

A prospective study using POP-Q classification to analyse the outcome of vaginal hysterectomy with pelvic floor repair

Janani GD^{1,*}, Jaya V², Lalitha D³

¹PG Student, ^{2,3}Professor, Dept. of Obstetrics & Gynecology, Sri Ramachandra University, Chennai, Tamil Nadu

***Corresponding Author:**

Email: sep27jan@gmail.com

Abstract

Aim: The aim of the study was to analyse symptom relief and surgical outcomes of women with Pelvic organ prolapse (POP).
Material and methods: A total of 100 women were enrolled in the study to be followed upto 6 months post surgery. After excluding 14 patients due to attrition, 86 patients were analysed. Vaginal hysterectomy and anterior colporrhaphy was done in all cases. Site specific repair was decided upon case to case basis. They were followed post operatively with regard to symptom relief and anatomical correction was analysed at 6 months using Pelvic Organ Prolapse-Quantification (POP-Q) System.

Results: The incidence of POP is highest between 40-50 years of age and with parity >4. Using POP-Q staging system, 70.9% women had stage III prolapse, 17.4% had stage II, 9.3% had stage IV and 2.3% had stage I prolapse. Women with dysuria and low back ache were the least to get relieved of the symptom after surgery. The improvement of the symptoms were statistically significant with p-value <0.05. There was 86% improvement of stress urinary incontinence (SUI) when anterior colporrhaphy was combined with anti-incontinence surgery. The number of women who resumed sexual activity after surgery increased to 73% from 51.1% with significant p-value of <0.05. There was significant restoration of anatomy in point Ba (mean length from +4.05 to -2.1), point Bp (mean length from +1.8 to -2.3) and point C (mean length from +3.5 to -5.19) after surgery.

Conclusion: There is significant anatomical restoration and symptom relief after surgery. The surgery had a positive effect on sexual activity.

Keywords: Pelvic organ prolapse, POP-Q, Vaginal hysterectomy, Pelvic floor repair, Stress urinary incontinence

Received : 12th November, 2017

Accepted : 26th July, 2017

Introduction

Pelvic organ prolapse is a bulge or protrusion of pelvic organs and their associated vaginal segments into or through the vagina.⁽¹⁾ The lifetime risk of undergoing a single operation for prolapse or incontinence was 11.1% at 80 years of age.⁽²⁾ Vaginal hysterectomy is one of the surgical modality for the treatment of symptomatic prolapse. Most of these women report symptoms of stress urinary incontinence, sexual dysfunction and difficulty in performing activities of daily life. Many studies have analysed the outcome of native tissue repair for pelvic organ prolapse. This study addresses the systematic analysis of outcome in terms of anatomic restoration and symptomatic improvement after vaginal hysterectomy with pelvic floor repair for pelvic organ prolapse.

Materials and Method

This is a prospective study for which a previous approval from the Institute's ethics committee was taken. One hundred women with pelvic organ prolapse admitted for vaginal hysterectomy and pelvic floor repair in the department of Obstetrics and Gynecology, Sri Ramachandra University, Chennai during July 2014 to March 2016 were enrolled for the study. A detailed history was taken with regard to symptom of prolapse like urinary symptoms, bowel symptoms, coital difficulties and performing daily activities. The clinical examination included routine local examination,

speculum examination and per vaginal examination and pelvic organ prolapse quantification (POP-Q) according to the International Continence Society Standardisation Committee.

Women who complained of stress urinary incontinence were examined with full bladder. They were subjected to routine investigations including urinary culture. (Transvaginal ultrasonogram for post void residual urine and urodynamic studies were done where ever indicated).

Vaginal hysterectomy and anterior colporrhaphy was done in all cases. Site specific repair – McCall's Culdoplasty, sacrospinous fixation, Tension free vaginal tape (TVT-O), Kelly's plication was decided upon case to case basis. They were followed post operatively with regard to symptom relief at 6 months.

Anatomical correction was analysed at 6 months using Pelvic Organ Prolapse-Quantification (POP-Q) System.

Results

A total of 100 patients were enrolled in the study. At the end of 6 months, 14 patients were lost to follow-up and were excluded from the study. Hence, the analysis was done for the remaining 86 patients only. Symptom analysis and analysis of anatomical improvement using POP-Q was done at 6 months.

Out of 100 women enrolled, one-third of them was noted to be between 40 – 50 years of age (Fig. 1). The

highest incidence (44%, n=44) of POP was noted among multiparous women with more than 4 normal vaginal deliveries (Fig. 2). The main symptom was mass descending per vagina in 91% (n=79) of women. Difficulty in defecation was noted in 31.3% (n=27) of women. Most common urinary complaint was

incomplete voiding in 66.2% (n=57) women. SUI was noted in 8.1% (n=7). Preoperatively 51.1% (n=44) women were sexually active. Remaining 48.9% (n=42) were sexually inactive as they were disinterested or being single. Majority of women had stage III prolapse (70.9%, n=61).

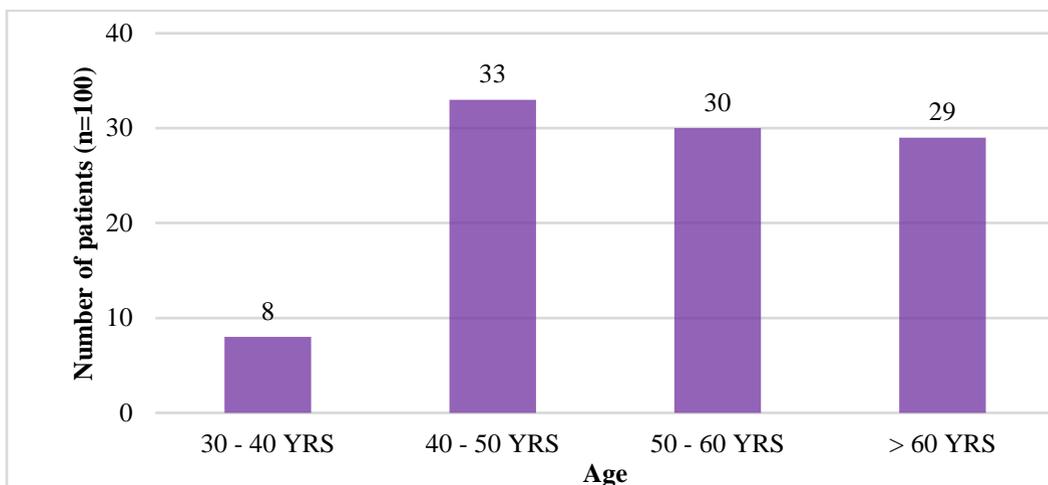


Fig. 1: Age distribution

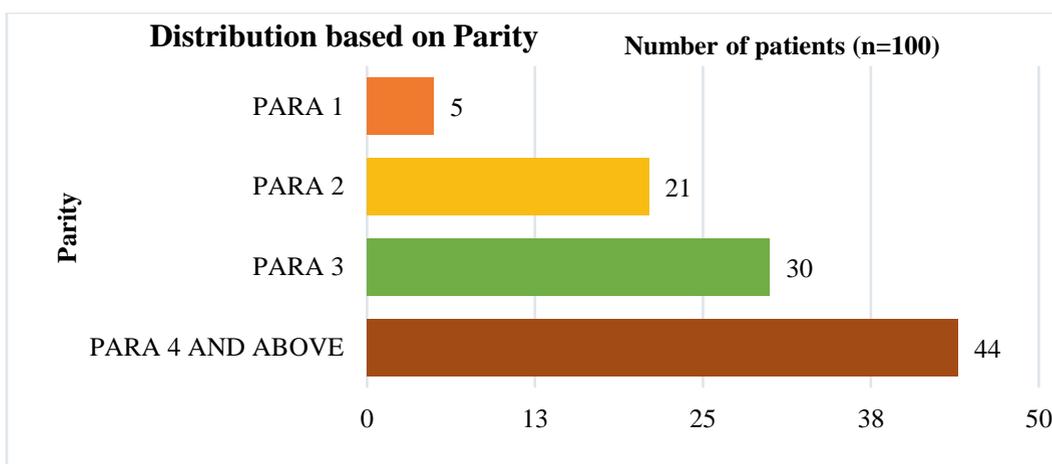


Fig. 2: Distribution based on parity

As shown in Table 1 vaginal hysterectomy and anterior colporrhaphy was performed in all patients. Posterior colporrhaphy was performed in 94.1% (n=81). McCalls Culdoplasty was done in 72% (n=62) and the rest had routine repair of enterocele. Anti incontinence surgery -- Kelly's plication was done in 3.4% (n=3) women and mid urethral sling surgery with tension free vaginal tape obturator (TVT-O) was performed in 4.7% (n=4) women.

Of the 8 patients with stage IV prolapse sacro spinous fixation was done in 4.7% (n=4) women who had complete eventration. Remaining 4 women with stage IV prolapse had compartmental defects – 3 women with anterior stage IV defect and one with apical stage IV defect who underwent site specific repair.

Table 1: List of surgeries performed for pelvic floor repair along with vaginal hysterectomy

Surgery	Frequency (N)	Percentage (%)
Vaginal Hysterectomy	86	100%
Anterior Colporrhaphy	86	100%
Posterior Colporrhaphy	81	94.1%
Mc Calls Culdoplasty	62	72%
Sacro Spinous Fixation	4	4.6%
Anti Incontinence Surgery	7	8.1%

(Kelly's Plication & Mid Urethral Sling Tvt-O)

The immediate post-operative period was uneventful in majority of women except 4 women who had acute symptoms including acute urinary retention and vault infection which developed in 4.65% (n=4) of women.

With regard to symptom relief as shown in the Table 2, low back ache remained a distressing symptom in 19% (n=6) of women. Difficulty in defecation reduced from 29.7% (n=27) to 3.2% (n=3) of women. Coital difficulty was found in 8.1% (n=7) of women post surgery. There was however significant symptom relief of all the symptoms.

Table 2: Analysis of Symptoms

Complaints	Preoperative		Post Operative At 6 Months		p-value
	Frequency (n)	Percentage (%)	Frequency (n)	Percentage (%)	
Mass Descending Per Vagina	79	91.8%	0	0	0.001
Low Back Ache	46	53.4%	16	19%	0.001
Difficulty In Walking	14	16.3%	0	0	0.001
Difficulty In Performing Daily Activities	15	17.4%	0	0	0.001
Difficulty In Defecation	27	29.7%	3	3.2%	0.001
Difficulty In Coitus	26	30.2%	7	8.1%	0.001

Urinary symptoms like incomplete voiding, increased frequency and urgency showed 100% cure. Dysuria and SUI persisted in 12% (n=10) and 1.1% (n=1) of women respectively. De novo SUI occurred in 7% (n=6) of women. However, all urinary symptoms showed a significant improvement as shown in Table 3.

Table 3: Analysis of Bladder symptoms

Symptoms	Preoperative		Postoperative At 6months		p-value
	Frequency (n)	Percentage (%)	Frequency (n)	Percentage (%)	
Incomplete Voiding	57	66.2%	0	0	0.001
Increased Frequency	36	41.8%	0	0	0.001
Dysuria	24	27.9%	10	12%	0.001
Urgency	4	4.6%	0	0	0.001
SUI	7	8.1%	1	1.1%	0.01

The highest recurrence of prolapse was noted in anterior compartment in women with Stage III prolapse (10.4%, n=9) (Table 4). There was 86% improvement of SUI when anterior colporrhaphy was combined with anti-incontinence surgery. 72% (n=62) women underwent McCalls culdoplasty. None of these women had vault prolapsed at 6 months followup. The success rate for posterior colporrhaphy in the present study was 96.8% with significant p value < 0.05.

Table 4: POP-Q stages at 6 months

POP-Q Stage	Pre-operative		Post-operative	
	(n)	Percentage (%)	(n)	Percentage (%)
Stage I	2	2.4%	0	0%
Stage II	15	17.4%	2	2.3%

Stage III	61	70.9%	9	10.4%
Stage IV	8	9.3%	1	1.1%
Total	86	100%	12	13.8%

Anatomical restoration was found in all stages of prolapse as evidenced in Table 5. Both cases of stage I prolapse had complete anatomical restoration. When analysed with POP-Quantification, there was significant restoration in anatomy of point Ba, Bp and C which is summarised in Table 5.

Table 5; Post-operative anatomical restoration as evidenced by POP-Q

Anatomic Restoration	Preoperative Mean	Range	Standard Deviation	Postoperative Mean	Range	Standard Deviation	p-value
Mean Length of Point Ba	+4.05	-1 to +9	2.2	-2.1	+1 to -3	0.785	<0.05
Mean Length of Point Bp	+1.8	-2 to +8	2.6	-2.3	-1 to -3	0.652	<0.05
Mean Length of Point C	+3.55	-6 To +10	3.6	-5.19	-4 To -8	1.494	<0.05

Discussion

The goals of the surgery are relief of the symptoms, restoration of the anatomy and sexual function of the patients. The problem of POP increases with age and various approaches of treatment has been considered. The surgical options are expanding. The vaginal approach has an advantage of shorter recovery time. Most of the literature supports vaginal hysterectomy, when feasible, which is the safest method. Vaginal hysterectomy combined with apical suspension is considered to be the first choice for treatment of POP. The surgeon's skill in different surgical technique, age, patient's preference, co-morbid conditions, etc play an important role in the choice of operation for uterine prolapse.

Symptoms: The common symptoms related to pelvic organ prolapse are vaginal bulging, pelvic pressure, bleeding, discharge, infection, splinting and low back ache. The potential prolapse related lower urinary tract symptoms are hesitancy, slow stream, intermittency, straining to void, spraying of urinary stream, feeling of incomplete emptying, need to immediately re-void, post micturition leakage, position-dependent micturition, dysuria, urinary retention, increased daytime urinary frequency and urgency. The common anorectal symptoms are constipation, feeling of incomplete bowel evacuation, straining to defecate, sensation of anorectal bulge and post-defecatory soiling.⁽³⁾

Urinary Symptoms and outcome: In a questionnaire based study by Pakbaz et al,⁽⁴⁾ 682 women answered the questionnaire, of which 679 (99.5%) answered questions regarding urinary symptoms like urgency, urge incontinence, or urinary stress incontinence in both pre operatively and after 6 months. In the preoperative questionnaire 38.1% of women (n = 259) reported

urinary problems; six months postoperatively this decreased to 30% (n = 204) (p = 0.002). Fourteen per cent (76 of 545) of women who were continent prior to surgery became incontinent postoperatively, mainly with stress urinary incontinence (n = 58). Conversely, of 134 women who reported urinary incontinence preoperatively, 51.5% (n=69) became continent postoperatively; Urgency was reduced by 50.4% (p < 0.001).

In the present study, the commonest presentation was incomplete voiding. The other symptoms were increased frequency of micturition, dysuria, stress urinary incontinence, urgency in decreasing order of frequency and there was significant relief of all the symptoms. De novo stress urinary incontinence occurred in 2.3% (n=2) during the 3 month follow up and 7% (n=6) at 6 month follow up which was managed conservatively.

The success rates for anti incontinence surgery with mid urethral sling ranges from 37%-100% in the literature. The complications reported in the literature includes erosion, infection, denovo dyspareunia and vaginal stenosis. In the present study 4.7% (n=4) patients underwent TVT mid urethral sling, with 100% success rate. Kelly's plication was done in 3.4% (n=3) of women and 1.1% (n=1) women had recurrence of symptoms post surgery.

In a prospective study by De Tayrac et al⁽⁵⁾ to evaluate the tension-free vaginal tape (TVT) in both stress urinary incontinence (SUI) and denovo SUI in 48 patients. The cystocele repair was performed in all patients. Twenty-six women had an associated TVT. Anatomic success on prolapse was 88.5% (23/26).

Sexual dysfunction and outcome: Ideally, the goal of pelvic reconstructive surgery is to address each vaginal

compartment separately and provide adequate repair to restore the normal anatomy and functionality of the pelvic floor as a whole. Many studies have assessed sexual function before and after pelvic floor surgery often with conflicting results due to methodology and population differences.

A Prospective cohort study by Weber et al⁽⁶⁾ assessed sexual function and anatomic and functional outcomes in women before and after reconstructive pelvic surgery for POP and/or urinary incontinence. The authors found that vaginal length slightly decreased after the procedure but this had no significant adverse effect on sexual function postoperatively. Preoperatively, 66 (82%) women were satisfied with their sexual relationships compared with 71 (89%) who were satisfied postoperatively. The authors concluded that sexual function either improved or remained the same postoperatively in the majority of women.

Another study by Pauls et al,⁽⁷⁾ assessed the impact of vaginal surgery on postoperative sexual function in women who underwent concurrent anti-incontinence procedures compared with those who did not. Of the subjects who returned their postoperative surveys, 98% (48 out of 49) were sexually active. Preoperatively, vaginal bulging was the most bothersome barrier to sexual activity, while postoperatively, this was replaced by vaginal pain. A quarter (n = 12) of subjects stated that vaginal pain postoperatively had a negative impact on their sexual function. In the present study, 44/86 (51.1%) were sexually active preoperatively. 26/44 (59%) of them had difficulty preoperatively compared to 7/44 (16%) post operatively. The number of women whose sexual activity improved after surgery increased to 73% with significant p value <0.05.

Anatomical restoration: Application of POP-Q has made the analysis of anatomical restoration of different defects systematic and standard. There are currently no studies in literature that has analysed systematically the post operative anatomical restoration using POP-Q. Anatomical restoration of all defects as shown in Table 5 using POP-Q classification. The mean length of the Ba point pre operatively was +4.05 which ranges from -1 to +9 with standard deviation of 2.2. The mean length of point Bp pre operatively was +1.8 which ranges from -2 to +8 with standard deviation of 2.6. The mean length of point C pre operatively was +3.5 which ranges from -6 to +10 with standard deviation of 3.6. There was significant improvement in point Ba (Cystocele), point Bp (rectocele) and point C (vaginal apex). This has resulted in symptom relief, improvement of bladder and bowel habits and sexual function.

Conclusion

Vaginal hysterectomy with pelvic floor repair has good surgical outcome. There is significant improvement of symptoms and anatomical restoration after surgery. The surgery had positive effect on sexual activity.

The limitation of the study are

1. The follow up period is only 6 months and should have been for a longer period.
2. As it was an observational study, no specific protocol for repair was followed which was left to the discretion of the operating surgeon.

References

1. ACOG technical bulletin. Pelvic organ prolapse. American College of Obstetricians and Gynecologists. Int J Gynaecol Obstet. 1996 Feb;52(2):197-205.
2. Olsen AL, Smith VJ, Bergstrom JO, Colling JC, Clark AL. Epidemiology of surgically managed pelvic organ prolapse and urinary incontinence. Obstet Gynecol. 1997 Apr;89(4):501-6.
3. Haylen BT, Maher CF, Barber MD, Camargo S, Dandolu V, Digesu A, Goldman HB, Huser M, Milani AL, Moran PA, Schaer GN, Withagen MI. An International Urogynecological Association (IUGA) / International Continence Society (ICS) joint report on the terminology for female pelvic organ prolapse (POP). Int Urogynecol J. 2016 Feb;27(2):165-94.
4. Pakbaz M, Mogren I, Löfgren M. Outcomes of vaginal hysterectomy for uterovaginal prolapse: a population-based, retrospective, cross-sectional study of patient perceptions of results including sexual activity, urinary symptoms, and provided care. BMC Women Health. 2009 Apr 20;9:9.
5. de Tayrac R, Gervaise A, Chauveaud-Lambling A, Fernandez H. Combined genital prolapse repair reinforced with a polypropylene mesh and tension-free vaginal tape in women with genital prolapse and stress urinary incontinence: a retrospective case-control study with short-term follow-up. Acta Obstet Gynecol Scand. 2004 Oct;83(10):950-4.
6. Weber AM, Walters MD, Piedmonte MR, Ballard LA. Anterior colporrhaphy: a randomized trial of three surgical techniques. Am J Obstet Gynecol. 2001 Dec;185(6):1299-304; discussion 1304-6.
7. Pauls RN, Silva WA, Rooney CM, Siddighi S, Kleeman SD, Dryfhout V, Karram MM. Sexual function after vaginal surgery for pelvic organ prolapse and urinary incontinence. Am J Obstet Gynecol. 2007 Dec;197(6):622.