Clinical Practice Guidelines

European Hernia Society Guidelines on Prevention and Treatment of Parastomal Hernias

APPENDIX III

Vote results
KEY QUESTION 1
What is the diagnostic accuracy of the clinical diagnosis of parastomal hernias versus a diagnosis by medical imaging?

Statement: The sensitivity of clinical examination against CT scan as reference study for the diagnosis of parastomal hernia ranges between 66% and 100% and the negative predictive value between 75% and 100%. However, CT scan seems to also result in false positive diagnoses. More studies are needed to clarify the clinical relevance of ultrasonography in the diagnosis of PSH.

Recommendation: Clinical examination in decubitus/erect position and using the Valsava maneuver is necessary for the diagnosis of parastomal hernia, whereas CT scan or ultrasonography may be performed in uncertain cases.

Quality of evidence: ☐ ☐ ☐ ☐
Strength of recommendation: weak
KEY QUESTION 2
Is there a place for watchful waiting in patients with a parastomal hernia?

Statement: There is no evidence on the comparative outcome of the benefit of watchful waiting versus surgery for patients with a parastomal hernia.

Recommendation: No recommendation can be made on the policy of watchful waiting for patients with a parastomal hernia.

Quality of evidence: ☒ ☐ ☐ ☐

Strength of recommendation: no
KEY QUESTION 3
Are there techniques for stoma creation without prophylactic mesh use that result in fewer parastomal hernias?

a. extraperitoneal versus transperitoneal stoma construction

Statement: There is insufficient evidence on the comparative risk of parastomal hernia development after construction of a stoma via the extraperitoneal or the transperitoneal route.

**Recommendation:** No recommendation can be made in preference of stoma construction through the extraperitoneal over the transperitoneal route.

Quality of evidence: ☒ ☐ ☐ ☐

Strength of recommendation: no

b. stoma construction at a lateral pararectus location versus a transrectus location

Statement: There is insufficient evidence on the comparative risk of parastomal hernia development after construction of the stoma at a lateral pararectus location or a transrectus location.

**Recommendation:**

Quality of evidence: ☐ ☐ ☐ ☐

Strength of recommendation: no
**Recommendation:** No recommendation can be made in preference of stoma construction at a lateral pararectus location over a transrectus location.

**Quality of evidence:** ☐☐☐

**Strength of recommendation:** no

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e. size of the fascial aperture

**Statement:** There is insufficient evidence on the ideal size of the fascial aperture when constructing an ostomy.

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**Recommendation:** We suggest keeping the size of the fascial aperture as small as possible to allow passage of the intestine through the abdominal wall without causing ischemia.

**Quality of evidence:** ☐☐☐

**Strength of recommendation:** weak
KEY QUESTION 4
Does the use of a prophylactic mesh during stoma construction reduce the incidence of parastomal hernias?

Statements: High quality evidence supports the use of a prophylactic mesh during construction of a permanent end colostomy in elective surgery in reducing the incidence of parastomal hernia development.

**Recommendation:** It is recommended to use a prophylactic synthetic non-absorbable mesh when constructing an elective permanent end colostomy to reduce the parastomal hernia rate.

**Quality of evidence:** ★★★★★

**Strength of recommendation:** strong

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**Recommendation:** No recommendation to use a prophylactic mesh can be made for ileostomies or ileal conduit stomata, nor for the use of synthetic absorbable or biological meshes.

**Quality of evidence:** ★★★★

**Strength of recommendation:** no
KEY QUESTION 5
Is a suture repair for elective parastomal hernia repair an option?

Statements: There is no high quality evidence on the comparative risk of recurrence following parastomal hernia repair with mesh, stoma relocation or suture repair. There is, however, evidence suggestive of a high risk of recurrence following suture repair. There is insufficient evidence on the comparative risk of morbidity following mesh repair, stoma relocation or suture parastomal hernia repair. There is, however, evidence suggestive of a low rate of infectious complications for parastomal hernia repair with a synthetic mesh.

Recommendation: It is recommended not to perform a suture repair for elective parastomal hernia surgery because of a high risk of recurrence.

Quality of evidence: ☑️ ☐ ☐ ☐

Strength of recommendation: strong
KEY QUESTION 6
Is a laparoscopic equivalent to an open approach for parastomal hernia mesh repair in elective surgery?

Statements: There is insufficient evidence on the risk of recurrence following laparoscopic versus open parastomal hernia repair with a mesh. There is insufficient evidence on the morbidity following laparoscopic versus open parastomal hernia repair with a mesh.

Recommendation: No recommendation can be made in favor of laparoscopic or open parastomal hernia repair with a mesh in elective surgery.

Quality of evidence: ☒☐☐☐

Strength of recommendation: no
KEY QUESTION 7
Is there an optimal open parastomal hernia mesh repair technique?

Statements: There is insufficient evidence on the optimal technique for open parastomal hernia repair with regard to morbidity or recurrence.

Recommendation: No recommendation can be made in favour of any open parastomal hernia repair with mesh.

Quality of evidence: ☐ ☐ ☐ ☐
Strength of recommendation: no
KEY QUESTION 8
Is there an optimal laparoscopic parastomal hernia mesh repair technique?

Statements: There is evidence favouring the use of a mesh without a hole in preference to a keyhole mesh for laparoscopic parastomal hernia repair in terms of recurrence. There is insufficient evidence on the safest laparoscopic technique for parastomal hernia repair with regard to morbidity.

Recommendation: For laparoscopic parastomal hernia repair, a mesh without a hole is suggested in preference to a keyhole mesh.

Quality of evidence: ☒ ☐ ☐ ☐
Strength of recommendation: weak
KEY QUESTION 9
Which meshes are the most effective?

Statements: There is insufficient evidence on the most effective mesh for parastomal hernia repair with regard to recurrence or morbidity.
There is no evidence supporting the superiority of biological over synthetic meshes with regard to recurrence or morbidity.

Recommendation: No recommendation can be made on the use of specific mesh material for parastomal hernia repair.

Quality of evidence: ☒ ☐ ☐ ☐

Strength of recommendation: no
Vote results

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<th>Internet votes: 98.3%</th>
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<td>A. Surgeon</td>
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<td>B. Resident</td>
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<td>C. PhD-student</td>
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<td>D. Medical student</td>
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<tr>
<td>E. Nurse</td>
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<td>F. Industry member</td>
<td>1.0% (1 vote)</td>
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<td>G. Other</td>
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Statement: The sensitivity of clinical examination against CT scan as a reference study for the diagnosis of parastomal hernia ranges between 66% and 100% and the negative predictive value between 75% and 100%. However, CT scan seems to also result in false positive diagnoses. More studies are needed to clarify the clinical relevance of the ultrasonography in the diagnosis of PSH.

<table>
<thead>
<tr>
<th></th>
<th>A. Strongly agree</th>
<th>B. Agree</th>
<th>C. Neither agree nor disagree</th>
<th>D. Disagree</th>
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<td><strong>100.0% (98 votes)</strong></td>
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Recommendation: Clinical examination in decubitus/erect position and using the Valsava manoeuvre is necessary for the diagnosis of parastomal hernia, whereas CT scanning or ultrasonography may be performed in uncertain cases.

<table>
<thead>
<tr>
<th></th>
<th>A. Strongly agree</th>
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<th>E. Strongly disagree</th>
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<td>50.0% (48 votes)</td>
<td>30.2% (29 votes)</td>
<td>8.3% (8 votes)</td>
<td>8.3% (8 votes)</td>
<td>3.1% (3 votes)</td>
<td><strong>100.0% (96 votes)</strong></td>
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Statement: There is no evidence on the comparative outcome of the benefit of watchful waiting versus surgery for patients with a parastomal hernia.

<table>
<thead>
<tr>
<th></th>
<th>A. Strongly agree</th>
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<th>C. Neither agree nor disagree</th>
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<td>53.1% (51 votes)</td>
<td>33.3% (32 votes)</td>
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<td>3.1% (3 votes)</td>
<td>2.1% (2 votes)</td>
<td><strong>100.0% (96 votes)</strong></td>
</tr>
</tbody>
</table>
Recommendation: No recommendation can be made on the policy of watchful waiting for patients with a parastomal hernia.

A. Strongly agree 54.7% (52 votes)
B. Agree 27.4% (26 votes)
C. Neither agree nor disagree 9.5% (9 votes)
D. Disagree 7.4% (7 votes)
E. Strongly disagree 1.1% (1 vote)

Total 100.0% (95 votes)

Statement: There is insufficient evidence on the comparative risk of parastomal hernia development after construction of a stoma via the extraperitoneal or the transperitoneal route.

A. Strongly agree 50.5% (48 votes)
B. Agree 33.7% (32 votes)
C. Neither agree nor disagree 14.7% (14 votes)
D. Disagree 1.1% (1 vote)
E. Strongly disagree 0.0% (0 votes)

Total 100.0% (95 votes)

Recommendation: No recommendation can be made in preference of stoma construction through the extraperitoneal over the transperitoneal route.

A. Strongly agree 62.0% (57 votes)
B. Agree 31.5% (29 votes)
C. Neither agree nor disagree 4.3% (4 votes)
D. Disagree 2.2% (2 votes)
E. Strongly disagree 0.0% (0 votes)

Total 100.0% (92 votes)

Statement: There is insufficient evidence on the comparative risk of parastomal hernia development after construction of the stoma at a lateral pararectus location or a transrectus location.

A. Strongly agree 41.8% (38 votes)
B. Agree 46.2% (42 votes)
C. Neither agree nor disagree 5.5% (5 votes)
D. Disagree 3.3% (3 votes)
E. Strongly disagree 3.3% (3 votes)

Total 100.0% (91 votes)

Recommendation: No recommendation can be made in preference of stoma construction at a lateral pararectus location over a transrectus location.

A. Strongly agree 42.2% (38 votes)
B. Agree 33.3% (30 votes)
C. Neither agree nor disagree 13.3% (12 votes)
D. Disagree 7.8% (7 votes)
E. Strongly disagree 3.3% (3 votes)

Total 100.0% (90 votes)
Statement: There is insufficient evidence on the ideal size of the fascial aperture when constructing an ostomy.

A. Strongly agree 44.6% (41 votes)
B. Agree 42.4% (39 votes)
C. Neither agree nor disagree 4.3% (4 votes)
D. Disagree 7.6% (7 votes)
E. Strongly disagree 1.1% (1 vote)

Total 100.0% (92 votes)

Recommendation: We suggest keeping the size of the fascial aperture as small as possible to allow passage of the intestine through the abdominal wall without causing ischemia.

A. Strongly agree 73.7% (70 votes)
B. Agree 25.3% (24 votes)
C. Neither agree nor disagree 1.1% (1 vote)
D. Disagree 0.0% (0 votes)
E. Strongly disagree 0.0% (0 votes)

Total 100.0% (95 votes)

Statement: High quality evidence supports the use of a prophylactic mesh during construction of a permanent end colostomy in elective surgery in reducing the incidence of parastomal hernia development.

A. Strongly agree 60.4% (58 votes)
B. Agree 29.2% (28 votes)
C. Neither agree nor disagree 6.2% (6 votes)
D. Disagree 3.1% (3 votes)
E. Strongly disagree 1.0% (1 vote)

Total 100.0% (96 votes)

Recommendation: It is recommended to use a prophylactic synthetic non-absorbable mesh when constructing an elective permanent end colostomy to reduce the parastomal hernia rate.

A. Strongly agree 57.9% (55 votes)
B. Agree 28.4% (27 votes)
C. Neither agree nor disagree 8.4% (8 votes)
D. Disagree 4.2% (4 votes)
E. Strongly disagree 1.1% (1 vote)

Total 100.0% (95 votes)

Recommendation: No recommendation to use a prophylactic mesh can be made for ileostomies or ileal conduit stomata, nor for the use of synthetic absorbable or biological meshes.

A. Strongly agree 56.5% (52 votes)
B. Agree 27.2% (25 votes)
C. Neither agree nor disagree 8.7% (8 votes)
D. Disagree 6.5% (6 votes)
E. Strongly disagree 1.1% (1 vote)

Total 100.0% (92 votes)
Statement: There is no high quality evidence on the comparative risk of recurrence following parastomal hernia repair with mesh, stoma relocation or suture repair. There is, however, evidence suggestive of a high risk of recurrence following suture repair. There is insufficient evidence on the comparative risk of morbidity following mesh repair, stoma relocation or suture parastomal hernia repair. There is, however, evidence suggestive of a low rate of infectious complications for parastomal hernia repair with a synthetic mesh.

A. Strongly agree 47.2% (42 votes)
B. Agree 42.7% (38 votes)
C. Neither agree nor disagree 5.6% (5 votes)
D. Disagree 4.5% (4 votes)
E. Strongly disagree 0.0% (0 votes)

Total 100.0% (89 votes)

Recommendation: It is recommended not to perform a suture repair for elective parastomal hernia surgery because of a high risk of recurrence

A. Strongly agree 73.9% (68 votes)
B. Agree 21.7% (20 votes)
C. Neither agree nor disagree 3.3% (3 votes)
D. Disagree 0.0% (0 votes)
E. Strongly disagree 1.1% (1 vote)

Total 100.0% (92 votes)

Statement: There is insufficient evidence on the risk of recurrence following laparoscopic versus open parastomal hernia repair with a mesh. There is insufficient evidence on the morbidity following laparoscopic versus open parastomal hernia repair with a mesh.

A. Strongly agree 39.6% (36 votes)
B. Agree 46.2% (42 votes)
C. Neither agree nor disagree 6.6% (6 votes)
D. Disagree 6.6% (6 votes)
E. Strongly disagree 1.1% (1 vote)

Total 100.0% (91 votes)

Recommendation: No recommendation can be made in favor of laparoscopic or open parastomal hernia repair with a mesh in elective surgery.

A. Strongly agree 47.1% (40 votes)
B. Agree 32.9% (28 votes)
C. Neither agree nor disagree 7.1% (6 votes)
D. Disagree 12.9% (11 votes)
E. Strongly disagree 0.0% (0 votes)

Total 100.0% (85 votes)
Statement: There is insufficient evidence on the optimal technique for open parastomal hernia repair with regard to morbidity or recurrence.

A. Strongly agree 44.6% (41 votes)
B. Agree 45.7% (42 votes)
C. Neither agree nor disagree 5.4% (5 votes)
D. Disagree 3.3% (3 votes)
E. Strongly disagree 1.1% (1 vote)

Total 100.0% (92 votes)

Recommendation: No recommendation can be made in favor of any open parastomal hernia repair with mesh.

A. Strongly agree 41.4% (36 votes)
B. Agree 34.5% (30 votes)
C. Neither agree nor disagree 6.9% (6 votes)
D. Disagree 16.1% (14 votes)
E. Strongly disagree 1.1% (1 vote)

Total 100.0% (87 votes)

Statement: There is evidence favoring the use of a mesh without a hole in preference to a keyhole mesh for laparoscopic parastomal hernia repair in terms of recurrence. There is insufficient evidence on the safest laparoscopic technique for parastomal hernia repair with regard to morbidity.

A. Strongly agree 48.3% (42 votes)
B. Agree 42.5% (37 votes)
C. Neither agree nor disagree 6.9% (6 votes)
D. Disagree 2.3% (2 votes)
E. Strongly disagree 0.0% (0 votes)

Total 100.0% (87 votes)

Recommendation: For laparoscopic parastomal hernia repair, a mesh without a hole is suggested in preference to a keyhole mesh.

A. Strongly agree 53.8% (49 votes)
B. Agree 36.3% (33 votes)
C. Neither agree nor disagree 8.8% (8 votes)
D. Disagree 1.1% (1 vote)
E. Strongly disagree 0.0% (0 votes)

Total 100.0% (91 votes)

Statement: There is insufficient evidence on the most effective mesh for parastomal hernia repair with regard to recurrence or morbidity. There is no evidence supporting the superiority of biological over synthetic meshes with regard to recurrence or morbidity.

A. Strongly agree 60.7% (54 votes)
B. Agree 25.8% (23 votes)
C. Neither agree nor disagree 9.0% (8 votes)
D. Disagree 3.4% (3 votes)
E. Strongly disagree 1.1% (1 vote)

Total 100.0% (89 votes)
Recommendation: No recommendation can be made on the use of specific mesh material for parastomal hernia repair.

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