Original article

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Further insights into the treatment of perineal hernia based on a the experience of a single tertiary centre

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Abstract

Aim There is little evidence concerning the optimal surgical technique for the repair of perineal hernia. This study aimed to report on the evolution of a technique for repair of perineal hernia by analysing the experience in a tertiary referral centre.

Method This was a retrospective review of consecutive patients who underwent perineal hernia repair after abdominoperineal excision in a tertiary referral centre. The main study end-points were rate of recurrent perineal hernia, perineal wound complications and related re-intervention.

Results Thirty-four patients were included: in 18 patients a biological mesh was used followed by 16 patients who underwent synthetic mesh repair. Postoperative perineal wound infection occurred in two patients (11%) after biological mesh repair compared with four (25%) after synthetic mesh repair ($P = 0.387$). None of the meshes were explanted. Recurrent perineal hernia following biological mesh was found in 7 of 18 patients (39%) after a median of 33 months. The recurrence rate with a synthetic mesh was 5 of 16 patients (31%) after a median of 17 months ($P = 0.642$). Re-repair was performed in four (22%) and two patients (13%), respectively ($P = 0.660$). Eight patients required a transposition flap reconstruction to close the perineum over the mesh, and no recurrent hernias were observed in this subgroup ($P = 0.030$). No mesh-related small bowel complications occurred.

Conclusion Recurrence rates after perineal hernia repair following abdominoperineal excision were high, and did not seem to be related to the type of mesh. If a transposition flap was added to the mesh repair no recurrences were observed, but this finding needs confirmation in larger studies.

Keywords Perineal hernia, abdominoperineal excision, mesh repair, biological mesh, synthetic mesh

What does this paper add to the literature?
Little evidence exists on the reconstructive methods for treatment of symptomatic perineal hernia. This relatively large tertiary referral centre experience demonstrates high rates of recurrence after repair with any mesh alone, with suggested superior outcomes if a transposition flap was added.

Introduction

Herniation of abdominal contents at the level of the perineum might occur following pelvic surgery, including (partial) resection of the pelvic floor, such as abdominoperineal excision (APR) or total pelvic exenteration [1–3]. Reported incidence of perineal hernia varies widely, with recent reports mentioning rates from 9% to 27% [2,4,5]. The true incidence may be even higher, because small and asymptomatic hernias will often not be registered. Several predisposing factors have been related to the occurrence of perineal hernia following APR, including smoking, preoperative radiotherapy, hysterectomy, omentoplasty and postoperative perineal wound infection [1,6–9].

A perineal hernia often causes some degree of discomfort or pain, and may more rarely result in urinary complaints, small bowel obstruction or perineal necrosis with evisceration [10–12]. In symptomatic patients, surgical repair can be offered. The literature on perineal hernia repair is scarce, and there are no standardized surgical procedures [13,14]. Although primary suturing

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has been abandoned, the optimal method for reconstructing the pelvic floor using a mesh remains unclear [13].

The use of biological mesh has the potential advantage of being suitable for contaminated fields, and supposedly has a lower risk of causing bowel adhesions and fistulas than synthetic mesh [15]. However, we reported a recurrent hernia in as many as 47% of patients when using biological mesh [16]. We therefore decided to change our routine practice by switching from biological mesh to synthetic mesh for the repair of perineal hernia.

The aim of this study was to describe our tertiary centre experience with perineal hernia repair and to compare the two consecutive time periods in which biological mesh was replaced by synthetic mesh for transperineal repair of a perineal hernia with regard to success rate and associated morbidity.

Method

All consecutive patients who underwent mesh repair of a perineal hernia following APR at the Amsterdam UMC (location AMC) between January 2010 and January 2019 were selected from a prospectively maintained database. Our previously published experience with biological mesh reconstructions is included in the present study [16]. Patients with index surgery other than APR and patients without mesh repair were excluded. The cohort was divided into two groups based on the evolution from use of biological to synthetic mesh at our institution. In addition, we describe the results after combining mesh with gluteal flap reconstruction, which is now our current standard of care.

Electronic patient records were retrospectively searched for baseline demographics, significant past medical history, operative details and outcome measures. Outcome measures included postoperative stay, perineal wound complications, complications of the small bowel (e.g. fistula, obstruction), clinical diagnosis of recurrence of perineal hernia and related re-interventions. Diagnosis of recurrence of perineal hernia was based on physical examination with or without radiological confirmation. Radiologically, perineal hernia was defined by visceral descent below the line between the perineal body and the coccyx, or below the visible remnants of a mesh (Fig. 1).

The institutional review board of the AMC waived the need for written informed consent since there was no burden for the patients and data were analysed anonymously. A letter of objection was issued to all patients who were still alive. If no letter was returned, data collection was initiated 30 days later. The reporting of the current study followed the STROBE statement [17].

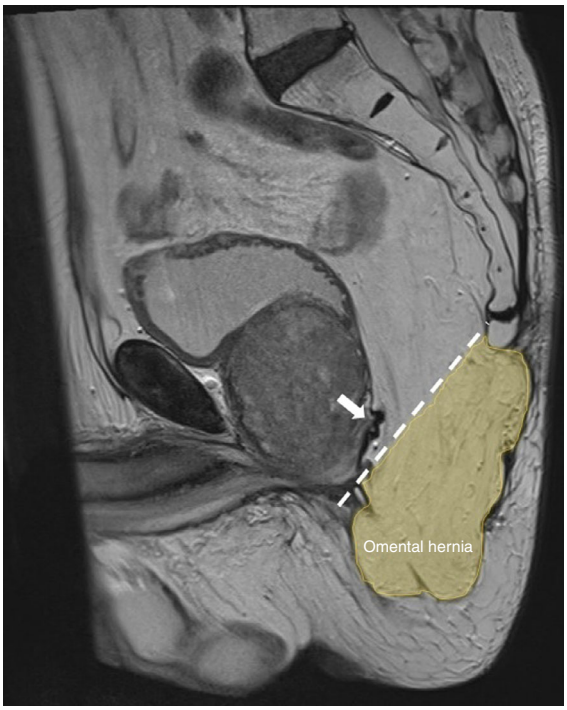

Figure 1 Mid-sagittal MRI image of a male patient with a recurrent perineal hernia after primary hernia repair using biological mesh, revealing a large omental hernia with remnants of the mesh (arrow) along the anterior border of the perineal defect. Perineal hernia was defined as visceral descent below the line between the perineal body and the coccyx (dashed line).

Surgical procedures

During the study period, we switched from the routine use of biological mesh (December 2010–August 2014) to synthetic mesh (September 2014–January 2019), related to the publication of Musters *et al.* [16]. In the first period, we further switched from cross-linked biological mesh (Permacol™) to noncross-linked biological mesh (STRATTICE™) following a uniform institutional policy. Mesh size in the first period was usually 6 cm × 10 cm.

In the second period, a nonabsorbable polypropylene mesh (PROLENE®) was the standard of care in the absence of bacterial contamination and presence of an omentoplasty that could cover the mesh. A composite mesh (Parietex™ or DynaMesh®) was used in case of small bowel herniation to prevent bowel adhesions and fistula formation. Mesh size in the second period was usually larger than in the first period (i.e. 15 cm × 15 cm).

Perineal hernia repair was routinely performed in the prone position with a transperineal approach. There were no essential differences in technique for primary and recurrent repairs with regard to either biomesh or synthetic mesh repair. Early in our experience, some patients underwent a transabdominal approach, especially for the addition of an omentoplasty on top of the pelvic floor reconstruction. One of two colorectal consultants performed all the procedures. The transperineal approach started with excision of redundant skin and the hernial sac. Subsequently, nonabsorbable or slowly absorbable 2.0 sutures were placed on each side of the coccyx and along the rim of the previously transected levator muscle, just behind the visible boundaries of the pelvic outlet. A total of five or six stitches were used on each side. The sutures were subsequently placed through the mesh on one side, thereby aiming for at least a 3 cm overlap towards the sacrum and pelvic sidewall, which in recent years was more often achieved with a larger mesh size. After knot tying, the mesh was fixed to the contralateral side in a similar fashion and tension free. Subsequently, mesh fixation was continued ventrally on both sides along the posterior vaginal wall in women and along the prostate in men, thereby preventing entrapment of the neurovascular bundles. This was mostly performed using a running 2.0 suture. Finally, the mesh was sutured to the perineal body in the midline. In women, the mesh was fixed halfway to the top of the vagina to prevent herniation of the small bowel using two to four separate stitches. A suction drain was placed on top of the mesh. The subcutaneous fat was mobilized from the gluteus muscle to facilitate layered perineal closure over the mesh. If the size of the perineal defect did not allow for primary closure, a fasciocutaneous gluteal transposition or gracilis flap was created for adequate coverage of the mesh and tensionless suturing of the perineum. Suction drains were kept in place for at least 3 days and subsequently removed depending on the amount of drainage fluid. Patients were allowed to fully mobilize on the first postoperative day, except for patients who received transposition flaps.

Statistical analysis

Categorical data were reported as absolute frequencies with percentages. Continuous data were reported as means with standard deviation, or medians with interquartile range, according to distribution. Complete case analyses were conducted. Data were compared with the chi-square test or Fisher's exact test and the *t*-test or Mann–Whitney *U*-test accordingly. The Kaplan–Meier estimate was used to determine the incidence of recurrent perineal hernia for each type of mesh over time. All analyses were performed with IBM SPSS statistics, version 25.0.0 (IBM Corp., Armonk, New York, USA).

Results

Patient characteristics

Between December 2010 and January 2019, 38 consecutive patients underwent repair of a primary or recurrent perineal hernia at the AMC, of whom 15 patients were referred. After exclusion of patients presenting with a perineal hernia following anterior exenteration ($n = 2$) or excision of the coccyx ($n = 1$) and one patient who expressed objection to participation, a total of 34 patients remained for analyses: 18 with biological mesh and 16 with synthetic mesh. Baseline demographics and details on the initial treatment are given in Table 1. The predominant indication for APR was anorectal cancer (91%) and the majority (90%) had received preoperative radiotherapy. The proportion of patients who had experienced a postoperative perineal complication (i.e. perineal seroma, dehiscence, infection, fistula or flap necrosis) prior to hernia repair was 7 of 18 (39%) in the biological mesh group compared with 10 of 16 (63%) in the synthetic mesh group ($P = 0.169$), of whom 1 of 18 (6%) and 5 of 16 (31%) had required surgical re-intervention ($P = 0.078$), respectively.

Reconstruction details

Thirty patients (88%) presented at the AMC with a first perineal hernia, and four (12%) patients presented with a recurrent perineal hernia after failed primary repair ($P = 0.393$; Table 2). Primary hernia repair was performed after a median of 15 months [interquartile range (IQR) 11–54] from initial APR, and recurrent hernia repair in the remaining four patients took place 22–51 months after the initial APR. Details of the perineal hernias and reconstructions are displayed in Table 2. One patient had a concomitant infection ($P = 1.000$) and eight patients threatened or dehiscent overlying perineal skin ($P = 0.693$). In the biological mesh group, Permacol™ was used in four patients (22%) and STRATTICE™ in 14 patients (78%). In the synthetic mesh group, 11 patients (69%) underwent repair using PROLENE®, four patients (25%) using Parietex™ and one patient (6%) using DynaMesh®. An additional transposition flap was performed in 5 of 18 patients (28%) in the biological mesh group and in 3 of 16 patients (19%) in the synthetic mesh group ($P = 0.693$). The transposition flaps used to reconstruct

Table 1 Baseline patient characteristics.

Variables	Biological mesh (n = 18)	Synthetic mesh (n = 16)	P-value
Male gender (n, %)	9/18 (50%)	7/16 (44%)	0.716
Age (years) (mean ± SD)	63 ± 10	69 ± 9	0.076
BMI (kg/m^2) (mean ± SD)	24 ± 4	22 ± 5	0.206
ASA			
ASA I (n, %)	7/18 (39%)	1/16 (6%)	0.087
ASA II (n, %)	9/18 (50%)	13/16 (81%)	
ASA III (n, %)	2/18 (11%)	2/16 (13%)	
Active tobacco use (n, %)	3/18 (17%)	4/16 (25%)	0.681
Comorbidity			
Diabetes (n, %)	5/18 (28%)	2/16 (13%)	0.405
Peripheral vascular disease (n, %)	3/18 (17%)	2/16 (13%)	1.000
Primary underlying disease			
Cancer (n, %)	18/18 (100%)	14/16 (88%)	0.214
Inflammatory (n, %)	0/18 (0%)	1/16 (6%)	
Other (n, %)	0/18 (0%)	1/16 (6%)	
Radiotherapy			
None (n, %)	1/17 (6%)	3/16 (19%)	0.335
Short course (n, %)	5/17 (29%)	3/14 (21%)	0.698
Long course (n %)	11/17 (65%)	8/14 (57%)	0.667
Initial surgery			
Intersphincteric APR (n, %)	0/18 (0%)	4/16 (25%)	0.016
Conventional APR (n, %)	9/18 (50%)	3/16 (19%)	
Extralevator APR (n, %)	7/18 (39%)	3/16 (19%)	
APR not specified (n, %)	2/18 (11%)	6/16 (38%)	
Abdominal approach			
Open (n, %)	2/17 (12%)	3/11 (27%)	0.353
Laparoscopic (n, %)	15/17 (88%)	8/11 (73%)	
Perineal approach			
Open (n, %)	17/18 (94%)	11/14 (79%)	0.295
TAMIS (n, %)	1/18 (6%)	3/14 (21%)	
Omentoplasty (n, %)	12/18 (67%)	10/16 (63%)	0.800
Method of perineal wound closure			
Primarily (n, %)	18/18 (100%)	10/14 (71%)	0.028
Biomesh (n, %)	0/18 (0%)	2/14 (14%)	
Muscle flap (n, %)	0/18 (0%)	2/14 (14%)	
Perineal wound complication (n, %)	7/18 (39%)	10/16 (63%)	0.169
Surgical perineal re-intervention (n, %)	1/18 (6%)	5/16 (31%)	0.078

ASA, The American Society of Anesthesiologists physical status classification system; APR, abdominoperineal excision; BMI, body mass index; TAMIS, transanal minimally invasive surgery.

the perineum consisted of a VY fasciocutaneous gluteal flap (n = 3), an inferior and superior gluteal artery perforator flap (n = 1 each), a gracilis flap (n = 1) and a gluteal turnover flap (n = 2) [18–20]. The median operative time was comparable between both mesh groups (P = 0.142).

Postoperative outcome until 90 days

Postoperative outcome is summarized in Table 3. One patient underwent relaparotomy because of iatrogenic small bowel perforation following adhesiolysis. The median postoperative stay was 6 days after biological mesh repair and 4 days after synthetic mesh repair (P = 0.382). A postoperative perineal complication occurred in 28% and 38%, respectively (P = 0.545; Table 3). The rate of perineal wound infection did not differ between the mesh groups (P = 0.387). All perineal wound infections were successfully treated with antibiotics and percutaneous drainage of fluid collections. None of the meshes had to be explanted.

Table 2 Perineal hernia and reconstruction details.

Variables	Biological mesh (n = 18)	Synthetic mesh (n = 16)	P-value
Perineal hernia			
First hernia (n, %)	17/18 (94%)	13/16 (81%)	0.393
Second hernia (n, %)	1/18 (6%)	2/16 (13%)	
Third hernia (n, %)	0/18 (0%)	1/16 (6%)	
Concomitant perineal infection (n, %)	1/18 (6%)	0/16 (0%)	1.000
Concomitant threatened perineal skin* (n, %)	5/18 (28%)	3/16 (19%)	0.693
Approach to repair			
Transperineal (n, %)	15/18 (83%)	16/16 (100%)	0.487
Open abdominal (n, %)	2/18 (11%)	0/16 (0%)	
Laparoscopic abdominoperineal (n, %)	1/18 (6%)	0/16 (0%)	
Content of perineal hernia sac			
Small bowel (n, %)	6/18 (33%)	5/15 (33%)	1.000
Omentum (n, %)	11/18 (61%)	11/15 (73%)	0.458
Vagina (n, %)	3/18 (17%)	0/15 (0%)	0.233
Bladder (n, %)	1/18 (6%)	0/15 (0%)	1.000
Type of mesh used			
Cross-linked biomesh (n, %)	4/18 (22%)	–	
Noncross-linked biomesh (n, %)	14/18 (78%)	–	
Polypropylene mesh (n, %)	–	11/16 (69%)	
Composite mesh (n, %)	–	5/16 (31%)	
Additional tissue flap used (n, %)	5/18 (28%)	3/16 (19%)	0.693
Omentoplasty performed			
Already present (n, %)	13/18 (72%)	13/16 (81%)	0.693
Yes (n, %)	2/6 (33%)	0/3 (0%)	0.500
Perineal drain placed (n, %)	17/18 (94%)	13/16 (81%)	0.323
Intra-operative problems (n, %)	1/18 (6%)	1/16 (6%)	1.000
Postoperative antibiotic continuation (n, %)	3/18 (17%)	3/16 (19%)	1.000
Total operative time (min), median minutes (IQR)	150 (79–193)	102 (89–136)	0.142

*Concomitant threatened or dehiscent overlying perineal skin.

Table 3 Postoperative outcome until 90 days.

Variables	Biological mesh (n = 18)	Synthetic mesh (n = 16)	P-value
Postoperative stay (days), median (IQR)	6 (3–8)	4 (3–6)	0.382
Small bowel complications			
Perforation (n, %)	1/18 (6%)	0/16 (0%)	1.000
Surgical re-intervention (n, %)	1/18 (6%)	0/16 (0%)	1.000
Perineal wound complication			
Total no. of patients (n, %)	5/18 (28%)	6/16 (38%)	0.545
Dehiscence (n, %)	3/18 (17%)	2/16 (13%)	1.000
Infection (n, %)	2/18 (11%)	4/16 (25%)	0.387
Fistula (n, %)	0/18 (0%)	2/16 (13%)	0.214
Necrosis (n, %)	1/18 (6%)	0/16 (0%)	1.000
Bleeding (n, %)	0/18 (0%)	1/16 (6%)	0.471
Perineal wound treatment			
Antibiotic therapy (n, %)	2/18 (11%)	5/16 (31%)	0.214
Percutaneous drainage (n, %)	1/18 (6%)	3/16 (19%)	0.323

Long-term outcome of perineal hernia repair

The median follow-up duration was 33 months (IQR 14–68) in the biological mesh group and 17 months (IQR 1–26) in the synthetic mesh group ($P = 0.019$). The overall clinical recurrence rate was determined based on the index hernia repair at the AMC (30 primary repairs and four recurrent hernia repairs). The recurrence rate was similar for biological mesh [7 of 18 patients (39%)] and synthetic mesh use [5 of 16 patients (31%; $P = 0.642$)]. Figure 2 shows the Kaplan–Meier plot for recurrence of perineal hernia over time in both mesh groups. Recurrence of perineal hernia occurred in 1 out of 4 patients (25%) with cross-linked biological mesh, 6 out of 14 (43%) with noncross-linked biological mesh, 3 out of 11 (27%) with polypropylene mesh and 2 out of 5 (40%) with composite mesh ($P = 0.952$). None of the eight patients who had received an additional transposition flap during perineal hernia repair developed a recurrence of perineal hernia ($P = 0.030$) after a median of 23 months. In mesh-only repairs, recurrence of perineal hernia occurred in 12 of 26 patients (46%). Re-repair after failed biological mesh using transperineal synthetic mesh was performed in four of seven patients. Of five patients with failed synthetic mesh repair, two underwent re-repair with synthetic mesh. Outcomes are summarized in Table 4.

Table 4 Outcomes of perineal hernia repair.

Variables	Biological mesh ($n = 18$)	Synthetic mesh ($n = 16$)	P-value
Any clinical recurrence			
Yes (n, %)	7/18 (39%)	5/16 (31%)	0.642
First re-repair (n, %)	4/18 (22%)	2/16 (13%)	0.660
Second clinical recurrence			
Yes (n, %)	3/4 (75%)	1/2 (50%)	–
Second re-repair (n, %)	2/3 (66%)	0/1 (0%)	–

Two patients required reoperation for a perineal problem: one patient with a cross-linked biological mesh had developed urinary incontinence and pain in a standing position caused by displacement of the mesh, which was treated by laparoscopic re-fixation of the mesh. The second patient developed a perineal seroma after synthetic mesh placement following re-repair of a recurrence, which was excised. Perineal infection occurred in one more patient after biological mesh repair following re-repair of a recurrence and was treated by antibiotics. No mesh-related complications of the small bowel were observed, but one patient presented with obstruction of the small bowel due to local recurrence, which was managed by entero-enterostomy.

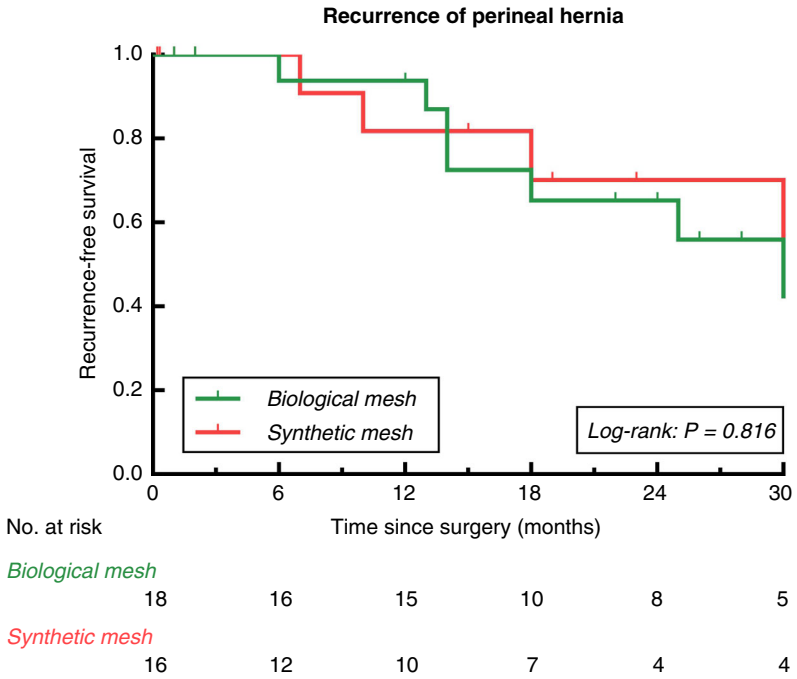

Figure 2 Kaplan–Meier curve showing the development of recurrence of perineal hernia over time after reconstruction of the perineum with biological mesh (green) or synthetic mesh (red).

Discussion

This relatively large tertiary centre experience with surgical treatment of symptomatic perineal hernia following APR revealed high recurrence rates after both biological and synthetic mesh repair, mainly using a transperineal approach. Perineal complications were also frequent, but relatively mild. None of the meshes had to be explanted. This study also highlights the need for follow-up beyond 12 months, given the observed late recurrences. Interestingly, no recurrence of perineal hernia was observed in patients who had mesh repair together with a transposition flap, which was significantly lower than 46% recurrence after repair with mesh alone.

The present clinical results have been disappointing, given the high recurrence rate for any type of mesh repair. This is probably inherent in the fact that there is no pelvic floor left, and consequently all these reconstructions are bridging repairs instead of reinforcement. With the substantial pressure on the mesh in the standing position, and peak load during coughing and weight bearing, one might imagine that there is a high risk of failure of such a bridging mesh at the level of the pelvic outlet. Another potential reason for not finding a significant decrease in recurrence rates after synthetic mesh repair during the second period of this study could be due to selection bias. It seems that more complex and recurrent cases were operated upon in more recent years. Patients who underwent synthetic mesh repair had more often undergone surgical re-intervention for a perineal wound complication after initial APR (31% *vs* 6%) and were more often referred after a previous surgical attempt to correct a perineal hernia (19% *vs* 6%). Despite the more complex cases in recent years, the recurrence rate was slightly lower. However, small numbers result in a lack of statistical power. Furthermore, it is important to note that follow-up was significantly shorter for patients with synthetic mesh. This means that extended follow-up in this group could yield more recurrences as well.

The overall recurrence rate for perineal hernia repair with biological mesh was 39% and with synthetic mesh 31%. These rates compare unfavourably with the little available evidence on perineal hernia repair with mesh. Goedhart-de Haan *et al.* described a case series of 12 patients from three centres with a symptomatic perineal hernia treated by laparoscopic repair using a composite PROCEED® mesh, in which they found a recurrence in 3 of 12 patients (25%) after a mean follow-up of 11.6 months (range 1–22) [21]. The largest published single-centre series to our knowledge included 29 consecutive patients with a perineal hernia following APR, of whom 21 underwent transperineal hernia repair using nonabsorbable polypropylene mesh that was sutured to the pelvic floor under tension [22]. All eight hernia repairs before the introduction of this technique had resulted in failure, but only one out of the subsequent 21 cases (5%) showed a recurrence after a median of 14 months of follow-up (2–68). It is difficult to propose an explanation for the substantially lower recurrence rate compared with our results. It could be argued that the observed differences are simply due to relatively low numbers in each of the studies. Also, several technical aspects might play a role, related to approach, mesh type and size, type of fixation (e.g. suture or tacker) and anatomical placement and anchoring of the mesh. With scarce data, it is almost impossible to find any statistical association between a certain technique and success rate. However, the Kaplan–Meier curve in the present study shows that the recurrence rate doubles after 12 months of follow-up, thereby at least partly explaining the discrepancies in the literature. We contacted the group from Eindhoven [22], and they mentioned a certain number of recurrences after publication of their results (H.J. T. Rutten, Department of Surgery, Catharina Hospital Eindhoven, Eindhoven, The Netherlands, personal communication). Although not supported by any data, we feel that the transperineal approach may be better suited to the repair of perineal hernia. This allows for better view and access compared with a laparoscopic approach, especially for the placement and fixation of the mesh anteriorly. However, recurrences were observed at all possible locations (e.g. ventral, dorsal and lateral), and no specific pattern of recurrence could be identified in order to improve our technique.

The additional use of a transposition flap to reconstruct the perineum is one of the interesting findings that should be mentioned. In the present cohort, none of the combined mesh and tissue flap repairs had resulted in failure, and this was significantly different when compared with mesh-only repairs. There was no clear protocol for deciding on the addition of a tissue flap, but this was mainly based on a subjective judgement of lack of subcutaneous fat that would result in either too much tension for midline closure or remaining dead space between the mesh and the subcutaneous fat. Based on the favourable outcomes with combined flap repairs, we have now decided to include this option in preoperative counselling of the patient and will further explore this technique in the future.

Severe postoperative complications were infrequent in the present cohort. The reported potential harms of synthetic mesh in terms of mesh infection, risk of adhesion, fistula formation and erosion into the bowel wall

by the mesh were not observed. All perineal infections could be treated with percutaneous drainage and antibiotics. No mesh required explantation and only one patient developed a seroma that required excision. Of note, synthetic mesh was only used in the absence of bacterial contamination.

There are several limitations to the current study that make the data somewhat difficult to interpret. The first limitation is the potential for selection bias, caused by a change in referral pattern. It is unclear whether the more complex cases in later years have influenced the recurrence rates in patients with synthetic mesh repair. Another important issue is the significantly shorter follow-up time in the synthetic mesh group. This is likely to have introduced a certain bias, but we can only speculate as to the direction and magnitude of the effect that this bias might have on recurrence rate. Furthermore, the possible superior outcome of combined flap repairs if compared with mesh-only repairs was based on a post-hoc analysis, and should therefore be interpreted with caution and only considered a hypothesis-generating finding. A flap was created for adequate coverage of the mesh if it was thought not to be possible to obtain tension-free closure of the perineum, and not intended for the purpose of pelvic floor reinforcement. The potential value of adding a gluteal transposition flap to a mesh repair of a perineal hernia is something to be explored in future studies, and preferably in an independent cohort of patients with longer follow-up. Another limitation of this study is the relatively small sample size, although it is the largest cohort reported so far. Furthermore, the retrospective review of medical charts with no routine imaging performed for diagnosis of recurrence of perineal hernia might have resulted in reporting bias. Finally, there was also some degree of missing data on baseline and operative details regarding treatment of the primary tumour.

As the literature on perineal hernia repair is limited, we can only speculate on the most optimal method for perineal reconstruction. The use of biological mesh is probably only indicated for contaminated perineal defects (also considering the financial implications). Synthetic mesh appears to be safe in clean or clean-contaminated procedures, with the comment that a composite mesh may be indicated in case of small bowel hernia. Based on our experience, adding a tissue flap together with mesh repair resulted in the highest success, but our limited experience does not allow for any definitive conclusion.

Conclusions

Changing our standard surgical technique from biological to synthetic mesh for the repair of perineal hernia did not result in a significant reduction in the rate of recurrence of perineal hernia. No patient with mesh repair together with tissue flap reconstruction of the perineum showed a recurrence. Mesh-associated morbidity was low, and in this cohort no mesh needed explantation.

Conflicts of interest

The authors have no conflict of interest to declare.

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