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Fetomaternal Outcome in Patients with Placenta Previa: A Review at Allied Hospital, Faisalabad

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ABSTRACT

Objective: To determine the frequency of maternal and fetal outcomes in women with placenta previa. **Study Design:** Descriptive study. **Settings:** Department of Gynecology, Allied Hospital, Faisalabad, Pakistan. **Duration:** 1st September 2024 to 30th May 2025. **Methods:** All women booked or un-booked presented to Allied Hospital with placenta previa were included. Patients who were managed outside the hospital and later referred to Allied Hospital for monitoring or ICU care were excluded. **Results:** A total of 412 women presented with placenta previa. Elective surgery was done in 216 cases and emergency surgery in 196. Peripartum hysterectomy was done in 59 (27.31%) cases in elective C-section and 43 (21.91%) in emergency C-section. Uterine compression sutures were applied in 20 (9.25%) elective C-sections and 13(6.63%) in emergency C-sections. Maternal mortality tool placed in 2 (0.48%) cases. 16 (7.40%) babies were admitted to NICU in elective surgery and 41 (20.92%) in emergency surgery. Neonatal mortality was 10 (4.63%) in elective surgery and 31 (15.81%) in emergency surgery. **Conclusion:** Placenta previa is associated with increased maternal and perinatal morbidity. However, regular antenatal care, proper counselling of the patient, arrangement of blood, and a multidisciplinary approach can reduce both maternal and fetal morbidity and mortality.

Keywords: *Placenta previa, Uterine compression suture, Peripartum hysterectomy.*

INTRODUCTION

Placenta previa complicates 0.3-0.5% of the pregnancies and is a significant cause of maternal and fetal morbidity and mortality.[1] Placenta previa is diagnosed when the placenta is implanted less than 2cm away from the cervical os.[2] The risk factors for the development of this condition are previous caesarean section, previous miscarriage, multiparity, multiple pregnancy, and increased maternal age. Previous history of surgical evacuation of the uterus and myomectomy are also risk factor.[3] It may be associated with morbidly adherent placenta (MAP). MAP is a condition in which the placental villi abnormally adhere or penetrate the uterine myometrium due to the absence of Nitabuck's layer.[4] Placenta previa is one of the common causes of antepartum hemorrhage, prolonged hospitalization, need for blood transfusion, and emergency caesarean section. Surgery for placenta previa is a big challenge for obstetricians. It requires a multidisciplinary team which consists of a senior obstetric team, an anesthetist, a general or vascular surgeon, a urologist, a hematologist and a neonatologist. It may lead to significant intraoperative hemorrhage, require 4-6 units of blood transfusion, FFP, application of uterine compression suture, uterine and internal artery ligation, and peripartum hysterectomy.[5] The prevalence of placenta previa invading the urinary bladder is 5%.[6] Surgery becomes even more extensive and prolonged if it invades the urinary bladder.

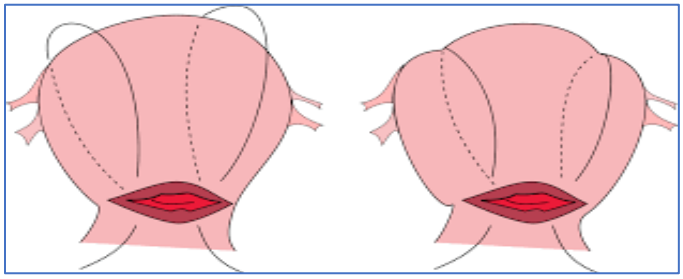
Ideal management of placenta previa requires admission to a tertiary care hospital and elective surgery. However, some of the un-booked patients are being referred from

the primary and secondary health care system or even from the private sector, requiring emergency admission and surgery. Emergency surgery is more challenging and associated with complications as compared to elective surgery.[7]

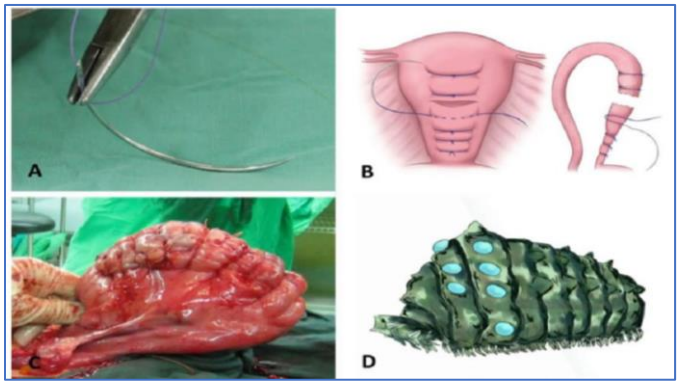
This study highlights the burden of disease both on the elective operation list as well as in obstetric emergencies and finds out morbidity and mortality, which ultimately help to develop strategies for better management of such women.

The objective of the study was to determine the frequency of maternal and fetal outcomes in women with placenta previa.

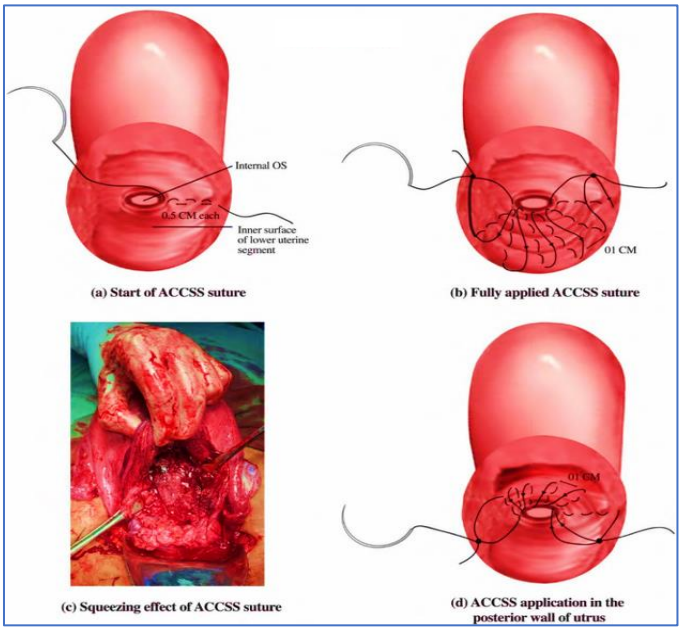
B Lynch Suture: It involves a transverse incision over the lower uterine segment. Application of suture with Vicryl number 01 starting from 3cm below the lower edge of the incision, 3cm medial to the lateral border of the right side of the uterus, and coming out 3cm above the upper edge of the incision, 4cm medial to the lateral border on the right side. Cross over the fundus and pass the suture (at the level of anterior incision) on the right side from the posterior uterine wall into the uterine cavity and come out of the uterine cavity in the posterior uterine wall on the left side at the same level. Again, cross over the fundus on the left side. Repeat the suture anteriorly on the left side as on the right side. Tie the knot anteriorly below the uterine scar and close the uterine scar.



Nausicaa Compression Suture: Suture is applied horizontally on the serosal surface of the uterus at the level of the placental bed, which is bleeding as shown in the picture below.[8]



ACCSS Suture: Suture is circularly applied around the internal os without involving the os, as shown in the figure below.[9]



METHODS

This cross-sectional descriptive study was conducted in the Department of Obstetrics & Gynecology, Allied Hospital/FMU, Faisalabad, from September 01, 2024 to May 31, 2025. Approval from the ethical review committee was obtained vide letter No. 48.ERC/FMU/2023-2024/448 dated 23-08-2024. The total sample size was 412. Inclusion criteria were all women, booked or un-booked, with a diagnosis of placenta previa, while women who were managed outside the hospital and later referred to Allied Hospital for monitoring or ICU care were excluded.

All women fulfilling the inclusion criteria searched through hospital records were explored for baseline investigations, ultrasonography to diagnose placenta previa, and maternal and fetal outcome. Maternal outcome was analyzed in terms of need for blood transfusion, application of compression suture, hysterectomy, involvement of surgeon or urologist, visceral injury, admission to ICU, re-laparotomy, and mortality. Fetal outcome was recorded in terms of fetal weight, Apgar score, and admission to the ICU. Data was analyzed by using SPSS (Statistical Package for Social Sciences) version 25. Chi-square test was applied to see the maternal and fetal outcome. A P-value of less than 0.05 was considered significant.

RESULTS

The total number of deliveries during the study period was 10112. The total number of women who presented with placenta previa was 412. The prevalence of placenta

previa was 4.07%. 76.85% women belong to age group 26-32 years in elective cases while 77.04% in emergency cases. 50.93% women were P3-P5 in elective cases while 53.57% in emergency cases.

Table 1: Age and parity

Variables		Elective (216)	Percentage	Emergency (196)	Percentage	P Value
Age Group (Years)	**18-26**	17	7.87%	12	6.12%	0.602
	26-32	166	76.85%	151	77.04%	
	33-40	33	15.28%	33	16.84%	
Parity	**P1-P2**	28	12.96%	16	8.16%	0.289
	P3-P5	110	50.93%	105	53.57%	
	>P5	89	36.11%	75	38.27%	

Table 2: Maternal outcome

Total		Elective cases	Percentage	Emergency cases	Percentage	P-Value
Patients		216	52.43%	196	47.57%	
Perinatal hysterectomy	Yes	59	27.31%	43	21.94%	0.207
	No	157	72.69%	153	78.06%	
Uterine compression suture:	Yes	20	9.26%	13	6.63%	0.226
i) B-Lynch suture		02	0.93%	03	1.53%	
ii) Nausicca suture		14	6.48%	10	5.10%	
iii) ACCSS suture		04	1.85%	00	0.00%	
	No	196	91.74%	183	93.37%	
Blood transfusion:	Yes	56	25.93%	44	22.45%	0.261
i) (5-6)		06	2.78%	06	3.06%	
ii) (3-4)		46	21.30%	38	19.39%	
iii) (1-2)		04	1.85%	00	0.00%	
	No	160	74.07%	152	77.55%	
MTD:	Yes	4	1.85%	21	10.71%	0.001
i) Involvement of surgeon (Internal iliac artery ligation)		03	1.39%	12	6.12%	
ii) Involvement of Urologist		01	0.46%	9	4.59%	
	No	212	98.15%	175	89.29%	
Visceral injury	Yes	06	2.78%	17	8.67%	0.009
	No	210	97.22%	179	91.33%	
Admission to ICU	Yes	05	2.31%	06	3.06%	0.639
	No	211	67.69%	190	96.94%	
Re-laparotomy	Yes	02	0.93%	18	9.18%	0.0001
	No	214	99.07%	178	90.82%	
Mortality		00	0.00%	02	1.02%	0.137

Table 3: Fetal outcome

		Elective cases	Percentage	Emergency Cases	Percentage	P-Value
Baby weight	<2.5 kg	20	9.26%	81	41.33%	0.0001
	≥2.5 kg	196	90.74%	115	58.67%	
Apgar score	Poor <7/10	15	6.94%	41	20.92%	0.0001
	Good ≥7/10	201	93.06%	155	79.08%	
Admission to NICU	Yes	16	7.41%	41	20.92%	0.0001
	No	200	92.59%	155	79.08%	
Perinatal Death	Yes	10	4.63%	31	15.82%	0.0001
	No	206	95.37%	165	84.18%	

DISCUSSION

The prevalence of placenta previa in this study was 4.07%. There is evidence of regional variation, highest among Asian studies (12.2 per 1000 pregnancies) and lowest among studies from Europe (3.6 per 1000 pregnancies).[10] Surgery for placenta previa is a big challenge for obstetricians, as meticulous hemostasis is required from the placental bed after delivery of the placenta. A variety of uterine compression sutures may help to arrest hemorrhage, like B Lynch suture, Nausicca suture, and modified Lu-suture.[11] In addition, intrauterine balloon insertion may also be applied. Currently, there is no single standardized surgical procedure because there is insufficient clinical data to

compare and evaluate the success of each suture method. In our study compression sutures were applied in 20 patients in elective surgery and 13 patients in emergency surgery. In the majority of the patients, Nausicca suture was applied as it was easy to apply and was effective for arresting hemorrhage. Morbidly adherent placenta (MAP) is a significant cause of peripartum hysterectomy. In our study, peripartum hysterectomy was done on 59 patients in elective surgery and 43 patients in emergency surgery. Since MAP is associated with the invasion of the bladder in 1:2500 pregnancies.[12] Management of such cases includes a multidisciplinary approach with a team of obstetrician, urologist, hematologist, interventional radiologist, and neonatologist. In our study bladder injury was seen in 6 (2.78%) patients in elective surgery and 17 (8.67%) in emergency surgery. The result of urinary tract injury during surgery for placenta accreta in our study is similar to a study where it is 7.6%.[13] We had a low mortality of 0.48% as only 2 patients died in emergency surgery, and no mortality was observed in elective cases. Whereas a mortality of 3% has been reported in a local study.[14]

Fetal outcome in placenta previa depends upon the gestational age, as most of the time surgery has to be performed in an emergency due to massive antepartum haemorrhage. There is the risk of a low Apgar score and admission to the NIC unit due to prematurity. In our study, 15 (6.94%) were delivered with a poor Apgar score in elective surgery, and 41 (20.92%) were delivered with a poor Apgar score in emergency surgery. Admissions to NICU were 16 (7.40%) in elective surgery and admissions to NICU were 41 (20.92%) in emergency surgery. Neonatal mortality in this study was 10 (4.63%) in elective surgery and 31 (15.81%) in emergency surgery which is lower than a study in India where it was reported as 23.8%.[15]

CONCLUSION

The prevalence of placenta previa is rising significantly due to the increased C-section rate. Surgery for placenta previa is associated with maternal and fetal complications, which can be minimized by a multidisciplinary team approach.

LIMITATIONS

The study has limitation to see relationship of placenta previa with number of previous C-sections.

SUGGESTIONS / RECOMMENDATIONS

Further study is required to see relationship of placenta previa with previous C-section in our set up.

CONFLICT OF INTEREST / DISCLOSURE

The authors declare that they have no conflict of interest.

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