



Original Article

Early Postoperative Outcomes and One-Year Recurrence Following MERIGROW™ Polypropylene Mesh Repair: A Retrospective Study

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ABSTRACT

Background: Polypropylene mesh is an established component of hernia repair, although recurrence, wound morbidity, persistent pain, and implant-related problems remain relevant when judging clinical performance. We examined one-year real-world outcomes after hernia repair with MERIGROW™ non-absorbable polypropylene mesh.

Methods: This retrospective study included 507 adults undergoing open or laparoscopic hernia repair at two centres. Outcomes included recurrence, surgical-site infection (SSI), pain, surgical-site occurrences, reoperation, adverse events (AEs), serious adverse events (SAEs), operative measures, and length of stay. Assessments were available at discharge and 1, 3, 6, and 12 months.

Results: Laparoscopic repair accounted for 403 procedures (79.49%). Seven intraoperative complications (1.38%) were recorded; none was serious or device-related. During hospitalization, 39 patients (7.69%) had at least one AE. At 1 month, 20 patients (3.94%) had at least one AE; SSI/wound infection, seroma/chronic seroma, and haematoma/wound-related events occurred in 0.59%, 0.79%, and 0.59%, respectively. At 12 months, 3 patients (0.59%) had at least one AE. No SAE was recorded during hospitalization or follow-up. Mesh/device-related findings decreased from 0.99% at 1 month to 0.20% at 12 months. Cumulative recurrence was 2/507 (0.39%). Mean VAS pain decreased from 1.30 ± 0.94 at 1 month to 0.58 ± 0.77 at 12 months.

Conclusions: During one year of observation, recorded surgical-site and mesh-related events were uncommon, pain scores decreased, and cumulative recurrence was low. These findings describe a favourable early post-market experience with MERIGROW™ mesh, while longer follow-up and comparative studies are needed to assess durability and relative performance.

Keywords: polypropylene mesh; hernia repair; recurrence; surgical-site infection; chronic postoperative pain; real-world evidence; post-market clinical follow-up.

INTRODUCTION

Hernia repair is among the most frequently performed procedures in general surgery, and its success is judged by more than anatomical closure alone. Recurrence remains a central measure of durability, but wound morbidity, postoperative pain, functional recovery, and implant-related complications are also clinically relevant because they influence the patient's longer-term outcome [1, 2]. The introduction of prosthetic reinforcement changed the management of adult hernias by reducing dependence on tissue approximation under tension. Mesh-based repair is now recommended for most adult groin hernias and is also **favoured** over suture repair for many primary umbilical hernias because of its lower risk of recurrence [1,3]. Nevertheless, the benefit of reinforcement has to be considered alongside complications related to the operation, wound, and implanted material [4].

Polypropylene remains widely used for permanent abdominal-wall reinforcement. Its clinical performance, however, cannot be attributed to polymer composition alone. Mesh weight and pore architecture, the amount of implanted material, anatomical plane, defect coverage and overlap, fixation strategy, and host characteristics can all influence tissue incorporation and postoperative outcomes [1,2]. The timing of complications is also relevant when evaluating mesh performance. Seroma, haematoma, surgical-site infection (SSI), and urinary retention are encountered predominantly during early recovery, whereas persistent pain, foreign-body sensation, mesh contraction or bulging, mesh infection, reoperation, and recurrence may become evident later [1,5]. A meaningful assessment of a permanent implant therefore requires evaluation beyond the immediate perioperative period.

Pain warrants separate consideration because it is multifactorial. Mesh characteristics may contribute, but the extent of dissection, fixation technique, nerve interaction, operative approach, and individual patient factors can also affect postoperative and chronic pain [1,6,7]. Consequently, pain outcomes should be interpreted in the context of the procedure rather than as an isolated property of the implant. Open and laparoscopic repairs likewise represent different clinical settings. They differ in access, tissue dissection, mesh position and fixation, wound exposure, and postoperative recovery [1]. Registry data have demonstrated differences in perioperative outcomes between TEP and TAPP repairs [8]. These differences are particularly important when interpreting heterogeneous real-world cohorts that include several hernia types and techniques.

Randomised trials remain essential for comparative efficacy, but observational post-market cohorts address a complementary question, how a device performs when used in routine practice across a broader spectrum of patients, surgeons, hernia types, and operative strategies. Such data are especially useful for describing uncommon complications and the temporal pattern of events after implantation, although they do not provide the same control of confounding as randomised comparisons.

MERIGROW™ is a sterile, non-absorbable knitted monofilament polypropylene mesh used for reinforcement during open and laparoscopic hernia repair. An earlier retrospective report described short-term clinical experience with the device in a smaller cohort [9]. Evaluation in a larger population over the same one-year follow-up period can provide additional information on wound events, pain, implant-related findings, and early recurrence during routine use.

Accordingly, this retrospective two-centre study evaluated 507 adults who underwent hernia repair with MERIGROW™ mesh. The objective was to characterise safety and clinical performance through 12 months, with particular attention to recurrence, SSI and other surgical-site occurrences, postoperative pain, mesh/device-related findings, AEs, SAEs, and reoperation.

MATERIALS AND METHODS

Study design and population

We conducted a retrospective, multicentre, single-arm post-market clinical follow-up study at two sites. The analysis included 507 adults who had undergone hernia repair with MERIGROW™ non-absorbable polypropylene mesh, comprising 252 patients from Site 01 and 255 from Site 02. Patients were eligible if they were at least 18 years old and had received the study mesh in routine practice. Exclusion criteria were complex hernias requiring reconstructive procedures, recurrence before the index operation, active infection considered likely to influence wound healing or recurrence, and inadequate clinical information for outcome assessment. The study cohort and follow-up pathway are summarized in Figure 1.

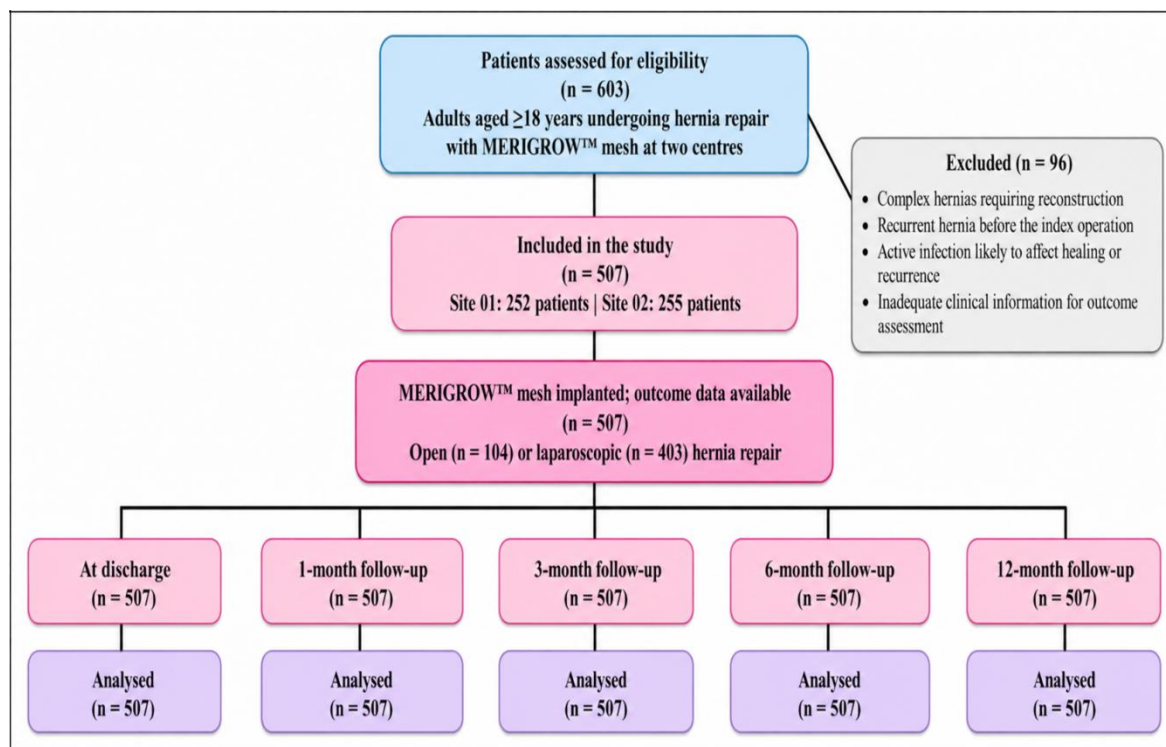


Figure 1. Study cohort and follow-up flow.

Study device and operative treatment

MERIGROW™ is a permanent, sterile, knitted monofilament polypropylene mesh designed for reinforcement of hernia and fascial-defect repairs. Choice of operative approach, mesh dimensions, anatomical plane, and fixation method was left to the treating surgeon according to routine practice and defect characteristics. Tack, suture, and staple fixation were represented in the study cohort.

Data collection and follow-up

Study records were reviewed for demographic and medical-history variables, baseline pain, hernia characteristics, procedural details, discharge information, and postoperative outcomes. Recorded assessments were available for all 507 patients at 1, 3, 6, and 12 months. Outcomes are therefore presented at these prespecified time points without assigning them to a particular method of follow-up.

Study endpoints

The primary endpoints were device success, defined by absence of hernia recurrence through 12 months. SSI at 1 month; acute postoperative pain through 3 months; reoperation through 12 months; and surgical-site occurrences (seroma, haematoma, cellulitis, wound dehiscence, or fistula) through 3 months. Recurrence is presented directly as the inverse measure of device success. Where the dataset permitted, the same clinical outcomes were also described at later scheduled assessments to show their course over the full year. Secondary endpoints comprised SSI at 3 months; AEs and SAEs, including events considered device- or procedure-related; operative time; mesh-fixation time; chronic postoperative pain at 6 and 12 months; and hospital length of stay.

Sample size and statistical analysis

The protocol required at least 501 participants. This target was based on an anticipated SSI rate of 13.4% [10], a two-sided 95% confidence interval, and a Wilson confidence-interval half-width of 3.09%. The final analysis included 507 patients and therefore met the planned sample-size requirement.

Categorical variables were described as counts and percentages. Continuous variables were summarised using mean $\pm$ SD. The results presented are descriptive; no inferential comparisons are reported.

Ethical considerations

The study was conducted in accordance with applicable ethical and regulatory requirements, including the ICH Good Clinical Practice E6(R3), ISO 14155, the Medical Devices Rules 2017, and the Declaration of Helsinki. Prior to the study, ethical approval was obtained. Patient identifiers were masked during data handling and reporting. The requirement for written informed consent was waived due to the retrospective nature of the study and the use of existing clinical data.

Patient records were handled using coded identifiers, and no directly identifiable information was included in the analysis or reporting.

RESULTS

Baseline characteristics

The cohort comprised 507 patients, with a mean age of 50.55 ± 14.06 years; 310 (61.14%) were men and 197 (38.86%) were women. Mean BMI was 25.56 ± 3.67 kg/m², and 276 patients (54.44%) had BMI ≥ 25 kg/m². A medical history was recorded in 241 patients (47.53%). The most frequently documented conditions were type 2 diabetes mellitus (14.79%), dyslipidaemia (14.60%), hypothyroidism (13.81%), and hypertension (11.24%). Baseline VAS pain averaged 2.44 ± 1.50 (Table 1).

Table 1. Baseline demographic and clinical characteristics (N = 507)

Characteristic	Value
Demographic characteristics	
Age, years	50.55 ± 14.06
19–41 years, n (%)	127 (25.05)
42–64 years, n (%)	294 (57.99)
65–88 years, n (%)	86 (16.96)
Male, n (%)	310 (61.14)
Female, n (%)	197 (38.86)
BMI, kg/m ²	25.56 ± 3.67
BMI ≥ 25 kg/m ² , n (%)	276 (54.44)
Lifestyle and clinical history	
Current/former smoking, n (%)	102 (20.12)
Alcohol use, n (%)	87 (17.16)
Any medical history, n (%)	241 (47.53)
Type 2 diabetes mellitus, n (%)	75 (14.79)
Dyslipidaemia, n (%)	74 (14.60)
Hypothyroidism, n (%)	70 (13.81)
Hypertension, n (%)	57 (11.24)
Previous abdominal operation, n (%)	76 (14.99)
Baseline symptom assessment	
Baseline VAS pain score	2.44 ± 1.50

Data are mean $\pm$ SD or n (%). BMI: body mass index; SD: standard deviation.

Hernia, procedural and intraoperative characteristics

Most procedures were laparoscopic (403/507, 79.49%); 104 (20.51%) were performed by an open approach. Inguinal hernia represented 55.62% of repairs, followed by umbilical (16.37%), incisional (14.99%), epigastric (8.28%), and femoral (4.73%) hernias. Mean operative time was 73.93 ± 20.54 minutes and mean mesh-fixation time was 8.85 ± 2.64 minutes. Seven intraoperative complications were documented (1.38%). All resolved, and none was classified as serious or device-related (Table 2).

Table 2. Hernia, procedural and intraoperative characteristics (N = 507)

Characteristic	Value
Surgical approach	
Laparoscopic repair	403 (79.49)
Open repair	104 (20.51)
Hernia type	
Inguinal	282 (55.62)
Umbilical	83 (16.37)
Incisional	76 (14.99)
Epigastric	42 (8.28)
Femoral	24 (4.73)
Hernia length, cm	4.22 ± 1.85
Hernia width, cm	2.80 ± 1.32
Estimated defect area, cm ²	10.74 ± 11.20
Mesh placement	
Underlay	403 (79.49)
Overlay	77 (15.19)
Retro-rectus (sublay)	26 (5.13)
Inlay	1 (0.20)

Characteristic	Value
Fixation	
Tack	325 (64.10)
Suture	104 (20.51)
Staple	78 (15.38)
Operative performance	
Operative time, min	73.93 ± 20.54
Mesh fixation time, min	8.85 ± 2.64
Intraoperative safety	
Any intraoperative complication	7 (1.38)
Bleeding from inferior epigastric vessels	2 (0.39)
Peritoneal tear during preperitoneal dissection	2 (0.39)
Minor subcutaneous bleeding	1 (0.20)
Bleeding from pampiniform plexus vein	1 (0.20)
Trocar-site bleeding	1 (0.20)
Device-related intraoperative complication	0 (0.00)
Intraoperative SAE	0 (0.00)
Outcome	All 7 recovered/resolved

Postoperative course through discharge

All 507 patients had discharge data available. Mean length of stay was 1.56 ± 0.63 days. At least one postoperative AE was recorded in 39 patients (7.69%); urinary retention was the most frequent event (4.34%), followed by fever (1.38%), nausea/vomiting (1.18%), and constipation (0.79%). No SAE or mesh/device-related complication was recorded before discharge. Mean VAS pain at discharge was 3.49 ± 1.08 (Table 3).

Table 3. Postoperative course through discharge (N = 507)

Outcome	Value
Patients assessed	507 (100.00)
Length of hospital stay, days	1.56 ± 0.63
Subjects with ≥ 1 AE	39 (7.69)
Postoperative urinary retention	22 (4.34)
Postoperative fever	7 (1.38)
Postoperative nausea/vomiting	6 (1.18)
Constipation	4 (0.79)
Mesh/device-related complication	0 (0.00)
SAE	0 (0.00)
Discharge VAS pain score	3.49 ± 1.08

Follow-up outcomes through 12 months

Follow-up data were available for all 507 patients at each scheduled assessment (Table 4). At least one AE was recorded in 20 patients (3.94%) at 1 month and 10 (1.97%) at 3 months; this fell to 3 patients (0.59%) at both 6 and 12 months. No SAE was documented during follow-up. At 1 month, pain/abdominal discomfort occurred in 6 patients (1.18%), SSI/wound infection in 3 (0.59%), seroma/chronic seroma in 4 (0.79%), haematoma/wound-related events in 3 (0.59%), foreign-body sensation in 2 (0.39%), and transient gastrointestinal symptoms in 2 (0.39%). At 3 months, these findings were recorded in 3 (0.59%), 2 (0.39%), 3 (0.59%), 0, 1 (0.20%), and 1 (0.20%) patients, respectively. At 6 and 12 months, one patient (0.20%) had pain/abdominal discomfort and one (0.20%) had seroma/chronic seroma; neither SSI nor haematoma/wound-related events was recorded. The number of patients with at least one mesh/device-related finding declined from 5 (0.99%) at 1 month to 3 (0.59%) at 3 months and 1 (0.20%) at both 6 and 12 months. Mesh bulging without recurrence was not reported. No recurrence was documented at 1 or 3 months. One new recurrence appeared at 6 months and another at 12 months, giving a cumulative one-year recurrence of 2/507 (0.39%). Mean VAS pain decreased across the same period, from 1.30 ± 0.94 at 1 month to 0.92 ± 0.88 at 3 months, 0.65 ± 0.96 at 6 months, and 0.58 ± 0.77 at 12 months.

Table 4. Clinical safety and performance outcomes through 12 months

Outcome	1 month	3 months	6 months	12 months
Patients assessed	507 (100.00)	507 (100.00)	507 (100.00)	507 (100.00)
Adverse events and postoperative clinical findings				
Subjects with ≥ 1 AE	20 (3.94)	10 (1.97)	3 (0.59)	3 (0.59)
SAE	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)
Pain/abdominal discomfort	6 (1.18)	3 (0.59)	1 (0.20)	1 (0.20)

Outcome	1 month	3 months	6 months	12 months
SSI/wound infection	3 (0.59)	2 (0.39)	0 (0.00)	0 (0.00)
Seroma/chronic seroma	4 (0.79)	3 (0.59)	1 (0.20)	1 (0.20)
Haematoma/wound-related event	3 (0.59)	0 (0.00)	0 (0.00)	0 (0.00)
Foreign-body sensation	2 (0.39)	1 (0.20)	1 (0.20)	1 (0.20)
Transient gastrointestinal symptoms	2 (0.39)	1 (0.20)	0 (0.00)	0 (0.00)
Mesh/device-related clinical findings				
Subjects with ≥1 mesh/device-related finding	5 (0.99)	3 (0.59)	1 (0.20)	1 (0.20)
Foreign-body sensation	2 (0.39)	1 (0.20)	1 (0.20)	1 (0.20)
Mesh shrinkage/contraction	1 (0.20)	1 (0.20)	0 (0.00)	0 (0.00)
Chronic seroma	2 (0.39)	1 (0.20)	0 (0.00)	0 (0.00)
Mesh bulging without recurrence	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)
Hernia recurrence				
New recurrence identified at visit	0 (0.00)	0 (0.00)	1 (0.20)	1 (0.20)
Cumulative recurrence through visit	0 (0.00)	0 (0.00)	1 (0.20)	2 (0.39)
Pain assessment				
VAS pain score, mean ± SD	1.30 ± 0.94	0.92 ± 0.88	0.65 ± 0.96	0.58 ± 0.77

Note: Data are presented as n (%) unless otherwise specified. Percentages are based on N=507 at each follow-up. AE: adverse event; SAE: serious adverse event; SSI, surgical-site infection; VAS: visual analogue scale. Recurrence is reported as both newly identified cases and cumulative cases. Other follow-up counts should not be interpreted as cumulative incidence.

DISCUSSION

This two-centre post-market cohort provides one-year clinical data for MERIGROW™ polypropylene mesh in 507 patients treated by open or laparoscopic repair. The overall pattern was **characterised** by predominantly early postoperative morbidity followed by fewer recorded events at later assessments. At least one AE was documented in 3.94% of patients at 1 month, 1.97% at 3 months, and 0.59% at both 6 and 12 months; no SAE was recorded during follow-up. Surgical-site events were uncommon, mesh/device-related findings were reported in fewer than 1% of patients at each assessment, and two recurrences were identified by one year, corresponding to a cumulative recurrence of 0.39%. These observations describe early post-market outcomes but do not establish superiority over other meshes.

SSI was infrequent in the present cohort. Three patients (0.59%) had SSI/wound infection at 1 month and two (0.39%) at 3 months, with no such events recorded at 6 or 12 months. García Ureña et al. reported SSI in 2 of 256 patients (0.78%) after open Lichtenstein repair with ProGrip mesh [11], whereas Tollens et al. reported infection in 5 of 234 patients (2.1%) during 12-month follow-up after repair of primary ventral or small incisional hernias with the Proceed Ventral Patch [12]. These figures provide clinical context rather than a direct benchmark: the studies differed in hernia type, operative approach, mesh design, case selection, and outcome assessment. The low SSI frequency observed here is therefore reassuring, but it should not be interpreted as evidence of a lower infection risk attributable specifically to MERIGROW™. A similar pattern was seen for postoperative collections and wound-related events. Seroma/chronic seroma was recorded in 4 patients (0.79%) at 1 month and 3 (0.59%) at 3 months; one patient (0.20%) had a recorded seroma/chronic seroma finding at both 6 and 12 months. Haematoma/wound-related events were confined to the 1-month assessment, affecting 3 patients (0.59%). In the ProGrip series, García Ureña et al. reported 17 seromas (6.64%) and 21 haematomas (8.20%) [11], while Tollens et al. reported seroma in 2.1% of patients at 12 months after Proceed Ventral Patch repair [12]. Such numerical differences require caution because postoperative collections are influenced by dissection, dead space, defect characteristics, mesh position and fixation, operative technique, and event ascertainment. The present rates are therefore best interpreted as descriptive estimates for this cohort.

Pain scores showed a progressive decline after the early postoperative period. Mean VAS pain was 3.49 ± 1.08 at discharge and decreased to 1.30 ± 0.94 at 1 month, 0.92 ± 0.88 at 3 months, 0.65 ± 0.96 at 6 months, and 0.58 ± 0.77 at 12 months. Pain/abdominal discomfort recorded as an AE should be distinguished from the continuous VAS measure: 3 patients (0.59%) had such an AE at 3 months, and 1 patient (0.20%) at each of the 6- and 12-month assessments. Published studies have used different definitions and thresholds for chronic pain, limiting numerical comparison. García Ureña et al. reported chronic pain in 3.6% of patients at 3 months and 2.8% at 6 months after ProGrip repair [11]. In bilateral TEP repair, Chowbey et al. reported chronic groin pain at one year in 1.6% of patients receiving lightweight mesh and 4.7% receiving heavyweight polypropylene mesh [13]. The TULP trial reported clinically relevant pain at one year in 2.9% with Ultrapro and 0.7% with Prolene mesh [6]. The downward VAS trajectory in the present cohort is clinically encouraging, although it is not equivalent to a formally adjudicated chronic-pain rate.

Recurrence was uncommon during the first postoperative year. No recurrence was documented at 1 or 3 months; one new recurrence was identified at 6 months and a second at 12 months, resulting in a cumulative rate of 2/507 (0.39%). For a permanent implant, however, one year represents an early durability interval. Kokotovic et al. showed in a population-based study of elective incisional hernia repair that recurrence requiring reoperation and mesh-related complications continued to accrue over several years [5]. Recurrence after umbilical hernia repair likewise cannot be regarded solely as an early postoperative event [3]. The low one-year recurrence observed here is therefore informative for early performance but cannot establish long-term durability.

Mesh/device-related findings were uncommon during follow-up, occurring in 5 patients (0.99%) at 1 month, 3 (0.59%) at 3 months, and 1 (0.20%) at both 6 and 12 months. Recorded findings included foreign-body sensation, mesh shrinkage/contraction, and chronic seroma. Mesh bulging without recurrence was not reported at any assessment. Hernia recurrence and surgical-site occurrences are presented separately in their respective outcome categories. Watanobe et al. reported measurable mesh contraction during the first year after TAPP repair without identifying an association with recurrence or chronic postoperative inguinal pain [14]. These observations suggest that recorded anatomical changes should be interpreted alongside symptoms and other clinical outcomes.

The temporal distribution of AEs also **favoured** the earlier postoperative period. The proportion of patients with at least one AE declined from 3.94% at 1 month to 1.97% at 3 months and 0.59% at both later assessments. The seven intraoperative complications (1.38%) were managed successfully and were not classified as device-related, and no SAE was recorded during follow-up. Thus, the available data did not indicate an increasing burden of serious or device-related events during the first year, while acknowledging that later complications require longer surveillance.

Mean operative time was 73.93 ± 20.54 minutes, mean mesh-fixation time was 8.85 ± 2.64 minutes, and mean hospital stay was 1.56 ± 0.63 days. García Ureña et al. reported a mean operative time of 35.6 minutes for open Lichtenstein repair with ProGrip mesh [11]. Direct comparison is not appropriate because the present cohort included five hernia categories and both open and laparoscopic procedures. Operative duration and length of stay are strongly influenced by hernia complexity, surgical approach, institutional practice, and perioperative pathways; differences between studies therefore cannot be ascribed to mesh choice alone.

Published mesh studies nevertheless provide a useful framework for interpretation. The ProGrip study contributes information on early wound morbidity after open primary inguinal repair [11]. The Proceed Ventral Patch study provides one-year data for primary ventral and small incisional hernias [12]. The Ventralight ST ECHO PS cohort reports outcomes after laparoscopic ventral hernia repair [15], and randomized polypropylene-mesh studies provide comparative information on pain and recurrence [6,13]. None is a direct comparator for this mixed two-centre cohort. Their value is contextual, illustrating the range of outcomes reported with established mesh repairs and the importance of patient selection, anatomy, operative technique, endpoint definitions, and follow-up when interpreting apparent differences.

The present analysis also expands the available device-specific post-market evidence beyond the earlier, smaller MERIGROW™ experience [9]. A cohort of 507 patients permits a more informative description of uncommon early events and their distribution across scheduled follow-up, while also providing longitudinal information on pain scores, mesh/device-related findings, and recurrence through one year. Whether these patterns persist beyond the first year cannot be determined from the current dataset and requires longer surveillance.

Several features strengthen the clinical value of the study. It includes 507 patients from two centres, encompasses both open and laparoscopic repair, and reflects a range of hernia types encountered in routine practice. Outcomes were available at each of the four scheduled assessments, allowing the course of AEs, surgical-site findings, pain, mesh/device-related findings, and recurrence to be described over time. These strengths should be balanced against the observational design, absence of a concurrent control group, and procedural heterogeneity. In addition, reoperation and chronic postoperative pain could only be reported to the extent that these protocol-defined outcomes were explicitly supported by the source data; they should not be inferred from other variables.

Overall, the one-year findings are consistent with a favourable early post-market profile, characterized by low recorded rates of SSI, surgical-site occurrences, mesh/device-related findings, and recurrence together with declining pain scores. The clinical interpretation should remain appropriately restrained: this study describes outcomes after MERIGROW™ use in routine practice but does not establish comparative effectiveness. Longer follow-up and controlled studies would be needed to determine whether the observed early profile is maintained and how it compares with other contemporary mesh technologies.

Limitations

This study has limitations inherent to its retrospective, single-arm design. There was no concurrent comparator mesh or non-mesh group, and the cohort included different hernia types, operative approaches, mesh positions, and fixation methods. These factors limit causal interpretation and procedure-specific comparisons. Patients with recurrent hernia before the index procedure were excluded, which limits generalizability to recurrent and complex hernia populations.

CONCLUSION

In this retrospective study of 507 patients undergoing routine open or laparoscopic hernia repair, MERIGROW™ mesh was associated with low recorded surgical-site morbidity, no SAEs during follow-up, fewer patients with recorded AEs at later assessments and declining pain scores, and few mesh/device-related clinical findings through 12 months. Cumulative hernia recurrence was 2/507 (0.39%) at one year. These findings support a favourable early real-world safety and clinical performance profile, while longer-term follow-up and comparative studies are needed to establish durability and relative effectiveness.

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Conflict of Interest

Ram Lagad, Siddheesh Rajpurohit and Kiran Kumar Shetty are employees of Meril, Vapi, India, the manufacturer of the medical device evaluated in this study. Their involvement was restricted to providing technical input regarding the device and editorial support during manuscript preparation. The authors declare no conflicts of interest related to this study.

REFERENCES

1. Stabilini C, van Veenendaal N, Aasvang E, et al. Update of the international HerniaSurge guidelines for groin hernia management. *BJS Open*. 2023;7(5):zrad080. doi:10.1093/bjsopen/zrad080.
2. Sanders DL, Pawlak MM, Simons MP, et al. Midline incisional hernia guidelines: the European Hernia Society. *Br J Surg*. 2023;110(12):1732–1768. doi:10.1093/bjs/znad284.
3. Kaufmann R, Halm JA, Eker HH, et al. Mesh versus suture repair of umbilical hernia in adults: a randomised, double-blind, controlled, multicentre trial. *Lancet*. 2018;391(10123):860–869. doi:10.1016/S0140-6736(18)30298-8.
4. Magnusson J, Nygren J, Thorell A. Lichtenstein, Prolene Hernia System, and UltraPro Hernia System for primary inguinal hernia repair: one-year outcome of a prospective randomized controlled trial. *Hernia*. 2012;16(3):277–285. doi:10.1007/s10029-012-0903-8.
5. Kokotovic D, Bisgaard T, Helgstrand F. Long-term recurrence and complications associated with elective incisional hernia repair. *JAMA*. 2016;316(15):1575–1582. doi:10.1001/jama.2016.15217.
6. Burgmans JPJ, Voorbrood CEH, Simmermacher RKJ, Schouten N, Smakman N, Clevers GJ, et al. Long-term results of a randomized double-blinded prospective trial of a lightweight (Ultrapro) versus a heavyweight mesh (Prolene) in laparoscopic total extraperitoneal inguinal hernia repair (TULP-trial). *Ann Surg*. 2016;263(5):862–866. doi:10.1097/SLA.0000000000001579.
7. Kroh A, Zufacher M, Eickhoff R, Heise D, Helmedag M, Ulmer F, et al. No difference in outcomes between large- and small-pore meshes in a prospective, randomized, multicenter trial investigating open retromuscular meshplasty for incisional hernia repair. *Langenbecks Arch Surg*. 2023;408(1):22. doi:10.1007/s00423-022-02751-x.
8. Köckerling F, Bittner R, Jacob DA, et al. TEP versus TAPP: comparison of the perioperative outcome in 17,587 patients with a primary unilateral inguinal hernia. *Surg Endosc*. 2015;29:3750–3760. doi:10.1007/s00464-015-4150-9.
9. Galam P, Jillawar N, Malve P, Goud PP, Shetty KK. Early safety profile of MERIGROW™ Mesh in elective hernia repair: a 12-month retrospective analysis. *Surg Gastroenterol Oncol*. 2025;30(4 Suppl):S27–S34. doi:10.21614/sgo-834.

10. Ellis RC, Maskal SM, Messer N, Miller BT, Petro CC, Prabhu AS, et al. Short-term outcomes of heavyweight versus mediumweight synthetic mesh in a retrospective cohort of clean-contaminated and contaminated retromuscular ventral hernia repairs. *Surg Endosc.* 2024 Jul;38(7):4006–13. doi:10.1007/s00464-024-10946-0
11. García Ureña MA, Hidalgo M, Feliu X, et al. Multicentric observational study of pain after the use of a self-gripping lightweight mesh. *Hernia.* 2011;15(5):511–515. doi:10.1007/s10029-011-0811-3.
12. Tollens T, Mitchell J, Jones P, Berrevoet F. A prospective study of one-year clinical outcomes utilizing a composite three-dimensional device with a tissue-separating layer for repair of primary ventral and small incisional hernia. *Surg Technol Int.* 2014;24:195–202. PMID:24574019.
13. Chowbey PK, Garg N, Sharma A, Khullar R, Soni V, Baijal M, et al. Prospective randomized clinical trial comparing lightweight mesh and heavyweight polypropylene mesh in endoscopic totally extraperitoneal groin hernia repair. *Surg Endosc.* 2010;24(12):3073–3079. doi:10.1007/s00464-010-1092-0.
14. Watanobe I, Miyano S, Machida M, Sugo H. Mesh shrinkage after transabdominal preperitoneal inguinal hernia repair. *Sci Rep.* 2023;13(1):3894. doi:10.1038/s41598-023-31088-8.
15. Stetsko T, Bury K, Lubowiecka I, Szymczak C, Tomaszewska A, Śmietański M. Safety and efficacy of a Ventralight ST ECHO PS implant for a laparoscopic ventral hernia repair—a prospective cohort study with a one-year follow-up. *Pol Przegl Chir.* 2016;88(1):7–14. doi:10.1515/pjs-2016-0020.