32:325–311; 6. Dellon ES. Am J Gastroenterol 2025;120:31–59

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The EREFS allows quantified assessment and grading of the major endoscopic features of EoE[1–3]

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EREFS identifies and grades the severity of the following common, reproducible and identifiable endoscopic features:[1]

	Grade 0	Grade 1	Grade 2	Grade 3
Edema (loss of vascular markings)	**Distinct vascularity**	**Present** Decreased vascularity		
Rings (trachealisation)	**None**	**Mild** Ridges	**Moderate** Distinct rings	**Severe** Cannot pass scope
Exudate (with plaques)	**None**	**Mild** ≤10% surface area	**Severe** >10% surface area	
Furrows (vertical lines)	**None**	**Mild**	**Severe** With appreciable depth	
Stricture	**Absent**	**Present**		

EREFS, endoscopic reference score; EoE, eosinophilic esophagitis

1. Ahuja N, et al. J Pediatr Gastroenterol Nutr 2020;71:328–332; 2. Kia L, Hirano I. Curr Opin Gastroenterol 2016;32:325–311; 3. Dellon ES. Am J Gastroenterol 2025;120:31–59

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General recommendations for endoscopy

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Diagnosis of EoE should be based on endoscopic and histological assessments

Refer patients to gastroenterology for endoscopy if patient presents with symptoms suggestive of EoE or emergency presentation with food bolus obstruction

At least six oesophageal biopsies from at least two oesophageal levels (eg proximal / mid and distal) is recommended

Diagnosis requires oesophageal biopsies showing at least 15 eos/hpf (or ≥15 EOS/0.3 mm^2 or >60 EOS/mm^2), in the absence of other causes of oesophageal eosinophilia

For an accurate diagnosis, PPIs should be withdrawn for at least 3 weeks prior to endoscopy

EoE, eosinophilic esophagitis; EOS, eosinophils; eos/hpf, eosinophils per high-powered field; PPI, proton-pump inhibitor

Dhar A, et al. Gut 2022;71:1459–1487

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Current recommendations for endoscopy in EoE

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Adult patients[1]

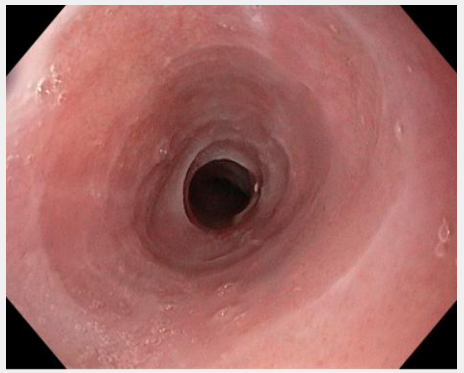
- All adult patients undergoing endoscopy should have oesophageal biopsies taken if:
  - They have endoscopic signs associated with EoE
  - Symptoms of dysphagia or food bolus obstruction, with a normal looking oesophagus
- Patients with food bolus obstruction should receive an urgent referral for an endoscopy, or as an emergency, depending on the clinical presentation

Paediatric patients[1]

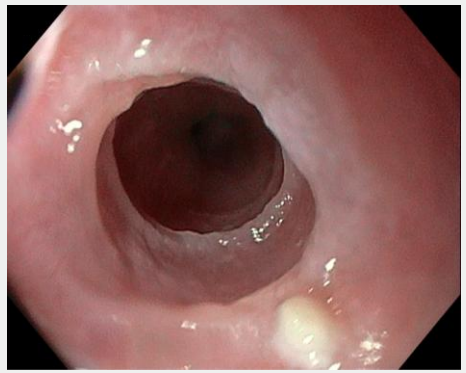
- Owing to the non-specific presenting symptoms of EoE in children, all children with upper gastrointestinal symptoms requiring an endoscopy should have oesophageal biopsies taken to potentially diagnose EoE
- Endoscopy and biopsies should be undertaken to exclude EoE in children refractory to PPIs and with symptoms of GORD*

Repeat endoscopies and oesophageal biopsies should be considered in all patients where there is a high suspicion for an EoE diagnosis, but whose initial histology was not diagnostic[1]

- Endoscopic features of EoE, including oedema, strictures and narrowing, can be difficult to detect and assess during endoscopy, particularly if not severe[2,3]
- Endoscopist should look for subtle findings during the procedure, using EREFS to identify and grade the key endoscopic features of EoE[2,4–6]



Patient with oedema (characterised by loss of vascular pattern) and rings[7]



Patient with oedema and rings causing narrowing of the oesophagus (stricture)[7]

Images available from Michelon M, et al. Allergies 2025;5:17

*This is not a recommendation in adult patients because of the low prevalence of EoE in these patients

EoE, eosinophilic esophagitis; EREFS, endoscopic reference score; GORD, gastroesophageal reflux disease; PPI, proton pump inhibitor

1. Dhar A, et al. Gut 2022;71:1459–1487; 2. Dellon ES. Clin Gastroenterol Hepatol 2021;19:2489–2492.e1; 3. Canakis A, Dellon ES. Dis Esophagus 2025;38:doaf045; 4. Ahuja N et al. J Pediatr Gastoenterol Nutr 2020;71:328–332; 5. Kia L, Hirano I. Curr Opin Gastroenterol 2016;32:325–311; 6. Dellon ES. Am J Gastroenterol 2025;120:31–59; 7. Michelon M, et al. Allergies 2025;5:17

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Considerations when performing endoscopy

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The following recommendations should be considered for an optimal examination of the oesophagus and accurate monitoring of endoscopic features of EoE[1]

- Allow sufficient time at each endoscopy to fully assess and photograph all findings[1]
- The presence or absence of all findings should be recorded using EREFS at each endoscopy to qualify the severity of disease[1]
- It is important to carry out a careful endoscopy, with full insufflation and washing of debris, including saliva, mucous and blood[1]
  - Full insufflation allows for the accurate assessment and recording of the EREFS; insufficient insufflation and clearance of saliva or other debris can obscure EoE-related findings and hinder the evaluation of strictures[1,2]
  - The oesophagus should be fully examined on insertion of the scope, before the upper examination is completed; advancing the endoscope and performing therapeutics too early can falsify the EREFS[1]
- An assessment should also be made for signs of fibrostenosis at each endoscopy[1]
  - Strictures are commonly missed in patients with EoE during endoscopy, with a low sensitivity (25%) in recognising diameters of less than 15 mm compared with barium oesophagrams; PICK-UP-STRICS score can be used to aid clinical suspicion of EoE[2]
  - Other signs that could indicate the presence of strictures include the sensation of resistance of the scope during the examination and the passage of the endoscope over an unidentified stricture causing mucosal trauma, which should prompt reassessment[2]
  - If a regular upper endoscope can pass without resistance or mucosal trauma, this indicates an oesophageal diameter of 9–10 mm at minimum[2]
  - EndoFLIP has been found to have increased sensitivity for detecting fibrotic changes (eg strictures and distensibility) in the oesophagus and should be considering when assessing for signs of fibrostenosis[3]

EoE, eosinophilic esophagitis; EREFS, endoscopic reference score

1. Dellon ES. Clin Gastroenterol Hepatol 2021;19:2489–2492.e1; 2. Canakis A, Dellon ES. Dis Esophagus 2025;38:doaf045; 3. Dellon ES. Am J Gastroenterol 2025;120:31–59

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Importance of dilation in the management of fibrostenotic EoE

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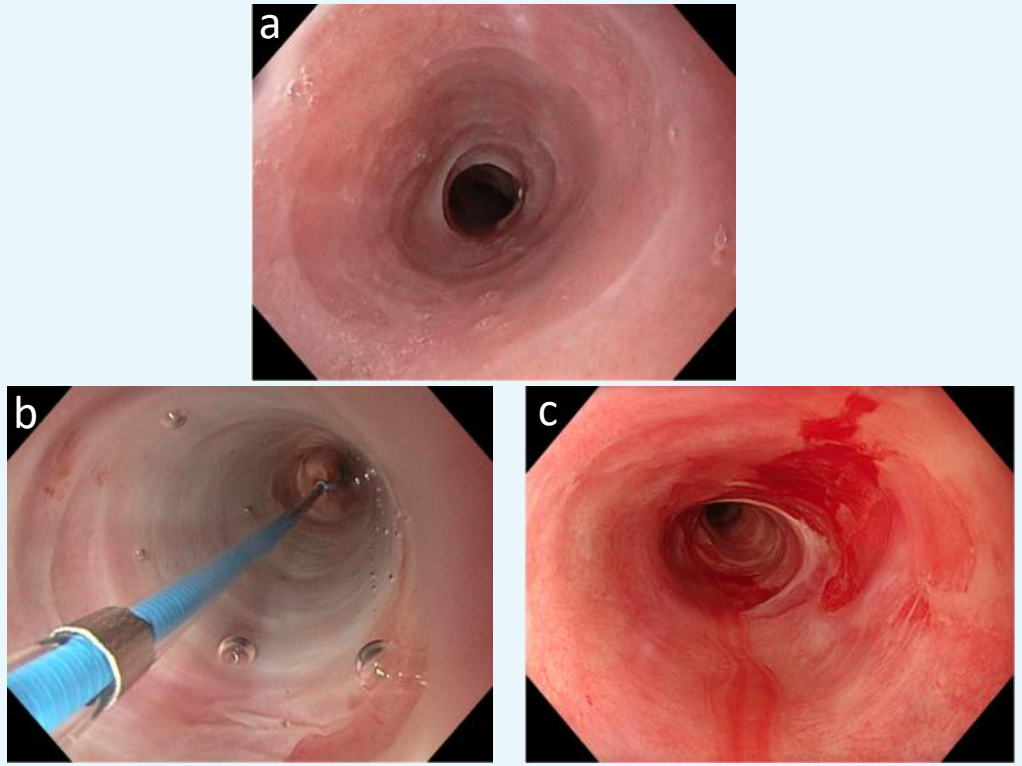
Management of fibrostenotic EoE[1]

- Following stricture identification
  - Dilation with a bougie or balloon can be pursued based on operator experience, stricture characteristics and goals of dilation
  - Progressively larger dilator sizes should be pursued until there is a good dilation effect (ie an intentional mucosal disruption); a diameter of 16–18 mm should be achieved but this may take several sessions to achieve
  - If no obvious stricture is identified but clinical suspicion remains high, cautious dilation, working up to 16–18 mm, can be pursued
- If used in appropriately selected patients and combined with anti-inflammatory medication, endoscopic dilation can offer improvements in dysphagia
  - However, several procedures may be needed, and post-dilation discomfort is experienced in the majority of patients

Endoscopic dilation procedure[2]



a) Endoscopic image of EoE, showing oedema, rings and stenosis of the oesophagus
b) Endoscopic dilation performed with a multi-size dilation balloon
c) Oesophageal mucosal tearing, indicating the effectiveness of the dilation

Images available from Michelon M, et al. Allergies 2025;5:17
EoE, eosinophilic esophagitis
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