

Outcome of various surgical procedures in management of pelvic organ prolapse

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ABSTRACT

Background: Pelvic organ prolapse and urinary incontinence are common conditions affecting a large number of females. Many surgical procedures to correct these disorders are available according to the clinical presentation and surgical expertise of the surgeon. Currently there is no definitive gold standard procedure to favour a particular route in the treatment of uterine prolapse. **Objectives:** The present study was carried out to know the clinical presentation, variety of surgical options and outcome of surgical management in patients with pelvic organ prolapse. **Methods:** All women undergoing surgical treatment of pelvic organ prolapse and urinary incontinence at SMI Hospital of SGRRIM&HS, Dehradun were included in the study. The clinical presentation and the type of surgical treatment were recorded in every case. Outcome of surgical treatment and follow-up was recorded in terms of complications, patient satisfaction, quality of life and recurrence of symptoms. The data were analyzed and results were entered as percentage and frequency tables. **Results:** A total number of 408 patients were admitted and operated for pelvic organ prolapse. The mean age of the patient in our study was 54 years. Nearly two-third of the study population was employed in hard manual work involving strenuous activities, farmers (34.8%) and labourers (38%). Two hundred and seventy three (66.9 %) of the women were postmenopausal, 403 (98.8 %) were multiparous and 315 (77.2 %) had some cause attributing to chronic increase in intra-abdominal pressure. The predominant presenting complaint was a history of mass protruding out of vagina in 329 (80.6%). The predominant type of prolapse was uterine prolapse in 381(93.4%) patients. Cystocele, rectocele, and enterocele were present in 298(73.0%), 235(57.6 %) and 42(10.1%) patients respectively. Vaginal hysterectomy with pelvic floor repair was the predominant surgical treatment (73.5 %). **Conclusion:** Pelvic organ prolapse is associated with many risk factors of which few are modifiable. Despite a variety of surgical options available, vaginal hysterectomy with pelvic floor repair is the commonest surgery done for POP with satisfactory outcome.

Keywords: Prolapse, cystocele, rectocele, hysterectomy.

Pelvic organ prolapse (POP) is one of the most common clinical problems seen among elderly females in gynaecological OPD. Pelvic organ prolapse (POP) is a common and distressing condition and is associated with negative impact on a women's social, physical and psychological well being. As many women feel shy or do not reveal the uterovaginal prolapse due to social reasons, so it is difficult to determine exact prevalence.

It is defined as the descent of one or more of the anterior

vaginal wall, posterior vaginal wall, uterus, or the apex of vagina (vaginal vault after hysterectomy). POP is not life threatening condition if left untreated but it can lead to many social issues and reduces quality of life of a woman. With the increasing life expectancy of women, prevalence of uterovaginal prolapse is also increasing. Causes of uterine prolapse are multifactorial of which mode of delivery plays an important role¹. There are predisposing, non-modifiable factors including race, gender and genetic make-up. Other

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promoting risk factors for which intervention or prevention can be of benefit, include occupation, obesity, smoking, and infection, and there are inciting risk factors such as childbirth causing muscle, connective tissue, vascular and neural damage ². Postmenopausal state due to hypoestrogenemia and genital atrophy also plays an important contributing role.

Obesity directly affects symptoms of pelvic organ prolapse. A chronic increase in intra-abdominal pressure, nerve damage and co-morbidities of obese individuals all contribute to pelvic floor dysfunction ^{3, 4}. Interestingly, while parity is an established risk factor for primary POP, it is not a risk factor for recurrence ⁵. While individual risk factors affecting the prevalence of POP such as age, vaginal deliveries and race are well identified, comorbidities such as DM together with hypertension must be considered in the development of the condition ⁶.

The most frequently reported symptom of POP is SCOPV(something coming out per vaginum) or patient feels the presence of vaginal bulge that can be seen; urinary symptoms including voiding dysfunction, incontinence, urgency, and frequency and bowel symptoms like outlet obstruction and faecal incontinence are also common ⁷. Various studies on prevalence, determinants, clinical manifestations and treatment modalities have been carried out elsewhere and may not be valid for Indian situation. The determinants may be different depending upon the life style, socio-cultural features and health care seeking behaviour of the people. A variety of surgical procedures to correct these disorders are available. The aim of the present study was to know the clinical presentation, variety of surgical options and outcome of surgical management in patients with pelvic organ prolapse and urinary incontinence. The study also provided us with an opportunity to evaluate potentially modifiable risk factors in our representative sample which we may target for prevention efforts.

Methodology

The study was a retrospective study done on women with pelvic organ prolapsed and urinary incontinence at Shri Guru Ram Rai Institute of Medical & Health Sciences, Dehradun, Uttarakhand from January 2014 to December 2019. The study was conducted by reviewing the medical records of 408 patients with pelvic organ prolapse in our hospital after approval from Institutional Ethics Committee. Only symptomatic cases, where indoor admission with surgical treatment was provided, were included in the study. Nonsurgical management (Kegel’s exercise and pessary insertion) was done on OPD basis. The medical records were

reviewed by trained staff and data entered into data extraction forms. Information collected were sociodemographic characteristics (age, parity, occupation, and religion), determinants of pelvic organ prolapse, presenting complaints, degree of prolapse and treatment details. Operative details were noted including the type of surgery and intraoperative complications. Postoperative complications if any were noted. Recurrence rate after a minimum 12 months follow - up was also recorded. The data were analyzed and results were entered as percentage and frequency tables.

Results

During the study period, a total number of 408 patients were admitted and operated for pelvic organ prolapse. The sociodemographic profiles of patients are shown in table 1. The mean age of the patient in our study was 54 years. The age range was between 30 and 81 years. Nearly 50% of the study population was above the age of 55 years. Nine patients (2.2%) presented with prolapse in the age group below 35 years. None of the patients with prolapse were nulliparous. One hundred and fifty-six (38.2%) patients were grand multiparous. Nearly two-third of the study population was employed in hard manual work involving strenuous activities, farmers (34.8%) and labourers (38%). Only 63 (15.4%) were housewives. Majority ie. 367 (90.0 %) of our women were belonged to the Hindu religion.

Table 1: Sociodemographic profile of the cases

Variables	Number of patients	Percentage (%)
Age		
25-34	9	2.2
35-44	77	18.9
45-54	107	26.2
55-64	152	37.3
>65	63	15.4
Parity		
0	0	0
1	4	1.0
2	72	17.6
3	106	26.1
4	70	17.1
>5	156	38.2
Occupation		
Farmer	142	34.8
Laborer	155	38
Educated	48	11.8
Housewives	63	15.4
Religion		
Hindu	367	90.0
Muslim	37	9.1
Others	4	0.9

The analysis of determinants and risk factors for pelvic organ prolapse are shown in table 2. Two hundred and seventy three (66.9 %) of the women were postmenopausal, 403 (98.8 %) were multiparous (two or more children) and

315 (77.2 %) had some cause attributing to chronic increase in intra-abdominal pressure (constipation, chronic cough, and strenuous physical activities including farmers and labourers). Many women (85.7%) had more than one risk factors.

Table 2: Determinants of pelvic organ prolapse

Variables	Number of patients	Percentage (%)
Overweight	170	41.7
Postmenopausal status	273	66.9
Multiparity	403	98.8
Chronic intra-abdominal pressure	315	77.2

Table 3: Clinical presentation of patients

Variables	Numbers of patient	Percentage (%)
Symptoms		
Protrusion of mass per vagina	329	80.6
Urinary symptoms	70	17.2
Vaginal discharge	22	5.4
Vaginal itching	26	6.4
Ulceration	28	6.9
Pain in abdomen	58	14.2
Backache	65	15.9
Impaired sexual function	32	7.8
Types		
Uterine prolapse	381	93.4
Cystocele	298	73.0
Rectocele	235	57.6
Enterocele	42	10.1
Vault prolapse	27	6.6
Degree		
First degree	13	3.2
Second degree	72	17.6
Third degree	280	68.6
Procidentia	42	10.2

Clinical symptomatology and presentation of patients are shown in table 3. The predominant presenting complaint was a history of mass protruding out of vagina in 329 (80.6%) patients. Next common complaint was urinary symptoms in 70 (17.2%) patients. Other symptoms were vaginal discharge, itching, and ulceration. Thirty-two (7.8 %) women complained of impaired sexual function. The predominant type of prolapse was uterine prolapsed in 381(93.4%) patients. Cystocele, rectocele, and enterocele were present in 298(73.0%), 235(57.6 %) and 42(10.1%) patients respectively. Twenty-seven (6.6 %) patients had vault prolapse. Of the 408 patients who presented with pelvic organ prolapse, 10.2 % had procidentia (complete prolapse), 68.6 % had third degree, 17.6 % had second degree, and 3.2 % had first degree uterine prolapse.

Treatment modalities are shown in table 4. Vaginal hysterectomy with pelvic floor repair was the predominant surgical treatment offered (73.5 %). Only vaginal hysterectomy in 17.6 %, Manchester repair in 1.0 %, Le

fort's colpocleisis in 2 patients of uterovaginal prolapse. Vaginal hysterectomy with sacrospinous fixation was done in 3 patients (0.7%). In 27 patients of vault prolapse, abdominal sacro-colpopexy was done in 22 patients (7.1%), sacrospinous fixation in 2 patients (0.5%) and Le fort's colpocleisis in 3 patients.

Table 4: Treatment modalities for uterovaginal prolapse

Types of surgery	Number of patients	Percentage (%)
Vaginal hysterectomy	72	17.6
Vaginal hysterectomy with pelvic floor repair	300	73.5
Manchester repair	4	1.0
Sacro-colpopexy	22	7.1
Vaginal hysterectomy with sacrospinous fixation	3	0.7
Sacrospinous fixation	2	0.5
Le-fort's colpocleisis	5	1.2

Complications associated with surgery are shown in table 5. Haemorrhage was most common intraoperative complication (6.8%) requiring blood transfusion. Out of total 408 patients, 1.7% had bladder injury and 0.5% had rectum injury. Five patients (1.2%) had urinary retention after surgery and 25 patients (6.1%) had symptoms of urinary tract infection. 3.1% patients were readmitted due to secondary haemorrhage and were managed conservatively. Recurrence was seen in 7(1.7%) women. In 2 patients there was recurrence of enterocele after vaginal hysterectomy with sacrospinous fixation. In 5 patients there was recurrence of rectocele after vaginal hysterectomy with pelvic floor repair.

Table 5: Complications associated with surgeries

Complications	Number of patients	Percentage (%)
Bladder injury	7	1.7
Rectum injury	2	0.5
Urinary retention	5	1.2
Blood transfusion	26	6.8
Secondary hemorrhage	12	2.9
Urinary tract infection	25	6.1
Recurrence	7	1.7

Discussion

Although, POP rarely puts life at risk but definitely lowers the quality of life. The mean age in our study was 54.5 years which is similar to the study by Parvathavarthini K. Advancing age can be an indicator as other factors such as menopause (reduced level of estrogen hormone), change in body mass, co-morbid conditions such as respiratory, cardio-vascular and diabetes could contribute to the uterine prolapse. High parity is found to be a major risk factor. In our study, 98.8% were multiparous and 38.2% were grand multiparous. Nearly two third of the study population was employed in hard manual work involving strenuous activities. Only 15.4% were housewives. In our study,

constipation was an important risk for POP. The results of previous studies are not consistent with this finding. Hendrix et al claimed that constipation is not a risk for POP, whereas most recent studies claimed that constipation is an important risk for POP^{8,9}. Increasing body mass index is associated with high prevalence of pelvic floor disorder. In our study, obesity was present in 41.7%. In this study, 85.7% women had more than two risk factors.

Most common symptom was something coming out per vaginum (80.6%) followed by urinary symptoms (17.2%), backache (15.9%) and pain in abdomen (14.2%). Voiding dysfunction was characterized by urinary hesitancy, prolonged or intermittent flow and need to reduce prolapse for the sake of voiding. Uterine prolapse was the most common pelvic organ prolapse (93.4%) and 73% had anterior compartment defect. Majority (78.4%) had third degree pelvic organ prolapse.

There are a variety of treatments of POP, however the subjective symptoms of the patient are important because the decision to treat POP depends on the discomfort of the patient rather than severity as assessed by physical examination¹⁰.

Options in the surgical treatment of uterine prolapse encompass the open, laparoscopic, or vaginal approaches. Vaginal apical suspension procedures include the uterosacral vaginal vault suspension, sacrospinous ligament fixation, iliococcygeus fascia suspension, and the McCall or Mayo culdoplasty. The abdominal sacral colpopexy may be performed via laparotomy or laparoscopy. Uterine preservation techniques include the Manchester procedure, sacrospinous hysteropexy, laparoscopic sacral hysteropexy and laparoscopic uterosacral vault suspension. Most of the data for subjective and objective outcomes for these prolapse procedures are from uncontrolled retrospective case series. Thus, the optimal procedure to treat the popular vaginal surgery advanced training skills module (ATSM). There is evidence that the procedure is associated with high patient satisfaction rates, which are not significantly different from uterine preservation¹¹. Some uterine preservation procedures have also been associated with high rates of recurrent anterior wall prolapsed¹². Only vaginal hysterectomy was done in 17.6% patients who presented with cervical elongation or only utero-cervical descent without anterior or posterior vaginal wall descent.

In our study, Le-fort's colpocleisis was done only in 5 (1.2%) elderly women. By definition, obliterative procedures result in loss of sexual function; accordingly they are used

for a cohort of patients for whom this is not an issue. One large retrospective case series reported an anatomical success rate of 98% and a patient satisfaction rate of 92%¹³. One disadvantage is the loss of access to the cervix and uterus in the event of future pathology.

A total of 27 cases of vault prolapse were operated in a period of six years. Most common surgery for vault prolapse was abdominal sacrocolpopexy. Sacrospinous fixation was done in total 5 patients in which two were for vault prolapse and in three patients with vaginal hysterectomy. The meta-analysis of trials of vault suspension procedures showed that abdominal sacrocolpopexy was associated with a lower recurrence of vault prolapse and less dyspareunia than vaginal sacrospinous colpopexy. However, too few data on subjective success rate, patient satisfaction, and effect on quality of life were available to make reliable conclusions¹⁴.

Haemorrhage was most common intraoperative complication during surgery (6.8%) followed by bladder injury (1.8%). Our result were less as compared with other studies like Mishra et al¹⁵ where haemorrhage was present in 20% patients as we optimized haemoglobin before operating to avoid worsening of anaemia and its related complications. In postoperative period, most common complications was urinary symptoms due to urinary tract infections (6.1%) and 1.2% had urinary retention. In late postoperative period, 2.9% patient had secondary haemorrhage due to infection. These patients were readmitted and managed conservatively.

Greatest challenge in the surgery of uterine prolapse is to prevent recurrence of either vault or anterior or posterior walls of vagina. In total 7 patients (1.7%) of uterovaginal prolapse, recurrence was present mostly of rectocele or enterocele. A variety of procedures are available to support the vaginal vault at the time of hysterectomy. These include the vaginal procedures McCall culdoplasty; plication of the uterosacral ligament; sacrospinous or prespinous fixation for vaginal vault prolapse; and sacrocolpopexy (performed via an open procedure or laparoscopically). A retrospective case control study compared 62 women having sacrospinous fixation with 62 women having McCall culdoplasty at the time of vaginal hysterectomy. It found that women who had McCall culdoplasty had fewer recurrences (15% vs 27%)¹⁶. Roovers et al¹¹ reported on a comparison between sacrohysteropexy and vaginal hysterectomy with vault fixation; recurrence was higher in the abdominal surgery group (22%) than in the vaginal hysterectomy group (2.5%). In our study, recurrence was seen in 7(1.7%) women. In 2 patients there was recurrence of enterocele after vaginal

hysterectomy with sacrospinous fixation. In 5 patients there was recurrence of rectocele after vaginal hysterectomy. Constantini et al ¹⁷, however, found no subjective or objective difference in functional outcomes when comparing a group of patients undergoing sacrohysteropexy with those undergoing hysterectomy with sacrocolpopexy. Sacrohysteropexy was associated with a shorter operative time and hospital stay and a reduction in intraoperative blood loss.

While vaginal hysterectomy is adopted by the majority of gynaecologists as the preferred approach for surgical treatment of uterine prolapse, there is an increasing move towards alternative techniques. However, robust evidence to support a change in practice is lacking. The change in practice is currently being driven by patient preference and clinical expert opinion. Gynaecologists must be aware of all treatment modalities to facilitate patient choice and be able to counsel women about their options.

Conclusion

Pelvic organ prolapse is associated with many risk factors in which few are modifiable, this emphasises the importance of awareness regarding risk factors at community level as a part of public health awareness programme. Counselling regarding institutional deliveries and contraception is necessary at public as well as private sector. It is important that gynaecologists are aware of all available treatment modalities and can counsel women about the potential benefits and risks.

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