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Obliterative versus reconstructive prolapse repair for women over 70 - is there an optimal approach?

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Abstract

Objectives—To evaluate outcomes among women 70 years old and older who underwent obliterative compared with reconstructive procedures for pelvic organ prolapse.

Methods—This was a retrospective cohort study of patients 70 years old and older who underwent surgical prolapse repair at our institution from January 2004 through June 2010. Only patients with at least four weeks of follow-up were included. Patient characteristics and relevant pre, intra, and postoperative information were abstracted from medical records. Severity of postoperative complications was classified using the Dindo surgical classification system.

Results—We analyzed 143 (97.3%) patients.. Fifty-four (37.8%) women underwent an obliterative procedure, while 89 (62.2%) underwent a reconstructive procedure. Twenty-eight (31.5%) women who had a reconstructive surgery met our criteria for recurrent prolapse compared to only five (9.3%) woman in the obliterative group ($p=0.002$).

The incidence of intraoperative complication was 4.9%, and the incidence of any postoperative complication was 62.9%. Similar proportions of women who underwent each type of procedure experienced a postoperative complication. However, the severity of the complications differed between the groups ($p=0.02$). In particular, 16.9% of women who had a reconstructive procedure experienced a grade III complication according to the Dindo scale compared with 13.0% of women who had an obliterative procedure.

Conclusions—The majority of women 70 years old or older do not have high grade complications after pelvic organ prolapse repair, but women who undergo reconstructive procedures are more likely to experience high-grade complications and recurrent prolapse compared to women who undergo obliterative procedures.

Keywords

Prolapse; complication; surgery

Introduction

Evidence demonstrates that the incidence of pelvic floor disorders increases as women age. (1, 2, 3) Thus, as the average life expectancy continues to rise, the prevalence of pelvic floor disorders also will increase. One estimate predicts that the number of women suffering from pelvic organ prolapse will increase by 46% to total 4.9 million women by the year 2050. (4) Surgical repair of pelvic organ prolapse is already the most commonly performed inpatient procedure among women 70 years and older. (5)

Elderly women have a higher incidence of morbidity and mortality than younger women undergoing urogynecologic surgery. (6) One case-control study comparing perioperative and postoperative complications among 79 year old women to younger patients undergoing major elective gynecologic surgery, found that older patients required longer hospital stays and had higher rates of urinary tract infections, psychiatric events, pulmonary edema, respiratory failure, sepsis and hypovolemic shock. (7) Stepp et. al. performed a retrospective chart review of 267 women over the age of 74 who underwent urogynecologic procedures and found a 25.8% rate of significant perioperative complications. (8) Thus, careful consideration must be given to selecting the most appropriate surgical option for older patients with symptomatic pelvic organ prolapse. (9)

Particularly because pelvic floor disorders are rarely life threatening, it is important to weigh risks and benefits of surgical procedures with patients when choosing a treatment option. A major consideration for elderly women is whether they desire a reconstructive procedure—such as sacral colpopexy or a vaginal apical procedure—or an obliterative procedure—such as colpocleisis. This decision depends in part on the medical status of the patient, as well as on a woman's wishes regarding current or potential sexual activity. Many women who are sexually active or wish to be sexually active choose to undergo a reconstructive procedure as this preserves vaginal caliber. Although most women undergo reconstructive surgeries, obliterative procedures have consistently demonstrated high patient satisfaction and generally are shorter procedures with fewer complications and a lower incidence of recurrent prolapse. (10, 11)

Data on surgical outcomes among elderly patients undergoing procedures for pelvic organ prolapse, particularly comparing obliterative versus reconstructive procedures, are limited. The objective of this study is to compare perioperative complications in women 70 years old and older who underwent obliterative versus reconstructive surgery for pelvic organ prolapse.

Materials and Methods

We conducted a retrospective cohort study of patients at least 70 years old, who underwent surgical prolapse repair at our institution from January 2004 through June 2010. Surgical

procedures eligible for inclusion were colpcleisis, colpectomy, and any apical suspension procedure. The type of surgery performed depended on patient sexual activity, patient preference, and surgeon's discretion. This study was approved by the institutional review board at Mount Auburn Hospital.

Information pertaining to patient demographic characteristics; preoperative assessments; intraoperative and postoperative complications; and surgical outcomes were abstracted from medical records. Patients with less than four weeks of postoperative follow-up were excluded from the analysis in order to capture longer-term outcomes, including prolapse recurrence. Sexual activity was self-reported by patients at the initial preoperative visit. We considered a patient to have recurrent prolapse if at any postoperative visit the stage of prolapse, defined by the pelvic organ prolapse quantification (POP-Q) scale, was greater than or equal to stage 2. Postoperative complications were classified as grade I to grade V based on severity using the Dindo surgical classification system. (12) Fecal incontinence was not graded with the Dindo scale, as it was unclear if this complication could be attributed to the surgery. Recurrent prolapse also was not considered in the Dindo scale given that it was analyzed separately. When comparing severity of postoperative complications in the two groups, we compared only the highest grade complication for each participant.

Data are presented as proportion or median (interquartile range). Categorical data were compared using Chi-square and Fisher's exact tests. As none of the continuous variables were normally distributed, we used the Wilcoxon rank sum test to compare continuous variables. P values <0.05 were considered statistically significant. All data were analyzed using SAS 9.4 (SAS institute Inc., Cary, NC).

Results

One hundred and forty-seven women met eligibility criteria; 143 (97.3%) completed at least four weeks of follow-up and had sufficient documentation to be included in this analysis. Median follow-up time for the cohort was 12.2 months (5.4-37.2). Fifty-four (37.8%) women underwent an obliterative procedure, while 89 (62.2%) underwent a reconstructive procedure. Of the patients who had reconstructive procedures, 28 (31.5%) had vaginal repair with mesh or graft, 41 (46.1%) had vaginal repair with native tissue, and 20 (22.5%) had a laparoscopic sacrocolpopexy. Overall 66 (48.5%) women had concurrent incontinence procedures at time of their prolapse repair. The respective rates were 55.6% in the obliterative group and 40.5% in the reconstructive group; the difference between these rates was not statistically significant ($p=0.09$). Nine (6.3%) women had a concurrent hysterectomy at the time of their index surgery; one (1.9%) in the obliterative group and eight (9.0%) in the reconstructive group ($p=0.15$). There were no differences between the obliterative and reconstructive groups with respect to body mass index, parity, use of preoperative vaginal estrogen, and history of incontinence or prolapse procedures (all $p \geq 0.23$). Women in the obliterative group were significantly older, less like to have used hormone replacement therapy and had a higher preoperative POP-Q stage than those in the reconstructive group (all $p \leq 0.001$). Median follow-up time was longer for women in the reconstructive group ($p=0.05$). Demographic characteristics are presented in Table 1.

The median operative time was 117 (94.0-135.0) minutes in the obliterative group and 119.5 (84.0-170.0) minutes in the reconstructive group ($p=0.75$). Median estimated blood loss also was similar between the two groups: 87.5 (50.0-100) mL in the obliterative group and 100.0 (50.0-150.0) mL in the reconstructive group ($p=0.28$). The proportion of women who had one or more intraoperative complications was significantly higher in the reconstructive group (7.9%) than the obliterative group (0.0%; $p=0.04$). All five (3.4%) hemorrhages, defined as estimated blood loss >500cc, occurred in women who had a reconstructive procedure, though this difference was not statistically significant ($p=0.16$; Table 2).

Thirty-four (63.0%) women in the obliterative group and 56 (62.9%) in the reconstructive group experienced at least one postoperative complication ($P=0.996$). Two women who underwent reconstructive procedures required blood transfusions post-operatively, but were also found to have supratherapeutic Coumadin levels. One of these women underwent a subsequent vaginal hysterectomy and the other required a repair takedown due to continued bleeding. Five (9.3%) woman who had an obliterative procedure met our criteria for recurrent prolapse, compared with 28 (31.5%) who had a reconstructive procedure ($P=0.002$). Of the women who had reconstructive procedures and recurrent prolapse, 6 (21.4%) underwent a vaginal reconstructive surgery with mesh, 16 (57.1%) had no mesh, and 6 (21.4%) had a laparoscopic reconstructive prolapse repair. Nine (10.1%) women who had a reconstructive surgery had a repeat surgery—one (3.4%) for recurrent prolapse, 6 (6.7%) for mesh repair, and two (2.3%) for both recurrent prolapse and mesh repair. Five (9.3%) women who had an obliterative procedure had a repeat surgery, one (1.9%) for recurrent prolapse, two (3.7%) for stress urinary incontinence, one (1.9%) for issues relating to her sling, and one (1.9%) for both stress urinary incontinence and issues relating to her sling. Postoperative complications are shown in Table 2.

The severity of postoperative complications, according to the Dindo scale, differed between the two groups ($p=0.02$). A larger proportion of women who had a reconstructive procedure (16.9% vs 13.0%) experienced a severe postoperative complication (defined as a grade III or higher on the Dindo scale). The highest Dindo grade for postoperative complication per woman is presented in Table 3.

Discussion

Our findings indicate that the majority of women over 70 years old can tolerate pelvic surgery without severe complications. Women who undergo obliterative procedures are older, have more advanced preoperative prolapse stage, and are less likely to use hormone replacement therapy than those undergoing reconstructive procedures. Women who chose an obliterative procedure also were less likely to have prolapse recurrence or a severe postoperative complication than those who had reconstructive surgery. The incidence of reoperation was low regardless of surgical procedure chosen.

Our study builds on the evidence that elderly women tolerate pelvic organ prolapse repair surgeries well. Robinson et al. reported on perioperative complications in women 65 years old and older who underwent robotic or vaginal urogynecologic surgery. Patients undergoing robotic surgery had fewer postoperative complications than patients undergoing vaginal

procedures; however, the overall incidence and severity of complications were comparable between the two groups. Similar to our study, the authors found that the incidence of severe complications after urogynecologic surgery was low among elderly women regardless of the modality. However, in their study, obliterative procedures were grouped with vaginal surgery and not analyzed separately as in our study. (14) Similarly, Stepp et al. examined the incidence of perioperative complications among patients 75 years old or older undergoing urogynecologic surgery and found an overall perioperative complication rate of 25.8%. Although this rate is lower than our findings, Stepp et al. did not include complications that occurred beyond the 6-week postoperative period. (8) In contrast, our median follow-up time was one year; thus it is likely that our rate of postoperative complications is higher due to the longer follow-up time.

Several studies have examined morbidity as a result of obliterative procedures; however, few compare obliterative to reconstructive procedures. A retrospective study by Mueller et al. found an overall complication rate of 6.82% among women undergoing colpocleisis. This is lower than our complication rate but the authors only included a limited set of complications, while we allowed for any postoperative problem to be included in our rate. They also included women of any age, while our study focused on an elderly, and therefore potentially frailer, population. (15) When examining major complications, Fitzgerald et al. found a four percent rate of severe complications after colpocleisis in their comprehensive review. (16) Similarly, this is likely lower than our severe complication rate due to the age of our patient population.

Strengths of this study include a relatively large sample size and the inclusion of a variety of reconstructive surgery methods. Our study analyzed data from five different surgeons, strengthening the generalizability of the results. The median length of follow-up in the study was approximately one year, which allowed time for recognition of prolapse recurrences and possible complications from the initial surgery. Although several studies have reported higher complication rates following reconstructive procedures, particularly if synthetic mesh is used, our study directly compares obliterative and reconstructive procedures. (17, 18)

There were several limitations to our study. As a retrospective study, the data was limited by what was recorded in medical records. We did not collect data on co-morbidities, which could influence rates of perioperative complications. Median follow up time was significantly longer for patients undergoing reconstructive procedures; therefore it is possible that we were able to detect more complications in this group compared to the obliterative group. We did not collect data on race and ethnicity; however, the patient population at our center is almost entirely Caucasian.

Our findings suggest that women 70 years and older tolerate various approaches to prolapse repair surgery with low rates of both intraoperative complications and severe postoperative complications. Women who underwent obliterative procedures in our study were older with more advanced stages of prolapse, but had a lower rate of reoperation and recurrent prolapse than women who underwent reconstructive procedures. The results of this study support that obliterative procedures have lower failure rates and minor complications in elderly women than reconstructive procedures. Accordingly, it may be beneficial for providers to discuss the

varying risks of obliterative procedures versus reconstructive in the appropriate surgical candidates. This counseling may help women choose the optimal route for them based on their personal goals for treatment.

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Summary

The majority of women 70 years old and older tolerate pelvic organ prolapse repair without high grade complications, but women who undergo reconstructive procedures are more likely to experience low-grade complications and recurrent prolapse compared to women who undergo obliterative procedures.

Table 1
Patient demographic characteristics by surgery type

Characteristic	Obliterative Surgery n=54	Reconstructive Surgery n=89	p
Age	79.9 (76.0-85.7)	74.6 (71.9-77.7)	<0.001
Body mass index	28.7 (24.2-32.8)	27.4 (24.4-30.7)	0.23
Parity *			1.0
0	1 (1.9)	2 (2.3)	
1	3 (5.7)	4 (4.6)	
2	50 (92.6)	82 (93.2)	
Hormone replacement therapy *			0.01
Yes	1 (2.0)	14 (16.5)	
No	50 (98.0)	71 (83.5)	
Preoperative vaginal estrogen *			0.47
Yes	29 (59.2)	55 (65.5)	
No	20 (40.8)	29 (34.5)	
Sexually active *			<0.001
Yes	0 (0.0)	19 (22.1)	
No	54 (100.0)	67 (77.9)	
Prior incontinence or prolapse surgery *			0.14
Yes	19 (39.6)	44 (53.0)	
No	29 (60.4)	39 (47.0)	
Length of follow-up (months)	10.2 (2.2-23.2)	12.5 (6.1-42.3)	0.05
Preoperative POP-Q stage	3.0 (3.0-3.0)	3.0 (2.0-3.0)	<0.001

Data presented as median (interquartile range) or n (%)

* Data missing

Table 2
Perioperative Complications

Complication	Obliterative Surgery n=54	Reconstructive Surgery n=89	p
Intraoperative complications			
Cystotomy	0 (0.0)	1 (1.1)	1.0
EKG changes requiring medical management	0 (0.0)	1 (1.1)	1.0
Hemorrhage (>500cc)	0 (0.0)	5 (5.6)	0.16
Postoperative complications			
Blood transfusion	0 (0.0)	2 (2.3)	0.53
Recurrent prolapse	5 (9.3)	28 (31.5)	0.002
Repeat Surgery	5 (9.3)	9 (10.1)	0.89
Prolapse	1 (1.9)	3 (3.4)	1.0
Stress urinary incontinence (SUI)	2 (3.7)	0 (0.0)	0.14
Mesh	0 (0.0)	6 (6.7)	0.08
Sling complications	1 (1.9)	0 (0.0)	0.38
Sling complications and SUI	1 (1.9)	0 (0.0)	0.37
Recurrent prolapse and mesh	0 (0.0)	2 (2.3)	0.53
Mesh complications—prolapse repair	0 (0.0)	8 (9.0)	0.02
Sling complications	4 (7.4)	0 (0.0)	0.02
Bowel obstruction	0 (0.0)	1 (1.1)	1.00
Constipation	2 (3.7)	3 (3.4)	0.89
Fecal incontinence	3 (5.6)	10 (11.2)	0.58
Overactive bladder	16 (29.6)	13 (14.6)	0.03
Pain at 6 weeks post op or greater	2 (3.7)	10 (11.2)	0.13
Vaginal bleeding	3 (5.6)	1 (1.1)	0.15
Venous thromboembolism	0 (0.0)	1 (1.1)	1.00
Urinary tract infections	3 (5.6)	1 (1.1)	0.15

Data presented as n (%)

Table 3
Dindo Classification of Postoperative Surgical Complications

	Obliterative Surgery n=54	Reconstructive Surgery n=89	P
Grade			0.02
No complication	21 (38.9)	35 (39.3)	
I	6 (11.1)	24 (27.0)	
II	20 (37.0)	15 (16.9)	
III	7 (13.0)	15 (16.9)	
IV	0 (0.0)	0 (0.0)	
V	0 (0.0)	0 (0.0)	

Data presented as n (%)