ORIGINAL ARTICLE

A Study on the Determinants of Uterovaginal Prolapse in Tertiary Hospital, Nepal

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ABSTRACT

Introduction: Pelvic organ prolapse is the descent of the pelvic organ from its normal position. Although few genetic and idiopathic causes have been associated with it, it most commonly follows difficult and repeated child births, making it one of the most common morbidities in developing countries like Nepal. **Aims:** To identify determinants of utero-vaginal prolapse (UVP) among women attending gynecologic department. **Methods:** A hospital-based case control study was carried out from March 2023 to March 2025 among women attending Department of Gynaecology and Obstetrics at Nepalgunj Medical College.Cases were women with utero-vaginal prolapse while controls were women free from utero-vaginal prolapse but with other gynecologic disease during the same period as of cases. Descriptive analysis along with bivariate and multivariate logistic regressions was performed in Statistical Package for Social Sciences (SPSS). Adjusted odds ratio with 95% confidence interval was used and statistical significance was considered at $p \leq 0.05$. **Results:** Out of 226 cases, only 3(4.1%) of the cases compared to 148(65.5 %) of the controls had attended delivery at health facility. Only 8(10.8%) of cases and 8(5.3%) of the controls had ever used family planning. Only 4(5.4%) of the cases and no controls had history of hysterectomy. Only 15(20.3%) of the cases and 25(16.4%) of the controls had medical problems (history of chronic cough, had history of carrying heavy objects, hypertension, diabetes mellitus and chronic constipation) This study revealed, age ≥ 40 years (AOR = 10.49; 95%CI: 4.03, 27.35), duration of labor ≥ 24 hours (AOR = 8.32; 95%CI: 3.58, 19.33), instrumental delivery (AOR = 7.40; 95%CI: 1.21, 45.28), non- utilization of family planning (AOR = 3.14; 95%CI: 1.32, 7.47) were found to have statistical significance. **Conclusion:** Age ≥ 40 years, prolonged labor, instrumental delivery, non-utilization of family planning were identified as determinant factors of utero-vaginal prolapse. Thus, family planning service utilization and appropriate obstetric care are advisable.

Keywords: Determinants, Pelvic floor repair, Uterovaginal prolapse, Vaginal hysterectomy

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INTRODUCTION

Genital prolapse affects the quality of life of many women during their pre-menopausal and post menopausal years.[1] Uterine Prolapse is a condition related to reproductive health that has been inadequately addressed in accordance with its prevalence in our country.[2] A study identified there are about 6 00,000 women with uterovaginal prolapse who need to be treated.[3] In spite of existence of safe motherhood programme and application of different strategies for so many years, the care seeking behaviour in relation to UVP is low in Nepal. To improve maternal health, strategy on the management of UVP at health institutions should be there including by potential Skilled Birth Attendants (SBAs).[4,5] Data about uterine prolapse in Nepal is little. Some studies on Non-reproductive Risk Factors of Uterovaginal Prolapse have shown the association associations between family history of prolapse and underweight sta-

tus as risk factors, with smokers also showing increased risk.[6] The most important factors those are associated with UVP are increase intra-abdominal pressure, difficult labor and delivery, malnutrition, old age, connective tissue disorders, heavy exercise, and pelvic trauma.[6-8] AANG JHARNE is the typical Nepali terminology used for the pelvic organ prolapse especially the uterovaginal prolapse illnesses.[9] Maternity health care like treatment seeking behavior of UVP is a choice and depends on individuals but literature suggests that choices are limited especially in the mountain and hill areas of Nepal.[10] The objectives of the study was to identify the determinants of UVP .

METHODS

This is a hospital based unmatched case control study conducted among women attending Outpatient Department (OPD) and Inpatient Department (IPD) of Gynaecology and Obstetrics at the Nepalgunj Medical College, Teaching Hospital Nepal, between March 2023 to March 2025. Ethical clearance was obtained. Data were retrieved from gynecological admission register, case files and medical record section, who were treated for uterovaginal prolapse as well as the control cases. All women attending gynecological and obstetrics OPD and IPD during the study period were the study unit. The sites of data collection were the department of gynecology and obstetrics and medical record section.

Cases were women with utero-vaginal prolapse and controls were those women free from utero-vaginal prolapse but with some other gynecologic disease (like pelvic inflammatory disease, uterine cancer, cancer of cervix, syphilis, gonorrhea, other sexually transmitted diseases) during the same study period.

The records of women aged more than 18 years attending OPD and IPD during the study period were included into the study. However, critically ill women and women with mental problems were excluded from the study.

Sample Size Determination

The prevalence of uterine prolapse (UP) in previous study was 21.3 %.[11] Sample size was calculated using Epi-info software version 7 using sample size determination for unmatched case–control studies. The parameters that were used to calculate sample size were; Confidence level 95%, power 80%, control to case ratio of 2: 1 and Odd Ratio of 2.1.[11] The final sample size was found to be 74 cases and 152 controls.

Data Collection Procedures

All the records of the patients during the study period were studied for the following parameters: age, caste, education, occupation, parity, obstetric factors, gynecologic history and child bearing.[12] The completeness of the data was checked by the principal investigator. Shaw's classification system of utero vaginal prolapse was used for grading of the disease in the case files. In this classification system, descent is classified into four grades; the first grade is descent of cervix into the vagina, second grade is descent of cervix into introitus, third grade is descent of the cervix outside introitus, and the fourth grade is when the whole of the uterus is outside introitus.[13]

Statistical analysis

The data were analyzed by descriptive and inferential statistics using the statistical package for social science (SPSS) version 20. Logistic regression was applied. Statistical significance was set at p-value < 0.05.

RESULTS

Socio-Demographic Characteristics of study participants

Out of the total 226 respondents, 74 cases and 152 controls participated in the study with the response rate of 100 %. The proportion of older age women (age≥ 40) was found to be higher among cases 70(94.6%) compared to controls 4(2.64%). Hindu religion was 63(85.1%) and 115(75.7%) among cases and controls respectively. Of the respondents, 71(46.7%) of controls were literate while only 5(6.8%). Majority of participants among cases 70(94.6%) and controls 147(96.7%) were housewife. Majority 70(94.6%) of cases had gravida ≥4 compared to 144(94.7%)of the controls, followed by parity of ≥ 4 among cases 55(74.3 %) compared to 23(15.1%) among controls (TableI).

Variables	Cases Number (%)	Controls Number (%)	Subtotal Number (%)	P value
Age				
≥40	70 (94.6)	4 (2.64)	74 (33.2)	0.01
<40	4 (5.4)	148 (97.36)	152 (68.8)	
Education				
Literate	5 (6.8)	71 (46.7)	76 (33.6)	0.01
Illeterate	69 (93.2)	81 (53.3)	150 (66.4)	
Ethnicity				
Dalit	46 (62.16)	69 (45.4)	115 (50.9)	0.003
Janjati	11 (14.86)	51 (33.6)	62 (27.4)	
Brahmin/ Chhetry	7 (9.45)	23 (15.1)	30 (13.3)	
Other	10 (13.51)	9 (5.91)	19 (8.4)	
Religion				
Hindu	63 (85.1)	115 (75.7)	178 (78.8)	.102

Other religion	11 (14.9)	37 (24.5)	48 (21.2)	
Occupation				
Housewife	70 (94.6)	147 (96.7)	217 (96)	0.445
Labour	4 (5.4)	5 (3.3)	9 (4)	
Gravida				
>4	70 (94.6)	144 (94.7)	214 (94.7)	0.964
4 or less than 4	4 (5.4)	8 (5.3)	12 (5.3)	
Parity				
4 >/4	55 (74.3)	23 (15.1)	78 (34.5)	0.001
<4	19 (25.7)	129 (84.9)	148 (65.5)	

Table I: Socio demographic characteristics and obstetric history of women

Variables	Cases	Controls	Subtotal	P value
History of abortion				
Yes	19 (25.7)	38 (25.2)	57 (25.3)	0.998
No	55 (74.3)	113 (74.8)	168 (74.7)	
Mode of delivery				
Vaginal delivery	63 (85.1)	105 (69.1)	168 (74.3)	0.001
Instrumental delivery	8 (10.8)	0	8 (3.5)	
Cesarean section delivery	3 (4.1)	47 (30.3)	50 (22.1)	
Place of delivery				
Home	71 (95.9)	7 (4.6)	78 (34.5)	0.001
Health facility	3 (4.1)	148 (65.5)	148 (65.5)	
Vaginal tear during last child birth				
Yes	5 (6.8)	32 (21.1)	37 (16.4)	0.006
No	69 (93.2)	120 (78.9)	189 (83.6)	
Duration of labor (labor for great or equal to 24 hours)				
=>24 hours	2 (2.7)	1 (0.7)	3 (1.3)	0.208
<24 hours	72 (97.3)	151 (99.3)	223 (98.7)	
Episiotomy during last child birth				
Yes	0	53 (34.9)	53 (23.5)	0.000
No	74 (100)	99 (65.1)	173 (76.5)	

Table II: Obstetric history of women attending gynecologic OPD among cases and controls

Variables	Cases	Controls	Subtotal	P value
Ever used family planning				
Yes	8 (10.8)	8 (5.3)	16 (7.1)	0.127
No	66 (89.2)	144 (94.7)	210 (92.9)	
Duration of rest after delivery (for the last child)				
=<42 days	64 (86.5)	105 (69.1)	169 (74.8)	0.004
>42 days	10 (13.5)	47 (30.9)	57 (25.2)	
Menopausal status				
Regular	6 (8.1)	151 (99.3)	157 (69.5)	0.000
Post menopausal	68 (91.9)	1 (0.7)	69 (30.5)	
Smoking history				
Yes	33 (44.6)	2 (1.3)	35 (15.5)	0.04
No	41 (55.4)	150 (98.7)	191 (84.5)	
History of hysterectomy				
Yes	4 (5.4)	0	4 (1.8)	0.004
No	70 (94.6)	150 (100)	222 (98.2)	
Previous prolapse surgery				
Yes	1 (1.4)	0	1 (0.4)	0.000
No	73 (98.6)	152 (100)	225 (99.6)	

Significant at 5 percent level of significance (p<0.05) Note: Values in parenthesis indicate percentage

Table III: Obstetric and other history of women attending gynecologic OPD among cases and controls

From the total study participants, 19 (25.7%) of the cases had history of abortion compared to 38(25.2%) of the controls,

63(85.1%) of cases and 105(69.1%) of the controls had vaginal delivery as mode of delivery,71(95.9%) and 7(4.6%) controls gave birth at home. Proportion of women who experienced vaginal tear during last delivery were only 5(6.8%) among cases and 32(21.1%) among controls .Majority of cases 72(97.35%) and controls 151(99.3%) had experienced less than 24 hours of duration of labor.

Majority of cases 74(100%) and control 99(65.1%) had not experienced episiotomy during last child birth. Only 8(10.8%) of cases and 8(5.3%) of the controls had ever used family planning. Duration of rest after delivery (for the last child) was ≤42 days for 64(86.5%) of the cases and 105(69.1%) of the controls. Menopausal status was found regular among only 6(8.1%) of the cases and 15 (99.3% of the controls. Only 20(27%) of the cases and no controls had family history of UVP. Only 4(5.4%) of the cases and no controls had history of hysterectomy. Only 1(1.4%) of the cases and no controls had previous prolapse surgery.

Only 15(20.3%) of the cases and 25(16.4%) of the controls, had medical problems (history of chronic cough, had history of carrying heavy objects, hypertension, diabetes mellitus and chronic constipation)(Table II & III).

Characteristics of respondents	Cases Number (%)	Controls Number (%)	Crude OR(95%CI	Adjusted OR(95%CI)
Age				
≥40	71 (94.7)	4 (20.6)	20.39 (10.76,38.63)	10.49 (4.03,27.35)*
<40	3 (4.1)	148 (97.6)		
Education				
Literate	5 (6.8)	71 (46.7)		
Illeterate	69 (93.2)	81 (53.3)	9.3 (5.23,18)	12 (5.23,28)*
Gravida				
>4	70 (94.6)	144 (94.7)	4.85 (2.61,8.99)	1.29 (0.32,5.26)
4 or less than 4	4 (5.4)	8 (5.3)		
Parity				
4 >/4	55 (74.3)	23 (15.1)	5.17 (2.93,9.12)	2.12 (0.88,5.04)
<4	19 (25.7)	129 (84.9)		
Mode of delivery				
Vaginal delivery	63 (85.1)	105 (69.1)		
Instrumental delivery	8 (10.8)	0		
Cesarean section delivery	3 (4.1)	47 (30.3)	4.18 (1.13,15.42)	7.40 (1.21,45.28)*
Place of delivery				
Home	71 (95.9)	7 (4.6)	5.86 (3.31,10.35)	1.43 (0.49,4.11)
Health facility	3 (4.1)	148 (65.5)		

Table IV: Determinants of uterovaginal prolapse among study participants

Characteristics of respondents	Cases Number (%)	Controls Number (%)	Crude OR(95%CI	Adjusted OR(95%CI)
Duration of labor(≥24 hours)				
=>24 hours	2 (2.7)	1 (0.7)	5.96 (3.43,10.38)	8.32 (3.58,19.33)*
<24 hours	72 (97.3)	151 (99.3)		
Ever used family planning				
Yes	8 (10.8)	8 (5.3)		
No	66 (89.2)	144 (94.7)	4.67 (2.56,8.52))	3.14 (1.32,7.47)*
Menopausal status				
Regular	6 (8.1)	151 (99.3)		
Post menopausal	68 (91.9)	1 (0.7)	15.69 (8.29.43)	1.77 (0.44,7.17
Family history of UVP				
Yes	20 (27)	0	4.63 (2.14,10.02)	3.77 (1.10,12.88)*
No	54 (73)	152 (100)		
Medical problems				
Yes	15 (20.3)	25 (16.4)	3.97 (2.29,6.90))	1.94 (0.82,4.60)
No	59 (79.7)	127 (83.6)		

TableV : Determinants of uterovaginal prolapse among study participants

Determinants of uterovaginal prolapse among study participants

Logistic regression results revealed the odds of developing UVP. Accordingly age, education, gravida, parity, place of delivery, duration of labor, mode of delivery, family planning use, family history, menopausal status and medical problems

predictor variables were significantly associated with UVP (p-value < 0.05) (Table IV & V) and after adjusting variables remained significant were age, education, mode of delivery ,family planning ever used, duration of labor and family history of UVP (Table IV & V).

Multivariable logistic regression analysis indicated that the odds of being age≥40 were 10.49 times higher among cases than controls (AOR=10.49; 95%CI: 4.03, 27.35). The odds of developing UVP were 8.32 times higher among women who had duration of labor great or equal to 24 hours during the last childbirth among cases than controls with (AOR=8.32; 95%CI: 3.58, 19.33). Women who gave birth by instrumental delivery were7.40 times (AOR=7.40; 95%CI: 1.21, 45.28) more likely to develop UVP in cases as compared to controls. The odds of having a UVP among women who did not ever used family planning was 3.14 (AOR=3.14; 95%CI: 1.32, 7.47) times higher among cases as compared to controls. Similarly, the odds of positive family history of UVP was 3.77 higher among cases than controls (AOR=3.77; 95%CI: 1.10,12.88)

However, the effect of episiotomy during last child birth, gravidity, parity, place of delivery, menopausal status, medical conditions (history of chronic cough, chronic constipation, and carrying heavy objects) disappeared after adjusting.

DISCUSSION

This study has identified determinants of UVP and identified the relationship with UVP with sociodemographic variables and explored the determinants of UVP. The study contradicts with the study conducted in Kaski district of Nepal which found the prevalence of UVP to be 11.7 %.[15] This study revealed that women aged ≥ 40 years of age were 10.49 times more likely to have had UVP as compared to women aged < 40 years. This might be due to age related weakening of pelvic supportive structures, decreased level of estrogen, and high parity in this age group. Study conducted in Lebanon and Ethiopia documented consistent results.[16,17] Results of systematic review also revealed consistent finding.[18] Duration of labor great or equal to 24 hours was significantly associated the development of UVP and the results are consistent with results from India[19], Nepal[20], Nigeria[21] and Ethiopia.[16]

Women who ever not used family planning were 3.14 times more likely to develop UVP as compared to women used family planning at least once. This finding is similar with the study conducted at Wolaita Sodo University Referral Hospital [22] this is because mothers who do not use family planning have repeated deliveries during which cumulative effects of pushing down pain damage the pelvic supportive structures.

A study done in Italy found that the risk of UVP was higher in women with family history of prolapse as compared to women without family history of prolapse.[23] This could be due to the presence of congenital connective tissue disorders in these families. Joseph N conducted a similar survey in a center in south India and found 76.8% of study population have third degree UVP, commonly associated with cystocele i.e. in 74.6%. Most of them underwent the surgical treatment of vaginal hysterectomy, even though they were prescribed ring pressaries to another significant lot. The scenario presented in the studies is congruent to our set up as well, where maximum of the cases have UV prolapse only or associated cystocele. The treatment options provided are similar as well.[24]

Teenage pregnancy and too many pregnancies contributed to the occurrences of UVP. Another reason was that most of the women delivered their babies at home assisted by untrained persons, and most of the parturient mothers or delivering women resumed work soon after delivery and had very poor nutrition.[25]

LIMITATIONS

This study relies on women self-reporting obstetric and medical histories (such as age at first delivery, birth spacing, and delivery conditions) over long periods and this may have led to recall bias while taking the history by a clinician. This study is a retrospective study. Small size is also a limitation.

CONCLUSION

The study revealed that age ≥ 40 years, prolonged labor, instrumental delivery, non-utilization of family planning were identified as determinant factors of UVP. Thus, family planning service utilization and appropriate obstetric care are advisable.

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