Guidelines for Management of Groin Hernia

Acknowledgement:

We would like to acknowledge the guideline general surgery, (GGS) committee for developing this guideline.

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Contents:

Abbreviations:

AGREE II	Appraisal of Guidelines for Research and Evaluation II
BMI	Body Mass Index.
COPD	Chronic Obstructive Pulmonary Disease.
CT	Computed Tomography.
DVT	Deep Venous Thrombosis.
GGS	Guideline General Surgery.
GRADE	Grading of Recommendations, Assessment, Development and Evaluation.
MRI	Magnetic Resonance Imaging.
NSAIDs	Non-Steroidal Anti-Inflammatory Drugs.
TAPP	Transabdominal Pre-Peritoneal.
TEP	Totally Extra-Peritoneal.
TIPP	Trans-Inguinal Pre-Peritoneal.
US	Ultrasonography.

Executive Summary:

Clinical practice guidelines on the management of groin hernia are discussed., laboratory, and imaging studies are discussed. The different types of treatment of groin hernia, whether open or laparoscopic are evaluated.

- There is good evidence that surgery effectively reduces symptoms and prevents complications of groin hernia. We recommend it, (Strong recommendation).
- We recommend preventive measures to reduce intra-abdominal pressure to lower the risk of hernia. (Strong recommendation).
- We recommend appropriate surgical technique and special post-operative management to reduce the risk of recurrence of hernia, (conditional recommendation).
- We recommend physical examination as the primary diagnostic tool for groin hernias, (Strong recommendation).
- We recommend US, CT or MRI in certain cases based on clinical circumstances, such as the patient's history or the need for surgical planning, (Conditional recommendation).
- We recommend proper clinical differentiation between inguinal and femoral hernias, which is vital for accurate diagnosis and appropriate management, (Strong recommendation).
- We recommend thorough distinction between abscesses and groin hernias through clinical examination and imaging for guiding appropriate treatment, (Conditional recommendation).
- We recommend thorough distinction between inguinal lymph node or other soft tissue tumors and groin hernias by clinical examination and imaging for guiding appropriate treatment, (Conditional recommendation).
- We recommend the use of classification systems in groin hernia to standardize the management, (Conditional recommendation).
- We recommend the approach of tailoring the surgical technique to the individual patient’s needs and hernia characteristics, (Conditional recommendation).
- We recommend the idea that hernia repair can be successfully performed in low-resource settings with basic tools and techniques, including the use of non-mesh techniques when necessary, and emphasizes the value of training local surgeons to ensure sustainable healthcare improvements, (Conditional recommendation).
- We recommend the use of mesh in hernia repairs due to its superior outcomes in preventing recurrence. (Strong recommendation).
- We recommend the use of open mesh repairs, such as Lichtenstein and TIPP, as effective and reliable methods with low recurrence rates, (Strong recommendation).
- We recommend laparoscopic repair techniques as an option in hernias, (Conditional recommendation).
- We recommend drain after inguinal hernia repair in special circumstances, (Conditional recommendation).

- We recommend early mobilization as it is beneficial for reducing the risk of postoperative complications and speeding up recovery, (Conditional recommendation).
- In cases of intestinal incarceration without strangulation or need for bowel resection, we recommend the use of mesh-based repair, (Strong recommendation).
- Mesh-based repair is generally not recommended for patients with intestinal strangulation or concurrent bowel resection (clean-contaminated surgical field) or in presence of high risk of infection, (Strong recommendation).
- Biological mesh could be considered and recommended in very specific cases, but it is not a routine approach, (Conditional recommendation).
- We recommend the urgent management of femoral hernias due to the high risk of complications such as strangulation, (Strong recommendation).
- We recommend the use of mesh in femoral hernia repair to reduce recurrence, (Strong recommendation).
- We recommend the open anterior approach, (Lockwood) for femoral hernia repair, particularly in emergency settings or for incarcerated hernias, (Strong recommendation).
- Open Low, (Lotheissen-McVay) approach, is recommended in resource-limited settings, (conditional recommendation).
- The plug or patch technique is recommended as it is a simple and effective method for femoral hernia repair, particularly in elective cases, (conditional recommendation).
- Open tissue repair without mesh is recommended in specific cases, (conditional recommendation).
- The laparoscopic TAPP approach is recommended as an option for elective femoral hernia repair, especially in patients with bilateral hernias or those requiring concurrent inguinal hernia repairs, (conditional recommendation).
- We recommend the TEP approach for femoral hernia repair in patients without prior lower abdominal surgery, (conditional recommendation).
- In women with groin hernia, we recommend surgical repair techniques, including open and laparoscopic approaches, as those used in men, (Conditional recommendation).
- We recommend the use of advanced diagnostic tools to detect occult hernias and the preference for simultaneous repair of bilateral hernias, (Conditional recommendation).

Introduction:

Groin hernia repair is one of the most commonly performed surgeries worldwide. It involves the correction of inguinal hernias, which occur when part of the intestine or abdominal tissue pushes through a weakened area of the abdominal wall. Groin hernias are classified based on their anatomical location and the type of tissue involved, [(1)]. The two primary types of groin hernias are inguinal hernias and femoral hernias**.** Inguinal hernias are further categorized into direct and indirect hernias, [(2)].

The surgical repair can be approached in different ways, including open repair, laparoscopic repair, and robotic-assisted surgery. The method chosen often depends on the surgeon's expertise, patient characteristics, and the specific nature of the hernia, [(3-5)].

Scope and Purpose:

The scope of this guideline is who to diagnose and treat groin hernia and how to manage their complications.

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.

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 2015 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 or ranked the guidelines (any guideline scoring above 50% on the rigor dimension was retained). The GGS decided to adapt update of the international Hernia Surgery guidelines for groin hernia management, 2023, European Hernia Society guidelines on the treatment of inguinal hernia in adult patients, 2009.

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.gradeworkingroup.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’, (table 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: Importance and social impact of groin hernia surgery:

- There is good evidence that surgery effectively reduces symptoms and prevents complications of groin hernia. We recommend it, (Strong recommendation, high certainty evidence, [6]).

Section 2: Risk factors of groin hernia:

- We recommend preventive measures to reduce intra-abdominal pressure to lower the risk of hernia. (Strong recommendation, moderate certainty evidence, **[6]**).

- We recommend appropriate surgical technique and special post-operative management to reduce the risk of recurrence of hernia, (conditional recommendation, moderate certainty evidence, **[6]**).

Section 3: Diagnosis:

- We recommend physical examination as the primary diagnostic tool for groin hernias, (Strong recommendation, high certainty evidence, **[6]**).

- We recommend US, CT or MRI in certain cases based on clinical circumstances, such as the patient's history or the need for surgical planning, (Conditional recommendation, moderate certainty evidence, **[6]**).

- We recommend proper clinical differentiation between inguinal and femoral hernias, which is vital for accurate diagnosis and appropriate management, (Strong recommendation, high certainty evidence, **[6]**).

- We recommend thorough distinction between abscesses and groin hernias through clinical examination and imaging for guiding appropriate treatment, (Conditional recommendation, moderate certainty evidence, **[6]**).

- We recommend thorough distinction between inguinal lymph node or other soft tissue tumors and groin hernias by clinical examination and imaging for guiding appropriate treatment, (Conditional recommendation, moderate certainty evidence, **[6]**).

- We recommend the use of classification systems in groin hernia to standardize the management, (Conditional recommendation, moderate certainty evidence, [6]).

Section 4: Surgical treatment options:

- We recommend the approach of tailoring the surgical technique to the individual patient's needs and hernia characteristics, (Conditional recommendation, moderate certainty evidence, [7]).

- We recommend the idea that hernia repair can be successfully performed in low-resource settings with basic tools and techniques, including the use of non-mesh techniques when necessary, and emphasizes the value of training local surgeons to ensure sustainable healthcare improvements, (Conditional recommendation, moderate certainty evidence, [7]).

- We recommend the use of mesh in hernia repairs due to its superior outcomes in preventing recurrence. (Strong recommendation, high certainty evidence, [7]).

- We recommend the use of open mesh repairs, such as Lichtenstein and TIPP, as effective and reliable methods with low recurrence rates, (Strong recommendation, high certainty evidence, [6]).

- We recommend laparoscopic repair techniques as an option in hernias, (Conditional recommendation, moderate certainty evidence, [6]).

- We recommend drain after inguinal hernia repair in special circumstances, (Conditional recommendation, moderate certainty evidence, [6]).

Section 5: Postoperative care:

- We recommend early mobilization as it is beneficial for reducing the risk of postoperative complications and speeding up recovery, (Conditional recommendation, moderate certainty evidence, [7]).

Section 6: Complicated inguinal hernia:

- In cases of intestinal incarceration without strangulation or need for bowel resection, we recommend the use of mesh-based repair, (Strong recommendation, high certainty evidence, [6]).

- Mesh-based repair is generally not recommended for patients with intestinal strangulation or concurrent bowel resection (clean-contaminated surgical field) or in presence of high risk of infection, (Strong recommendation, high certainty evidence, [6]).

- Biological mesh could be considered and recommended in very specific cases, but it is not a routine approach, (Conditional recommendation, moderate certainty evidence, [6]).

Section 7: Special considerations:

- We recommend the urgent management of femoral hernias due to the high risk of complications such as strangulation, (Strong recommendation, high certainty evidence, [6]).

- We recommend the use of mesh in femoral hernia repair to reduce recurrence, (Strong recommendation, high certainty evidence, [6]).

- We recommend the open anterior approach, (Lockwood) for femoral hernia repair, particularly in emergency settings or for incarcerated hernias, (Strong recommendation, high certainty evidence, [6]).

- Open Low, (Lotheissen-McVay) approach, is recommended in resource-limited settings, (conditional recommendation, moderate certainty evidence, [6]).

- The plug or patch technique is recommended as it is a simple and effective method for femoral hernia repair, particularly in elective cases, (conditional recommendation, moderate certainty evidence, [6]).

- Open tissue repair without mesh is recommended in specific cases, (conditional recommendation, low certainty evidence, [6]).

- The laparoscopic TAPP approach is recommended as an option for elective femoral hernia repair, especially in patients with bilateral hernias or those requiring concurrent inguinal hernia repair, (conditional recommendation, moderate certainty evidence, [7]).

- We recommend the TEP approach for femoral hernia repair in patients without prior lower abdominal surgery, (conditional recommendation, moderate certainty evidence, [7]).

- In women with groin hernia, we recommend surgical repair techniques, including open and laparoscopic approaches, as those used in men, (Conditional recommendation, moderate certainty evidence, [7]).

- We recommend the use of advanced diagnostic tools to detect occult hernias and the preference for simultaneous repair of bilateral hernias, (Conditional recommendation, moderate certainty evidence, [7]).

Research Needs

1) The management of recurrent inguinal hernias.
2) The management of huge inguinal hernias.

Clinical Indicators of Monitoring

1. Documentation of the type of hernia, (inguinal or femoral); (direct or indirect); (recurrent or not); (unilateral or bilateral).
2. Documentation of the type of operation, (open or laparoscopic) and surgical steps.
3. Documentation of the type of mesh, (if used).

Updating of the Guidelines

The GGS committee for guidelines development is responsible for the continuous evaluation of evidence available about groin 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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