Original Article

Incidence of Hysterectomy in Pregnant Women with Diagnosis of Placenta Previa

Hysterectomy with Diagnosis of Placenta Previa

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ABSTRACT

Objective: To determine Incidence of hysterectomy in pregnant women with diagnosis of placenta previa.
Study Design: A prospective observational study.
Place and Duration of Study: This study was conducted at the Department of obstetrics and gynecology of Nishtar Hospital Multan from 10th August 2019 to 20th May 2020.
Materials and Methods: We included 171 pregnant women who were diagnosed as case of placenta previa. Age, gestational age, parity, height, weight were documented for all the patients. Placenta previa and its grade was confirmed by obstetrical ultrasound. Pfannenstiel incision was made for cesarean section. Decision for hysterectomy was made by the consultant gynecologist with a minimum of 5 years post fellowship experience. Effect modifiers such as age, parity, gestational age, history of cesarean section and, grades of placenta previa were controlled through stratification and post stratification chi-square test was applied and $p \leq 0.05$ was considered statistically significant.
Results: Mean age and weight of all the patients was 31.2 ± 4.1 years and 71.1 ± 13.1 kg, respectively. BMI of the patients was 29.9 ± 5.5 Kg/m^2. Mean gestational age and parity was 38.2 ± 1.5 weeks and 1.6 ± 1.3, respectively. Cesarean section was performed in 59.1% of the patients. Grade III and IV placenta previa was observed in 31% and 18.1% of the patients, respectively. Hysterectomy needed to be done in 29.2% of the patients.
Conclusion: The results of the study show that factors including parity, placental invasion abnormality and past history of cesarean sections determine incidence of hysterectomy in pregnant women diagnosed of placenta previa.
Key Words: Placenta previa, lower segment cesarean section, Hysterectomy

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INTRODUCTION

The fetus gets it's nourishment from the uterus through placenta [1]. Uptake of the nutrients, removal of the waste and the exchange of the gases between fetal and mother blood circulation takes place through placenta. Attachment of the placenta n on decidua which is formed over the endometrium under the influence of progesterone during pregnancy[2]. Decidua is the layer which controls the invasion of the extravillous trophoblasts so that these cells do not cross endometrium and invade myometrium[3]. Shearing action of the decidua separated the non-contracting placenta from the contracting myometrium. Sometimes, the placenta adheres abnormally to the uterine wall and thus lead to obstetric complications[4]. There is deficiency in the formation of the decidua over the endometrium which leads to the uncontrolled invasion of the uterine myometrium by the extravillous trophoblasts [5].

Placenta previa is a rare complication faced during pregnancy in which the placenta abnormally covers the internal cervical os, which in turn prevents the normal vaginal delivery of products of contraception [6]. Almost 0.3% to 0.8% of the pregnancies are complicated worldwide, and incidence of hysterectomy reaches up to 47.6% in patients with placenta previa[7]. Another study found out the incidence to be 5.71% [11]. There are many factors which predispose to placenta previa; these factors include in fertility treatment, grand multiparity, maternal age >35 years, previous uterine scar, and male gender of the fetus [8].

There is strong association of placenta previa with abnormal placentation leading to preterm delivery [9]. And the incidence of the morbidly adherent placenta previa increase with the number of previous cesarean section. This situation increases the risk of massive bleeding at the time of placental removal and is an

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indication for emergency hysterectomy. Intraoperatively, the maternal mortality risk in almost 7% and comorbidities include infection, massive blood transfusion, fistula formation and urologic injuries [10].

Various studies have shown various results regarding the incidence of hysterectomy in patients with placenta previa[7,11]. Moreover, no local researches are available. Therefore, this study was steered to observe the incidence of hysterectomy among the patients with placenta previa and the factors influencing this frequency.

MATERIALS AND METHODS

This prospective observational study was conducted in the Department of obstetrics and gynecology of Nishtar Hospital Multan from 10th August 2019 to 20th May 2020. Ethical approval was obtained from hospital ethical review board. Total 171 diagnosed cases of placenta previa with age range of 18-40 years were selected for the study by non-probability consecutive sampling technique. Sample size was calculated from the reference study [7]. Patients included in the study were with gestational age of minimum 36 weeks or more, and less than 5 parity. Patients with multiple pregnancies, endometriosis and uterine fibroids were excluded from the study.

Written consent was taken from all the patients after explaining the purpose of the study. Age, gestational age, parity, height, weight were documented for all the patients. Placenta previa and its grade was confirmed by obstetrical ultrasound. Pfannenstiel incision was made for cesarean section. Decision for hysterectomy was made by the consultant gynecologist with a minimum of 5 years post fellowship experience. All the data was recorded by the researchers themselves.

All the data were entered in SPSS version 23 and analyzed. Mean and standard deviation were calculated for age, weight, height, BMI, parity, gestational age. Number and percentages were calculated for the grades of placenta previa, past history of cesarean section and hysterectomy. Effect modifiers such as age, parity, gestational age, history of cesarean section and, grades of placenta previa were controlled through stratification and post stratification chi-square test was applied and p ≤ 0.05 was considered statistically significant.

RESULTS

Mean age and weight of all the patients was 31.2 ± 4.1 years and 71.1 ± 13.1 kg, respectively. BMI of the patients was 29.9 ± 5.5 Kg/m^2. Mean gestational age and parity was 38.2 ± 1.5 weeks and 1.6 ± 1.3, respectively. Cesarean section was performed in 59.1% of the patients. Grade I, II, III and IV placenta previa was observed in 29.2%, 21.6%, 31% and 18.1% of the patients, respectively. Hysterectomy needed to be done in 29.2% of the patients. Table-I

In 18-30 years age group, hysterectomy was done in 27.2 % of the patients while in 31-40 years age group, hysterectomy was done in 31.1 % of the patients (p=0.571). Hysterectomy was done in 30.1% patients of 36-39 weeks gestational age and 25.7% patients of >39 weeks gestational age (p=0.607). Hysterectomy incidence was 24.2% and 46.2% in 0-2 and 3-4 parity groups (p=0.008). No hysterectomy was done in grade I and II placenta previa, while hysterectomy was done in 35.8% and 100% in grade III and IV placenta previa (p<0.001). Hysterectomy was done in 49.5% of the patients with past history of cesarean section while no hysterectomy was done in patients with no previous cesarean sections. Table-2

Table No.1: Details of the patients

Variable	Value
Age (years)	31.2±4.1
Gestational age (weeks)	38.2±1.5
Parity	1.6±1.3
Weight (Kg)	71.1±13.1
Height (m)	1.5±0.1
BMI (Kg/m^2)	29.9±5.5
History of cesarean section	101 (59.1%)
Grades of placenta previa	
I	50 (29.2%)
II	37 (21.6%)
III	53 (31.0%)
IV	31 (18.1%)
Hysterectomy	50 (29.2%)

Data is entered as mean ± standard deviation or number (percentage).

Table-No.2: Stratification of Hysterectomy with respect to groups based on effect modifiers

Effect modifiers		Hysterectomy		p-value
		Yes	No	
Age, years	18-30	22(27.2%)	59(72.8%)	0.571
	31-40	28(31.1%)	62(68.9%)	
Gestational Age (weeks)	36-39	41(30.1%)	95(69.9%)	0.607
	>39	9(25.7%)	26(74.3%)	
Parity	0-2	32(24.2%)	100(75.8%)	0.008
	3-4	18(46.2%)	21(53.8%)	
Grades of Placenta Previa	I	0(0%)	50(100%)	<0.001
	II	0(0%)	37(100%)	
	III	19(35.8%)	34(64.2%)	
	IV	31(100%)	0(0%)	
History of Cesarean Section	Yes	50(49.5%)	51(50.5%)	<0.001
	No	0(0%)	70(100%)	

DISCUSSION

In current study, the frequency of hysterectomy in women with placenta previa was observed to be 29.2%. Nankali et al. 7 observed the incidence of hysterectomy to be 47.6% and Jang et al. 11 observed the incidence to

e 5.71%. The results of our study were in between the results of above mentioned studies.

Grading of placenta previa is done on the basis of the proximity of the lower edge of the placenta to internal cervical os. Combined clinical scoring and ultrasound are considered to help in predicting peripartum complication of placenta previa [12]. When there is massive postpartum hemorrhage after cesarean or vagina delivery, it can be life threatening for the patient and warrants hysterectomy. Though associated with high morbidity, emergency hysterectomy is a lifesaving procedure.

Common risk factors for hysterectomy are placenta accreta and previa. There have been very limited number of studies regarding the evaluation of risk factors leading to hysterectomy [13, 14]. Those studies observed placenta previa, placenta accreta, previous cesarean section and abortion to be the risk factors. Placenta accreta is abnormally invasive placenta which constitutes almost 80% of the placenta previa ceases [15]. Placenta previa prevalence has been reported to be one in 533 deliveries [15].

The frequency of emergency hysterectomy has not changed over past few years. But the change has happened in intraoperative interventions and indications of hysterectomy. Uterine atony has been the most common indication for hysterectomy in the past but abnormal placentation has emerged to be the most common indication for hysterectomy in present, owing to the increased rate of deliveries via cesarean sections 16. Similar findings have been observed in a previous study [17]. Cetin et al. [18] conducted a retrospective study on 18 patients who underwent hysterectomy; and they observed that the most common indication for hysterectomy was abnormalities in the insertion of placenta.

Owolabi et al. [19] conducted a similar study and found out various risk factors warranting hysterectomy. Those risk factors included advanced maternal age, grand multiparity, and obesity, primary or repeated cesarean section. These factors had direct association with hysterectomy. Other risk factors included placenta accreta, placenta previa, uterine atony and severe postpartum hemorrhage.

Vaginal bleeding is observed in the last months of pregnancy in the women diagnosed of placenta previa. This bleeding occurs as the lower segment of the uterus matures for birth. Areas where the placenta is attached to uterine wall through decidua gradually become thin as the full term approaches, and this thinning leads to separation of placenta previa and results in painless vaginal bleeding. Lower uterine segment lacks muscle fibers and thus, is unable to contact in order to prevent bleeding[20]. Jang et al. [21] conducted a study and observed that anteriorly lying placenta previa is associated with higher risk of hysterectomy. Anteriorly lying placenta previa was more common among the patients who has previous history of cesarean section as compared to those with previously normal vaginal deliveries.

CONCLUSION

The results of the study show that factors including parity, placental invasion abnormality and past history of cesarean sections determine the incidence of hysterectomy in the pregnant women diagnosed of placenta previa.

Author's Contribution:

Concept & Design of Study:	Munazza Munir
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Conflict of Interest: The study has no conflict of interest to declare by any author.

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