

Pelvic Organ Prolapse in Young Women: A Topical Issue

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ABSTRACT

Introduction: Pelvic organ prolapse (POP) has been documented in the oldest medieval literature as old as 2000 BC with its watershed moments. It affects millions of women worldwide. Since exact etiological data are not known, there is paucity of data regarding recommendations of surgeries, and apical prolapse in young women has concomitant stress urinary incontinence (SUI). Recurrences are more common in young women compared with old women, and choice of surgery thus becomes a dilemma and puts a surgeon in a quandary. Moreover, reconstructive surgeons are inspired and fascinated due to intricacies and challenges of POP in the young women. Hence, genital prolapse in young women is a topical issue.

Aim: To determine the characteristics of prolapse in young women with regard to grade, complexity, and associated etiological factors.

Materials and methods: This comparative descriptive study was conducted at a tertiary care hospital from June 2015 to December 2016 over a period of 18 months after obtaining adequate authorization from ethical committee. A nonprobability sampling convenience method was incorporated. All women attending gynecological outpatient department having symptoms of mass coming out of vagina were subjected to detailed history, examination, and investigations. They were divided into two groups: women less than 40 years were subjected to conservative surgery and women more than 40 years were subjected to anterior and posterior repair with concomitant hysterectomy. The results were compared.

Results: The mean age of women less than 40 years was 34.54 ± 3.136 years, and mean age for women between 40 years and 45 years was 43.83 ± 1.617 years. The mean parity is less in women less than 40 years of age compared with older women, and though not statistically significant, there is a strong presence of family history of similar complaints in parents or siblings in women less than 40 years of age (15.13%). This is consistent with studies by Jackson that there may be a correlation between development of prolapse and collagen defects. On comparing the preoperative and postoperative POP quantification (POP-Q) in younger and older women, there was a significant improvement in anterior compartment and apical defects when compared with posterior defects and changes in genital hiatus, perineal body, and total vaginal length. In total, 13% of young women who underwent conservative surgery for POP had recurrence, which though statistically insignificant, it is a high percentage compared with older women undergoing surgery for POP. Older women undergoing surgery for POP had more complications (4/18–22%), kinking of ureter after a vaginal hysterectomy with high uterosacral fixation (11%), and secondary hemorrhage (11%).

Conclusion: Young women have POP of low grade, usually have single-compartment defects, and are associated with low parity. A significant number of women have family history of POP contributing to low-density collagen as an etiological factor. Conservative surgeries in young women take shorter time, are associated with less complications, but are associated with more recurrence rates.

Keywords: Pelvic organ prolapse in young women, Stress urinary incontinence, Young prolapse.

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INTRODUCTION

Pelvic organ prolapse (POP) has been documented in the oldest medieval literature as old as 2000 BC with its watershed moments. It affects millions of women worldwide, most of which are not treated due to lack of women coming forward with the issue. It is a sad state of affairs that only 11–19% of women undergo surgery for POP. Besides causing discomfort and sexual function interference, it also affects quality-of-life index as it significantly increases costs.

Pelvic organ prolapse is generally found in peri- and postmenopausal women. Obstetric trauma and multiparity are found in the etiopathogenesis of prolapse, as a result either of a direct perineal lesion or of an indirect lesion by stretching the sacral plexus.^{1,2} The abdominal hyper pressures of asthmatics and family history are also described as risk factors for the occurrence of urogenital prolapse.^{3,4}

In young women, POP is a rare phenomenon with a unique clinical background with a postulation as given by Jackson in 1996 of its association with high immature collagen cross-links which can be degraded more easily along with high or increased metalloproteinase activity making the collagen brittle and susceptible to rupture.

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Conventionally known environmental factors such as age or obstetric trauma are no longer sufficient to explain the genesis and progression of prolapse, especially in young women. The identification of these risk factors is not only limited to epidemiological but also therapeutic interest. Preventive measures targeting some of these factors can be implemented, affecting both women in their habitus and the various caregivers involved in their lives.

RESEARCH QUESTION

Why is Genital Prolapse in Young Women a Topical Issue?

Since exact etiology is not known, there is paucity of data regarding recommendations of surgeries. Recurrences are more common in young women compared with older women, and choice of surgery thus becomes a dilemma and puts a surgeon in a quandary. Moreover, reconstructive surgeons are inspired and fascinated due to intricacies and challenges. And hence genital prolapse in young women is a topical issue.

AIMS AND OBJECTIVES

To determine characteristics of prolapse in young women with regard to grade, complexity, and associated etiological factors.

To provide recommendations for treatment of POP in young women.

MATERIALS AND METHODS

This comparative descriptive study was conducted at a tertiary care hospital from June 2015 to December 2016 over a period of 18 months after obtaining adequate authorization from ethical committee. A nonprobability sampling convenience method was incorporated. All women attending gynecological outpatient department having symptoms of mass coming out of vagina were subjected to detailed history, and duration of symptoms, age at marriage, and menstrual and obstetric histories were noted. History of obstetric trauma and medical problems were noted. Family history and personal history were asked. Thorough general and spinal examination was done. Pelvic examination was done for assessing grade, level, and complexity of prolapse, and associated stress urinary incontinence (SUI) was noted. A site-specific physical evaluation was done for noting pelvic floor relaxation by the Baden halfway system and the international continence society classification using pelvic organ prolapse quantification (POP-Q) system.

Inclusion Criteria

Women with bothersome POP, who had received conservative treatment in the form of ring pessary and willing to come for follow-up.

Exclusion Criteria

Women with POP who had prior surgeries for the same.

All the women were subjected for POP-Q preoperatively. Investigations and surgery were decided depending on age, level of prolapse, compartment defect, and stage of prolapse. The surgeries were performed by two surgeons with same experience and skill.

Women less than 40 years of age were offered conservative management in the form of sling surgery (Vir kud's, Purandare's, and Shirodkar's sling surgery) or abdominal hysterectomy.

Women more than 40 years of age were offered anterior and posterior repair with concomitant hysterectomy.

Pelvic organ prolapse quantification grading system was applied preoperatively and then postoperatively on seventh day and when they came for follow-up after 3 months. The anatomical success of surgery was assessed, depending on the decrease in the stage to 0 or 1 as per POP-Q, and functional success was assessed by a validated questionnaire to know the relief of symptoms and quality of life on the basis of reduction of bulge and decrease of various symptoms and dyspareunia.

Outcome measures were noted to differentiate and compare various factors such as etiology, grade, complexity, coexisting medical condition, management, and complications in young women and older women.

Data were analyzed using SPSS software and Chi-square test, and the *p* value <0.05 was taken to be significant.

RESULTS

In this comparative descriptive study of 33 women with bothersome history of something coming out of vagina, 15 women were less than 40 years of age and 18 women were 40–45 years of age. Younger women underwent conservative surgeries for prolapse, and older women underwent anterior and posterior repair with concomitant hysterectomy. Mean age of our study population was 39.58 ± 5.3034 years (Table 1).

From Table 1, it was deduced that the mean age of women less than 40 years was 34.54 ± 3.136 years, and mean age for women between 40 years and 45 years was 43.83 ± 1.617 years.

The mean parity is less in women less than 40 years of age compared with older women. Though not statistically significant, there is a strong presence of family history of similar complaints in parents or siblings in women less than 40 years of age (15.13%). This is consistent with studies by Jackson that there may be a correlation between development of prolapse and collagen defects.

Complexity of prolapse is defined as number of sites involved in the genital organ prolapse. According to our study, women more than 40 years clearly have a higher complexity ratio. Though not statistically significant, women more than 40 years have a greater degree of prolapse (Table 2).

There were 15 women less than 40 years of age who underwent conservative surgery for POP. Out of these 15 women, 5 women opted for abdominal hysterectomy, 4 underwent Vir kud's sling surgery, 5 had Purandare's sling surgery, and 1 underwent Shirodkar's sling surgery.

Out of these 15 women, 2 (13%) women had complications in the form of recurrence. One woman was further treated with

Table 1: Comparison of different parameters in young and old women

Parameters	<40 years	40–45 years	Chi-square	<i>p</i> value
Mean age	34.54 ± 3.136	43.83 ± 1.617		
Mean parity	1.13 ± 0.74	1.22 ± 0.43		
Positive family history	2/13 (15.13%)	0/18 (0%)	0.75	0.3866
Complexity of prolapsed (number of sites)	15/0	0/18	29.09	<0.0001
Degree of prolapse (third degree)	13/15 (86.67%)	17/18 (94.44%)	0.028	0.8683
Complications	2/15 (13%)	4/18 (22%)	0.042	0.8368

Table 2: Change in pre- and postoperative pelvic organ prolapse quantification (POP-Q) following conservative surgery in women less than 40 years

POP-Q		Paired t test for women <40 years				
		Mean	Standard deviation	Standard error of mean	t value	p value
Aa	Pre-op	0.33	0.90	0.232	6.9538	<0.0001
	Post-op	-1.93	0.88	0.227		
Ba	Pre-op	3.13	1.19	0.808	14.1946	<0.0001
	Post-op	-1.933	0.70	-0.499		
C	Pre-op	4.93	1.39	1.273	6.3936	<0.0001
	Post-op	-1.466	0.83	-0.378		
Ap	Pre-op	-0.60	1.06	-0.154	1.3476	0.0222
	Post-op	-1.33	0.49	-0.343		
Bp	Pre-op	-1.2667	1.49	-0.326	0.8247	1
	Post-op	-1.2667	0.46	-0.326		
D	Pre-op	-2.2667	1.91	-0.585	7.92	<0.0001
	Post-op	-6.533	0.833	-1.687		
	Pre-op	8	0.65	2.067		
	Post-op	8.4	1.298	2.169		
PB	Pre-op	3.5667	0.46	0.921	1.59	0.1212
	Post-op	3.821	0.41	0.987		
GH	Pre-op	4.73	0.26	1.221	1.2413	0.2248
	Post-op	4.87	0.351	1.258		

Bold values: <0.0001 is statistically significant and values more than that are statistically not significant hence comparable

Table 3: Change in preoperative and postoperative pelvic organ prolapse quantification (POP-Q) after compartment repair with hysterectomy in women more than 40 years

		Paired samples statistics >40				
		Mean	Standard deviation	Standard error mean	t value	p value
Aa	Pre	2.00	0.840	0.198	20.199	<0.001
	Post	-2.00	0.000	0.000		
Ba	Pre	2.83	1.823	0.430	10.409	<0.001
	Post	-2.28	0.669	0.158		
C	Pre	3.89	1.231	0.290	17.428	<0.001
	Post	-2.17	0.786	0.185		
Bp	Pre	2.28	2.321	0.547	6.616	<0.001
	Post	-1.39	0.502	0.118		
D	Pre	0.78	3.154	0.743	10.37	<0.001
	Post	-6.78	0.943	0.222		
TVL	Pre	8.28	1.074	0.253	-1.23	0.236
	Post	8.56	0.511	0.121		
PB	Pre	3.444	1.0966	0.2585	-0.867	0.398
	Post	3.67	0.485	0.114		
Ap	Pre	1.227	1.449	0.3417	0.5013	0.6194
	Post	1.449	0.511	0.1205		
GH	Pre	4.72	0.973	0.229	-1.211	0.243
	Post	5	0.00	0		

Aa, point A anterior; Ba, point B anterior; C, cervix or vaginal cuff; Bp, point B posterior; D, posterior fornix (if cervix is present); TVL, total vaginal length; PB, perineal body; Ap, point A posterior; GH, genital hiatus

Bold values: <0.0001 is statistically significant and values more than that are statistically not significant hence comparable

fothergills operation and one underwent hysterectomy with transobturator tape (TOT).

On comparing the preoperative and postoperative POP-Q, there was a significant improvement in anterior compartment and apical defects when compared with posterior defects and

changes in genital hiatus, perineal body, and total vaginal length (Tables 3 and 4).

The table for pre- and postoperative POP-Q in women more than 40 years shows that there was a statistically significant improvement in all the compartment defects, except changes in

Table 4: Postoperative complications in both the groups

Complications	Secondary hemorrhage	Infections/ cellulitis	Ureteric kinking	Recurrence
<40 years (2/15–13%)	–	–	–	2
40–45 years (4/18–22%)	2	–	2	–

Table 5: Comparison of our study with Strohbehm et al.'s study⁷

Parameter	Strohbehm et al.'s study (<40 years)	Strohbehm et al.'s study (>40 years)	Our study (<40 years)	Our study, >40 years (40–45 years)	Strohbehm et al.'s study, p value	Our study, p value
Number of subjects	27	164	15	18	–	–
Mean age	30.3 ± 3.4	60.6 ± 11.9	34.54 ± 3.136	43.83 ± 1.617	–	–
Associated medical condition	22.7%	6.7%	0.06%	–	<0.05	0.43
Parity	2.8%	3.4%	1.13%	1.12%	<0.05	0.28
Complexity (>2 site)	56%	23%	–	100%	<0.01	<0.0001
Grade third degree	33%	87%	86.67%	94.44%	<0.001	0.8683

Bold values: <0.0001 is statistically significant and values more than that are statistically not significant hence comparable

total vaginal length, perineal body, and genital hiatus, though the desired changes were seen.

In total, 13% of young women who underwent conservative surgery for POP had recurrence, which though statistically insignificant, it is a high percentage compared with older women undergoing surgery for POP.

Older women undergoing surgery for POP had more complications (4/18–22%), kinking of ureter after a vaginal hysterectomy with high uterosacral fixation (11%), and secondary hemorrhage (11%).

DISCUSSION

Pelvic organ prolapse occurs when the anatomical and mechanical equilibrium between the abdominal pressure and the perineal resistance forces is broken. Support tissues, pelvic floor muscles, and their innervation contribute to the integrity of the endopelvic fascia, supporting the pelvic organs. But the complexity of the biomechanical systems involved explains the difficulties encountered in the pathophysiological interpretation of prolapse.¹

Pelvic organ prolapse in young women is rare. The prevalence increases with age until about 50 years and then remains stable. Tegerstedt et al. report the following rates: 4.1% between 30 years and 39 years and 6.2% between 40 years and 49 years.⁵

Previous studies have also indicated differences between POP in young and old women. Family history is one of the causes although exact etiology is still unknown. Bump and Norton¹ studied predisposing factors: race, family history, ethnicity, and inciting factors like previous vaginal deliveries and lifestyle changes (Table 5).⁶

Hence, low parity, less complexity (single site), and low grade of prolapse are important differentiating parameters of young prolapse compared with POP in older women. Table 5 compares these parameters of our study with Strohbehm et al.'s study.⁷

The role of fibroblasts that produce the molecules in the extracellular matrix, such as collagen and elastin, needs further elucidation. It has been suggested to treat POP with autologous stem cells.³

Recent data suggest that aging, pelvic trauma, and pelvic surgeries cause denervation of the tissues and devascularization, anatomical changes, and increased degradation of collagen; all

of these may lead to a decrease in the mechanical strength and predispose a woman to prolapse. It has been postulated that there is a significant reduction in the protein content and estrogens in the uterosacral ligaments, vagina, and parametrium of women with prolapse. This is a possible explanation for why many surgical procedures to correct prolapsed have failed, and after surgical correction, the recurrence rates are frequently high.³

The family incidence of pelvic prolapse was up to 30% in the families observed by Rinne and Kirkinen.⁸ Beyond these epidemiological observations, genotypic variations were found in women belonging to families with high incidence of prolapse.

Young patients undergoing surgery for genital prolapse were more likely to have lower parity and single-site and lower-grade prolapse.

Reconstructive surgery for women with prolapse consists various steps including suspension of the vaginal apex and anterior and posterior vaginal wall repair. The choice of a primary surgery depends on the anatomical site of prolapse and presence of other symptoms such urinary or bowel incontinence, primary health, and choice of the patient.⁹

Patients at a young age are at higher risk of prolapse recurrence but have a lower risk of complications, after surgery, when compared with older women. However, procedures with longer efficacy have higher surgical risk. Thus, it is suggested, for younger patients, to understand that choosing procedures with a greater efficacy may come at the expense of increased risk for complications.⁹ This means that advantages of uterine sparing techniques are a short operating time and decreased chances of hemorrhages; however, their efficacy is controversial; hence, they may lead to more recurrences. Uterine sparing surgeries could preserve sexual function and fertility, but it is not yet clinically proven. Hence, these advantages come with a risk:benefit ratio for higher recurrences.

Reconstructive surgery for POP often involves repair of multiple anatomical sites of prolapse, i.e., apical, anterior, and/or posterior.

The common teaching in institutes in our country is that all procedures should be performed establishing a single route (vaginal or abdominal), since it is recommended to avoid both abdominal and vaginal routes. Thus, the choice of surgical route is mainly of concern in women who require repair of apical prolapse, since isolated repair of anterior or posterior vaginal wall prolapse

is traditionally performed transvaginally. Reconstruction of apical prolapse abdominally with abdominal sacral hysteropexy results in lower rates of recurrence, while transvaginal repair (e.g., sacrospinous ligament fixation and uterosacral ligament fixation) has a shorter recovery and less morbidity.⁹

Women with symptoms of both POP and SUI are treated with a combined prolapse repair and continence procedure.

Another important patient demographic consists of women with stage II or higher apical prolapse who are continent in spite of loss of anterior vaginal and bladder/urethral support.¹⁰ Unfortunately, 13 to 65% of continent women develop SUI after surgical correction of the prolapse. This mostly occurs because the prolapse tends to kink and obstruct the urethra; this obstruction is alleviated when the prolapse is repaired. This is referred to as occult stress incontinence which means the potential to have SUI.¹¹

All women with apical prolapse should have a preoperative assessment for potential SUI with clinical or urodynamic urinary stress testing with and without reduction of prolapse.

For women with stage II or greater POP who are opting for conservative surgery, regardless of the results of preoperative testing for occult SUI, it is recommended that a combined Burch colposuspension to be done rather than a sacrohysteropexy alone.¹⁰

CONCLUSION

Young women have POP of low grade, usually have single-compartment defects, and are associated with low parity. A significant number of women have family history of POP contributing to low-density collagen as an etiological factor. Conservative surgeries in young women take shorter time, are associated with less complications, but are associated with more recurrence rates.

Based on the reported findings, prolapse treatment will be more inspired by genetics, biological pelvic changes, changes in tissue homeostasis, and topical hormones, rather than general pelvic corrective surgical anatomy.

For women who are undergoing repair of prolapse, a proper examination and selection of surgery is important. Women preferring abdominal hysteropexy should be subjected for TOT concomitantly so as to correct potential SUI. Site-specific repair becomes more important than single-compartment repair when is associated with apical prolapse. It is also recommended to follow a

multiroute approach and keep our mind open for the convenience of the patients.

When symptoms are troublesome and the prolapse of the posterior wall extends to or beyond the hymen, we generally perform a posterior colpoperineorrhaphy repair.

POP often coexists with SUI. Some women with advanced POP remain devoid of symptoms of SUI in spite of loss of anterior vaginal and bladder/urethral support. These women may develop symptoms of SUI after surgical correction of the prolapsed.

Larger studies are advocated to make recommendations.

REFERENCES

1. Norton PA. Pelvic floor disorders: the role of fascia and ligaments. *Clin Obstet Gynecol* 1993;3(4):926–938. DOI: 10.1097/00003081-199312000-00017.
2. Smith S, Hosker GL, Warrell DW. Role of partial denervation of the pelvic floor in genitourinary prolapse and stress incontinence of urine. *Br J Obstet Gynaecol* 1989;96(1):24–28. DOI: 10.1111/j.1471-0528.1989.tb01571.x.
3. Jackson SR, Eckford SD, Abrams P, et al. Changes in metabolism of collagen in genitourinary prolapse. *Lancet* 1996;34(9016):1658–1661. DOI: 10.1016/s0140-6736(96)91489-0.
4. Versi E, Cardozo L, Brincat M, et al. Correlation of urethral physiology and skin collagen in post menopausal women. *Br J Obstet Gynaecol* 1988;95(2):147–152. DOI: 10.1111/j.1471-0528.1988.tb06844.x.
5. Tegerstedt G, Nyrén O, Hammarström M. Prevalence of symptomatic pelvic organ prolapse in a Swedish population. *Int Urogynecol J Pelvic Floor Dysfunct* 2005;16(6):497–503. DOI: 10.1007/s00192-005-1326-1.
6. Strohbehk K, Jakary J, Delancey J. Pelvic organ prolapse in young women. *Obstet Gynecol* 1997;9(1):33–36. DOI: 10.1016/S0029-7844(97)00218-4.
7. Bump RC, Norton PA. Epidemiology and natural history of pelvic floor dysfunction. *Obstet Gynecol Clin North Am* 1998;25(4):723–746. DOI: 10.1016/s0889-8545(05)70039-5.
8. Rinne KM, Kirkinen PP. What predisposes young women to genital prolapse? *Eur J Obstet Gynecol Reprod Biol* 1999;84(1):23–25. DOI: 10.1016/s0301-2115(99)00002-0.
9. <http://www.AAGL.org/jmig-21-5-JMIG-D-14-00183>.
10. Jack GS, Nikolova G, Vilain E, et al. Familial transmission of genitovaginal prolapse. *Int Urogynecol J Pelvic Floor Dysfunct* 2006;17(5):498–501. DOI: 10.1007/s00192-005-0054-x.
11. Chiaffarino F, Chatenoud L, Dindelli M, et al. Reproductive factors, etc. and occupation and risk of urogenital prolapse. *Eur J Obstet Gynecol Reprod Biol* 1999;82(1):63–67. DOI: 10.1016/s0301-2115(98)00175-4.