

Egyptian Guidelines for the Management of Hiatus Hernia

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We would like to acknowledge the Guideline Development Group, (GDG) committee for developing this guideline.

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Abbreviations:

AGREE II	Appraisal of Guidelines for Research and Evaluation II
BE	Barrett's Esophagus
CECT	Contrast Enhanced Computerized Tomography.
CRP	C Reactive Protein
CT	Computerized Tomography.
GDG	Guideline Development Group.
GEJ	Gastro-Esophageal Junction.
GERD	Gastroesophageal Reflux Disease.
GRADE	Grading of Recommendations, Assessment, Development and Evaluation
HH	Hiatus Hernia
MRI	Magnetic Resonance Imaging
PHH	Paraesophageal Hiatus Hernia
RYGB	Roux-en-Y Gastric Bypass
WHO	World Health Organization.

Glossary:

Types of hiatus hernia:

The current anatomic classification has evolved to include a categorization of hiatal hernias into Types I – IV, ⁽¹⁾.

1. Type I hernias are sliding hiatal hernias, where the gastroesophageal junction, (GEJ) migrates above the diaphragm, ⁽²⁾. The stomach remains in its usual longitudinal alignment, ⁽³⁾, and the fundus remains below the gastroesophageal junction.
2. Type II hernias are pure paraesophageal hernias (PEH); the gastroesophageal junction remains in its normal anatomic position but a portion of the fundus herniates through the diaphragmatic hiatus adjacent to the esophagus, ⁽²⁾.
3. Type III hernias are a combination of Types I and II, with both the gastroesophageal junction and the fundus herniating through the hiatus. The fundus lies above the gastroesophageal junction, ⁽²⁾.
4. Type IV hiatal hernias are characterized by the presence of a structure other than stomach, such as the omentum, colon or small bowel within the hernia sac, ⁽²⁾.

Executive summary:

This guideline offers evidence-based recommendations on the targeted levels of Clinical practice guidelines and provide healthcare professionals with practical guidance on the diagnosis and treatment of diverticular disease and its complications.

- Hiatal hernia can be diagnosed by various modalities. Only investigations which will alter the clinical management of the patient should be performed, (Good practice statement).
- We recommend upper endoscopy with or without barium swallow for patients with a hiatal hernia, particularly prior to operative intervention, (Good practice statement).
- Esophageal manometry studies should not be used as a routine investigation for hiatal hernia, (Good practice statement).
- We advise performing computed tomography (CT) scan for patients with suspected complications, (eg. volvulized paraesophageal hernia), (Good practice statement).
- We advise against the use of pH testing for the diagnosis of hiatal hernia except in patients with sliding hiatal hernias that might benefit from antireflux surgery, (Good practice statement).
- We recommend against repair of a type I hernia in the absence of reflux disease, (Strong recommendation).

- We recommend repair of all symptomatic paraesophageal hiatal hernias, particularly those with acute obstructive symptoms or which have undergone volvulus, (Strong recommendation).
- We advise against routine elective repair of completely asymptomatic paraesophageal hernias, (Conditional recommendation).
- For acute gastric volvulus, we recommend reduction of the stomach with limited resection if vascular impairment is suspected, (Strong recommendation).
- Although open surgical repair could be done, we recommend laparoscopic hiatal hernia repair rather than open repair as it has a reduced rate of perioperative morbidity and is associated with shorter hospital stays than open transabdominal repair. It is the preferred approach for the majority of hiatal hernias, (Strong recommendation).
- We recommend dissecting the hernia sac away from mediastinal structures during paraesophageal hiatal hernia repair, (Strong recommendation).
- We advise excision of the hernia sac after its dissection from the mediastinal structures, (Conditional recommendation).
- We recommend the use of mesh for reinforcement of large hiatal hernia repairs to decrease the short term recurrence rates, (Strong recommendation).
- We advise performing fundoplication during repair of a sliding type hiatal hernia to manage reflux. Fundoplication is also advised during para-esophageal hernia repair, (Conditional recommendation).
- We recommend returning the gastroesophageal junction to an infra-diaphragmatic position, as a necessary step of hiatal hernia repair, (Strong recommendation).
- Hernia reduction with gastropexy alone and no hiatal repair may be suggested as a safe alternative in high-risk patients but may be associated with high recurrence rates, (Conditional recommendation).
- In high risk patients, if the circumstances allow, formal repair is preferred, (conditional recommendation).
- We advise repair of all detected hiatal hernias during bariatric operations, (Conditional recommendation).
- We recommend treatment of postoperative nausea and vomiting aggressively to minimize poor outcomes, (Strong recommendation).

- With early postoperative dysphagia, we recommend adequate caloric and nutritional intake, (Strong recommendation).
- We recommend against routine postoperative contrast studies in asymptomatic patients, (Strong recommendation).
- We recommend revisional surgery in presence of experienced surgeons, (Strong recommendation).
- Revisional antireflux surgery is not indicated except in symptomatic cases and in the presence of anatomical cause that could explain patient's complaint, (Good practice statement).
- Roux-en-Y gastric bypass is a valid option as a revisional antireflux surgery even in non-obese patients, (Good practice statement).

Introduction:

Hiatal hernia is a common disorder, ^(4 & 5). It is characterized by a protrusion of any abdominal structure other than the esophagus into the thoracic cavity through a widening of the hiatus of the diaphragm.

Attempts began early in the last century to classify hiatal hernia into four subtypes, ⁽¹⁾.

Greater than 95% of hiatal hernias are Type I. Types II – IV hernias as a group are referred to as paraesophageal hernias (PEH), and are differentiated from Type I hernias by relative preservation of posterolateral phrenoesophageal attachments around the gastroesophageal junction, ⁽⁶⁾. Of the paraesophageal hernias, more than 90% are Type III, and the least common is Type II, ⁽³⁾. The term “giant” paraesophageal hernia appears frequently in the literature, though its definition is inconsistent. Various authors have suggested giant paraesophageal hernias be defined as all type III and IV hernias, but most limit this term to those paraesophageal hernias having greater than one third to one half of the stomach in the chest, ⁽⁷⁻⁹⁾. These guidelines are specific for each type of hiatal hernia since the implications of a hiatal hernia and the indications for repair differ between the sliding (Type I) hernias and for the paraesophageal hernias (Type II, III and IV). Cephalad migration of the gastroesophageal junction may result from weakening of the phrenoesophageal ligament. Depletion of elastin fibers leads to stretching of the ligament and proximal displacement of the gastroesophageal junction, ⁽¹⁰⁾.

Most cases of hiatal hernia are acquired rather than congenital. Other diaphragmatic hernias exist but are not included in this review. These include acquired hernias such as traumatic diaphragmatic hernias; the rare parahiatal hernias in which the hernia defect arises lateral to the crural musculature and not through the esophageal hiatus itself; iatrogenic diaphragmatic hernias such as those that misguiding chest tubes or after thoracoabdominal incisions in which the diaphragm is taken down, ⁽³⁾; and congenital diaphragmatic defects such as posterolateral Bochdalek hernias and retrosternal Morgagni hernias.

Management is complex and based on multiple factors including size and type of hiatal hernia, degree of symptoms, and associated failure of symptom control by non-surgical means. Deciding whether to proceed with surgical repair of an asymptomatic hiatal hernia can be difficult, ⁽¹⁾. These guidelines aim to provide recommendations on the aforementioned dilemmas.

Scope and Purpose:

The scope of these guidelines is to diagnose hiatus hernia and its complications and to manage these problems accurately and without any hesitation.

The main purposes of these guidelines are to minimize malpractice and poor surgical decision, to improve the quality of medical care and surgical service, to provide the best clinical practice to our patients, and finally to reduce the cost of medical service.

Target Audience:

The principle targeted audiences are the practicing surgeons, however, gastroenterologists, ICU specialists and nursing staff may be included as well.

Methods:

A comprehensive search for guidelines was undertaken to identify the most relevant guidelines to consider for adaptation. Inclusion/ exclusion criteria followed in the search and retrieval of guidelines to be adapted:

- Selecting only evidence-based guidelines (guideline must include a report on systematic literature searches and explicit links between individual recommendations and their supporting evidence)
- Selecting only national and/or international guidelines
- Specific range of dates for publication (using Guidelines published or updated in 2013 and later)
- Selecting peer reviewed publications only
- Selecting guidelines written in English language
- Excluding guidelines written by a single author, not on behalf of an organization to be valid and comprehensive, a guideline ideally requires multidisciplinary input
- Excluding guidelines published without references as the panel needs to know whether a thorough literature review was conducted and whether current evidence was used in the preparation of the recommendations

The following characteristics of the retrieved guidelines were summarized in:

- Developing organization/authors
- Date of publication, posting, and release
- Country/language of publication
- Date of posting and/or release
- Dates of the search used by the source guideline developers

All retrieved Guidelines were screened and appraised using AGREE II instrument (www.agreetrust.org) by at least three members. The panel decided on a cut-off point (any guideline scoring above 50% on the rigor dimension was retained). The GDG decided to adapt the Guidelines for the management of hiatal hernia, (2013).

Evidence assessment

According to WHO Handbook for Guidelines, we used the GRADE (Grading of Recommendations, Assessment, Development and Evaluation) approach to assess the quality of a body of evidence, develop and report recommendations. GRADE methods are used by WHO because these represent internationally agreed standards for making transparent recommendations. Detailed GRADE information is available on the following sites:

- GRADE working group: <http://www.gradeworkinggroup.org>
- GRADE online training modules: <http://cebgrade.mcmaster.ca/>
- GRADE profile software: <http://ims.cochrane.org/revman/gradepro>

Specifically, the quality of evidence was graded as ‘High’, ‘Moderate’, ‘Low’ or ‘Very low’, (tables 1& 2).

The strength of the recommendation

The strength of a recommendation communicates the importance of adherence to the recommendation.

Strong recommendations

With strong recommendations, the guideline communicates the message that the desirable effects of adherence to the recommendation outweigh the undesirable effects. This means that in most situations the recommendation can be adopted as policy.

Conditional recommendations

These are made when there is greater uncertainty about the four factors above or if local adaptation has to account for a greater variety in values and preferences, or when resource use makes the intervention suitable for some, but not for other locations. This means that there is a need for substantial debate and involvement of stakeholders before this recommendation can be adopted as policy.

When not to make recommendations

When there is lack of evidence on the effectiveness of an intervention, it may be appropriate not to make a recommendation.

Recommendations :

Section 1:Diagnosis:

- Hiatal hernia can be diagnosed by various modalities. Only investigations which will alter the clinical management of the patient should be performed, (Good practice statement).
- We recommend upper endoscopy with or without barium swallow for patients with a hiatal hernia, particularly prior to operative intervention, (Good practice statement).
- Esophageal manometry studies should not be used as a routine investigation for hiatal hernia, (Good practice statement).

- We advise performing computed tomography (CT) scan for patients with suspected complications, (eg. volvulized paraesophageal hernia), (Good practice statement).
- We advise against the use of pH testing for the diagnosis of hiatal hernia except in patients with sliding hiatal hernias that might benefit from antireflux surgery, (Good practice statement).

Section 2: Indications for surgery:

- We recommend against repair of a type I hernia in the absence of reflux disease, (Strong recommendation, moderate certainty evidence, ⁽¹⁾).
- We recommend repair of all symptomatic paraesophageal hiatal hernias, particularly those with acute obstructive symptoms or which have undergone volvulus, (Strong recommendation, high certainty evidence, ⁽¹⁾).
- We advise against routine elective repair of completely asymptomatic paraesophageal hernias, (Conditional recommendation, moderate certainty evidence, ⁽¹⁾).
- For acute gastric volvulus, we recommend reduction of the stomach with limited resection if vascular impairment is suspected, (Strong recommendation, high certainty evidence, ⁽¹⁾).

Section 3: Technical Considerations:

- Although open surgical repair could be done, we recommend laparoscopic hiatal hernia repair rather than open repair as it has a reduced rate of perioperative morbidity and is associated with shorter hospital stays than open transabdominal repair. It is the preferred approach for the majority of hiatal hernias, (Strong recommendation, high certainty evidence, ⁽¹⁾).
- We recommend dissecting the hernia sac away from mediastinal structures during paraesophageal hiatal hernia repair, (Strong recommendation, low certainty evidence, ⁽¹⁾).
- We advise excision of the hernia sac after its dissection from the mediastinal structures, (Conditional recommendation, low certainty evidence, ⁽¹⁾).
- We recommend the use of mesh for reinforcement of large hiatal hernia repairs to decrease the short term recurrence rates, (Strong recommendation, moderate certainty evidence, ⁽¹⁾).
- We advise performing fundoplication during repair of a sliding type hiatal hernia to manage reflux. Fundoplication is also advised during para-esophageal hernia repair, (Conditional recommendation, low certainty evidence, ⁽¹⁾).
- We recommend returning the gastroesophageal junction to an infra-diaphragmatic position, as a necessary step of hiatal hernia repair, (Strong recommendation, moderate certainty evidence, ⁽¹⁾).
- Hernia reduction with gastropexy alone and no hiatal repair may be suggested as a safe alternative in high-risk patients but may be associated with high recurrence rates, (Conditional recommendation, low certainty evidence, ⁽¹⁾).
- In high risk patients, if the circumstances allow, formal repair is preferred, (conditional recommendation, high certainty evidence, ⁽¹⁾).

Section 4: Repair of hiatal hernia during bariatric operations:

- We advise repair of all detected hiatal hernias during bariatric operations, (Conditional recommendation, moderate certainty evidence, ⁽¹⁾).

Section 5: Postoperative Management:

- We recommend treatment of postoperative nausea and vomiting aggressively to minimize poor outcomes, (Strong recommendation, low certainty evidence, ⁽¹⁾).
- With early postoperative dysphagia, we recommend adequate caloric and nutritional intake, (Strong recommendation, very low certainty evidence, ⁽¹⁾).
- We recommend against routine postoperative contrast studies in asymptomatic patients, (Strong recommendation, moderate certainty evidence, ⁽¹⁾).

Section 6: Revisional Surgery:

- We recommend revisional surgery in presence of experienced surgeons, (Strong recommendation, moderate certainty evidence, ⁽¹⁾).
- Revisional antireflux surgery is not indicated except in symptomatic cases and in the presence of anatomical cause that could explain patient's complaint, (Good practice statement).
- Roux-en-Y gastric bypass is a valid option as a revisional antireflux surgery even in non-obese patients, (Good practice statement).

Research needs:

1. Evaluating the role of autologous tissue reinforcement (eg. Falciform ligament) for management of wide hiatal opening.
2. Long term studies on a larger population to assess the outcome of RYGB as a revisional antireflux surgery.
3. Defining the best therapeutic option in the management of short esophagus.

Clinical indicators of monitoring:

1. Documentation of the clinical symptoms and signs.
2. Documentation of the type of hiatus hernia.
3. Upper endoscopy.
4. Imaging studies
5. Documentation of the type of treatment.

Updating of the guidelines:

The GDG committee for guidelines development is responsible for the continuous evaluation of evidence available about hiatus hernia. The present guidelines will be updated in case of significant changes based on new evidence.

Annexes

Table 1. Quality and Significance of the four levels of evidence in GRADE:

Quality	Definition	Implications
High	The guideline development group is very confident that the true effect lies close to that of the estimate of the effect	Further research is very unlikely to change confidence in the estimate of effect
Moderate	The guideline development group is moderately confident in the effect estimate: the true effect is likely to be close to the estimate of the effect, but there is a possibility that it is substantially different	Further research is likely to have an important impact on confidence in the estimate of effect and may change the estimate
Low	Confidence in the effect estimate is limited: the true effect may be substantially different from the estimate of the true effect	Further research is very likely to have an important impact on confidence in the estimate of effect and is unlikely to change the estimate
Very low	The group has very little confidence in the effect estimate: the true effect is likely to be substantially different from the estimate of the effect	Any estimate of effect is very uncertain

Table 2. Factors that determine How to upgrade or downgrade the quality of evidence.

Downgrade in presence of	Upgrade in presence of
Study limitations -1 Serious limitations -2 Very serious limitations	Dose-response gradient +1 Evidence of a dose-response gradient
Consistency -1 Important inconsistency	Direction of plausible bias +1 All plausible confounders would have reduced the effect
Directness -1 Some uncertainty -2 Major uncertainty	Magnitude of the effect +1 Strong, no plausible confounders, consistent and direct evidence
Precision -1 Imprecise data	+2 Very strong, no major threats to validity and direct evidence
Reporting bias -1 High probability of reporting bias	

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