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Research Article

Predisposing Factor and Maternal Outcome of Placenta Previa in Non scared Uterus at Omdurman Maternity Hospital .From January 2018 to December 2018

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Abstract

Background: *Placenta Previa It is a potentially life-threatening condition with risk of severe maternal morbidity and mortality. Although recognized obstetric risk factors allow the identification of most cases during the antenatal period.*

Materials: *This is a descriptive cross – sectional study was conducted in Omdurman Maternity Hospital Khartoum, Sudan The main objective to identify the predisposing risk factor and maternal outcome of placenta previa in non-scared uterus at Omdurman Maternity Hospital.*

Results: *A total of 73 patients had been enrolled in this study most of the patients were between the age(31-35) years old (47.9%), (71.2%) are living inside Khartoum,(61.6%) of the women were housewives and (20%) were illiterate. Smoking for women in our country is prohibited that why in our results we found only (2%) of the patients were smoking which is relatively good and most common para 1- 4 (46.6%) and most of them delivered between 35-37 weeks (50.7%) and (71.2%) of them they received dexamthasone. The most frequent risk factor was highlighted is in our study the women at greatest risk of placenta Previa are those who have history of fibroid, history of D&C, history of infertility, history of assisted conception and anemia .*

The study reported that the most frequent type of placenta Previa in non-scared uterus were complete and upper segment were the most frequent technique used at Omdurman Maternity Hospital. We found out that no women had undergone post-operative MRI and the number high number of them had less than 10g/ld Hemoglobin level and its even worsen after the operation. the most common intraoperative intervention was B-lynch suture, hysterectomy, bladder injuries, blood transfusion, intrauterine pack while post-operative complications was blood transfusions, PPH, bladder injury and DIC and rectus sheath hematoma.

Conclusion: *The results of the study have concluded that the risk of Placenta previa increased with increasing maternal age, parity, history of D & C .Placenta previa remains a risk factor for maternal complications and early recognition is beneficial.*

Introduction

Placenta previa is an obstetric complication that classically presents as painless vaginal bleeding in the third trimester secondary to an abnormal placentation near or covering the internal cervical os. However, with the technologic advances in ultrasonography, the diagnosis of placenta previa is commonly made earlier in pregnancy. Historically, there have been three defined types of placenta previa: complete, partial, and marginal. More recently, these definitions have been consolidated into two definitions: complete and marginal previa. [1]

There are two type o placenta previa, either complete previa which defined as complete coverage of the cervical os by the placenta or the one that leading edge of the placenta is less than 2 cm from the internal os, but not fully covering it is considered a marginal previa. Because of the inherent risk of hemorrhage, placenta previa may cause serious morbidity and mortality to both the fetus and the mother.{1}

The placenta may be located in the lower part of the uterus either covering or adjacent to the cervical outlet for a number of reasons. The placenta normally migrates away from the cervical opening as the pregnancy progresses, so women in the earlier stages of pregnancy are more likely to have placenta previa than are women at term. Although up to 6% of women between 10 and 20 weeks' gestation will have some evidence of low lying placenta on ultrasound examination, 90% of these cases resolve on their own as the pregnancy progresses. [1] The ones that persists beyond the 20th week of gestation can be due to abnormalities of the uterus that promote attachment of the placenta in the lower regions of the uterus.

Placenta previa is found approximately four out of every 1000 pregnancies beyond the 20th week of gestation. Asian women are at a slightly greater risk for placenta previa than are women of other ethnic groups, although the reason for this is unclear. The risk of having placenta previa increases with increasing maternal age and with the number of previous deliveries. Women who have had placenta previa in one pregnancy also have a greater risk for having placenta previa in subsequent pregnancies. [2]

An ultrasound examination is used to establish the diagnosis of placenta previa. Either a transabdominal (using a probe on the abdominal wall) or transvaginal (with a probe inserted inside the vagina but away from the cervical opening) ultrasound evaluation may be performed, depending upon the location of the placenta. Sometimes both types of ultrasound examination are necessary.

It is important that the ultrasound examination be performed before a physical examination of the pelvis in women with suspected placenta previa, since the pelvic physical examination may lead to further bleeding. In previa, always anticipate massive hemorrhage and preterm delivery in a woman with placenta previa. [3]

Hemostasis may be established by one or more of the following:

- Oversewing the placental implantation site[1]
- Bilateral uterine artery ligation (O'Leary stitch)
- Internal iliac artery ligation
- Circular interrupted ligation around the lower uterine segment both above and below the transverse incision
- Packing with gauze or tamponade with the Bakri balloon catheter
- B-lynch stitch
- Cesarean hysterectomy

Diffuse bleeding often occurs at the implantation site within the lower uterine segment after delivery. [4] As such, knowledge in the management of acute and heavy blood loss is imperative. Activation of the massive transfusion protocol may be warranted depending on the situation. The use of uterotonics, including methylergonovine maleate (Methergine), prostaglandin F2 alpha, concentrated oxytocin, or misoprostol are excellent pharmacological agents to help resolve uterine atony, the main cause of hemorrhage post-delivery. In instances where significant bleeding ensures, rapid replacement of blood products is a priority. In such instances, activation of the Massive Transfusion Protocol is warranted, allowing for stabilization of a patient's hemodynamic status by way of rapid supply and infusion of blood products. [3]

Problem Statement

Placenta Previa It is a potentially life-threatening condition with risk of severe maternal morbidity and mortality. Although recognized obstetric risk factors allow the identification of most cases during the antenatal period. Even undiagnosed cases which discovered incidentally at the time of delivery, management should involve a team of anesthesiologist, obstetrician, urologist, neonatologist, and blood bank officer is needed.

Justification

Because of an unknown factor, the frequency of pregnancy complicated with placenta Previa has been raised during past decade. This study was designed to understand predisposing factors of placenta previa in non-scared uterus and its effect on maternal outcomes.

The follow-up should be programmed for women with placenta Previa based on the type of risk factors and provide the best possible management to decrease the morbidity and mortality of their related complications. In hospitals with well set up, predisposing factors could be identified and optimized to improve maternal outcomes. As management of placenta previa delivery in any setting may not be optimally achieved.

Objectives

General objective:

To identify the predisposing factors and maternal outcome of placenta Previa in non-scared uterus at Omdurman Maternity Hospital in the period from (January-December)2018.

Specific objectives:

1. To determine prevalence of placenta previa in non-scared uterus.
2. To determine probable predisposing factors for placenta Previa in non-scared uterus
3. To determine the maternal complication associated with placenta Previa in non-scared uterus.

Research question

What are the predisposing factors and maternal outcomes of placenta Previa in non-scared uterus?

Methodology

3.1 Study design:

This is a descriptive, cross-sectional hospital based study .

3.2 Study period : from (January – December)2018

3.3 Study area:

The study was conducted at Omdurman Maternity Teaching Hospital which had been and remained to be the first and largest specialized maternity hospital in Sudan. It was established in 1957 mainly to provide training for midwives form the nearby midwifery school (which was established between the years 1917 – 1922) as well as delivering maternity services to women from the greater Khartoum area and the surrounding villages. The role of the hospital gradually progressed and it became a national training center in obstetrics for medical students, house officers, registrars and specialists. It also provides maternity healthcare services to women from different states of the country.

Study population:

All women whom diagnosed placenta Previa in non-scared uterus during

study period.

Inclusion criteria

1. Women with placenta Previa
2. Non scared uterus.
3. Women during reproductive age
4. Agreement of participate in the study

Exclusion criteria

1. Placenta Previa in scared uterus
2. Vaginal bleeding from causes other than placenta previa.
3. Dis-agreement of participate in the study

Sample size

The sample size was calculated by the formula below:

$N=(z^2pq^2)/d2$

N+sample size

Z=constant (1.96)

P=prevalence of the current problem =0.5%

q=100-P

D= degree of accuracy(5%)

Sample size=73

Data management:

Data collection:

Study variable:

The woman age, parity, residence, educational level, number of antenatal visits, causes and risks factors, complication, blood bank service availability and senior care providers for instance, and the obstetrician.

Instrument and procedure:

With direct interview questionnaire time of diagnosis and treatment modality will ascertained.

Data analysis :

The data was analyzed using the statistical package for social science (SPSS) version 23.

Data presentation:

- Data will be presented in tables and figures and cross tables, it will be storage in CD and hard copies**.**
- Frequencies tables and Figures: for socio-demographic factors(Age .residence , occupation …)
- Cross tabulation between different study groups
- Comparison between subgroups using- Analytic statistic :
  a. T-test to compare mean of parity
  b. Chi-square test for to compare gestational age
  c. P- values of less than 0.05 at 95% confidence level will considered statistically significant.

Anticipated outcome:

When we determine the risk factors and prevalence rate of occurrence of placenta Previa in non-scare uterus and correlate with outcome and complication to women will make protocols to managed properly

Ethical consideration

- Ethical clearance from SMSB Ethical Committee.
- Written consent was obtained from the Hospital.
- Verbal and written consent was obtained from the participants.

Results

The study has enrolled 73 patients. The demographic data results revealed that 19.2% of the study populations were at the age(25-30) years old while 47.9% were at the age (31-35) years old, 24.7% were between (36-40) years and only 8.2% were aged (more than 40) years old as showed in table (1). Regarding patient's residence most of them 71.2% were living inside Khartoum while 28.8% were from outside the city as showed in table (2). 61.6% of the women were housewives while 24.7% were worker and 13.7% were employer and there were no students as showed in table (3). 41.1% of the patients were university graduate while 23.3% were secondary school, 8.2% were primary school graduate and 27.4% were illiterate table (4). Regarding the parity 13.7% primagravida ,34% para(1-4),21% para(5-7),8% more than para 8, Figure (1).

2.7% of the patients were smoking patients while the other 97.3% were not as illustrated by figure (2).

Only 12.3% of the patients had history of assisted conception while the other 87.7% did not. 1.4% of the patients had history of endometriosis while the other 98.6% did not. 31.5% of them had history of fibroid while 68.5% of them did not. 65.8% had history of D & C while 34.2% did not and 23.3% had history of infertility while the rest 76.7% did not ,table (5).

According to gestational age the results reveal that 50.7% of them were between 35-37 weeks while 42.5% were between week 32-34 and only 6.8% were more than week 37, figure (3) .

71.2% of the patient received dexamethasone while 28.8% did not, figure (4).

Most of the patients 68.5% had complete placenta Previa while 31.5% had partial placenta Previa , figure (5).

The study reveals that among all the patients did not have pre-operative MRI, figure (6).

We investigate hemoglobin level before and after the operation and results reveal that for pre-operation 15.1% had 11g/dl while 64.4% had 10g/dl, 13.9% had 9g/dl and 6.8% had less than 9g/dl. In post operation results 16.4% had 11g/dl, 42.5% had 10g/dl, 27.4% had 9g/dl and 13.7% had less than 9g/dl table (6).

Regarding caesarean section 39.7% had an emergency C/S while 60.3% had elective C/S, figure (7). Regarding

the type of uterine incision most of them 57.5% had Upper segment while 42.5% had Lower segment, figure(8).

Regarding to an intraoperative intervention there is 26% (B-lynch 4.1%, hysterectomy 9.6%, intrauterine pack 12.3%) while in 74% there was no intervention as showed in table (7). Study have revealed that 23.2% of them had intraoperative complication (6.8% bladder injury, 16.4% blood transfusion) while 76.8% had no complication as showed in table (8).

According to Post-Operative Complications results study revealed 58.9% had complications (28.8% had blood transfusions, 17.8% had PPH, 1.4% had undiagnosed bladder injury, 6.8% had rectus sheath hematoma, 4.1% DIC) . 41.1% had no complications as showed table (9).

Table(1) Distribution of women according to age (N=73)

Age	Frequency	Percent
25-30 years	14	19.2
31-35 years	35	47.9
36-40 years	18	24.7
More than 40 years	6	8.2
Total	73	100

Table (2) : distribution of women according to residence (N=73)

Residence	Frequency	Percent
Inside Khartoum	52	71.2
Outside Khartoum	21	28.8
Total	73	100

Table (3) : distribution of women according to occupation :

Occupation	Frequency	Percent
Housewife	45	61.6
Worker	18	24.7
Employee	10	13.7
Student	0	0
Total	73	100

Table (4): distribution of women according to their educational level :

Educational level	Frequency	Percent
Illiterate	20	27.4
Primary school	6	8.2
Secondary school	17	23.3
University	30	41.1
Total	73	100

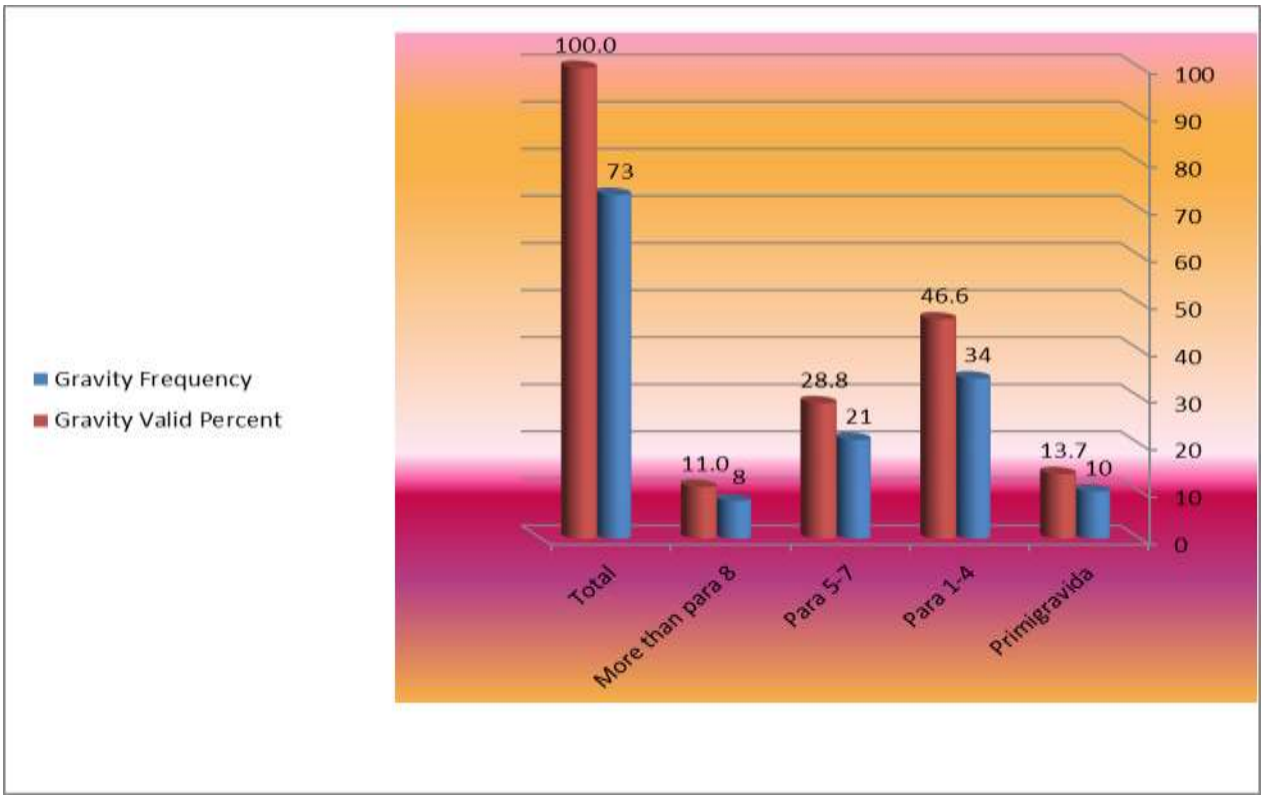


Figure (1) shows the frequency distribution of maternal gravity

Frequency distributions of smoking

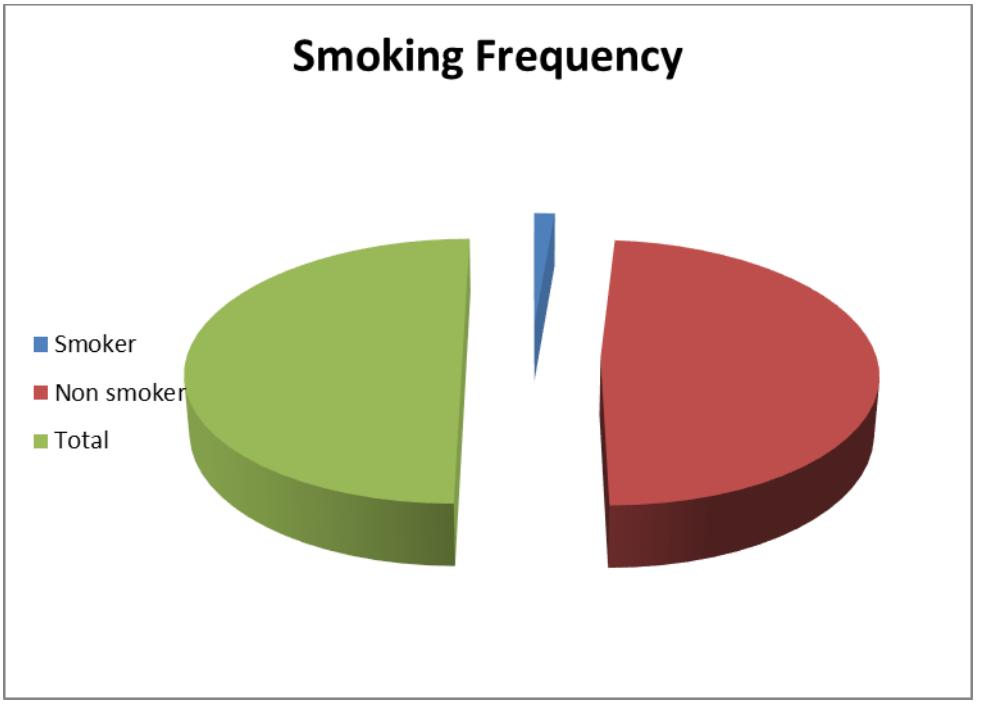


Figure (2) shows the proportion of pregnant women smokers

Table(5) Frequency distribution of study population assisted conception, Endometriosis, fibroid, D&C and infertility.

Assisted conception	**Frequency**	**Percent**
Yes	**9**	**12.3**
No	64	87.7
Total	**73**	**100**
History Of Endometriosis	Frequency	**Percent**
Yes	1	1.4
No	**72**	**98.6**
Total	73	100
History Of Fibroid	**Frequency**	**Percent**
Yes	23	31.5
No	**50**	**68.5**
Total	73	100
History Of D&C	**Frequency**	**Percent**
Yes	48	65.8
No	**25**	**34.2**
Total	73	100
History Of Infertility	**Frequency**	**Percent**
Yes	17	23.3
No	**56**	**76.7**
Total	73	100

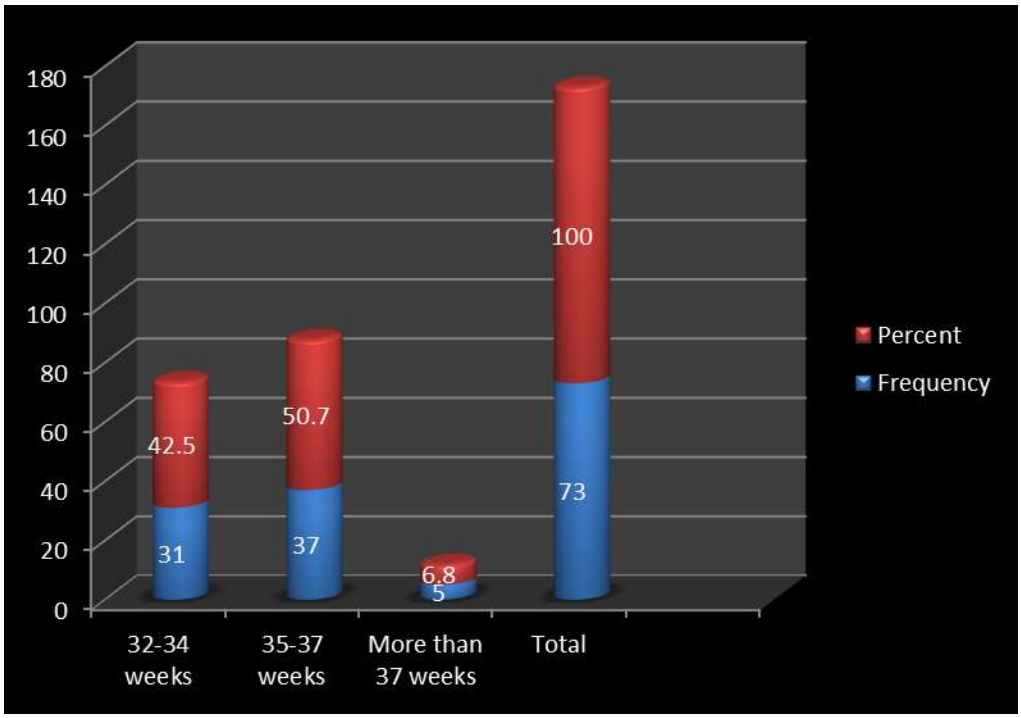


Figure (3) shows the proportion of the gestational age at the the time of the operation

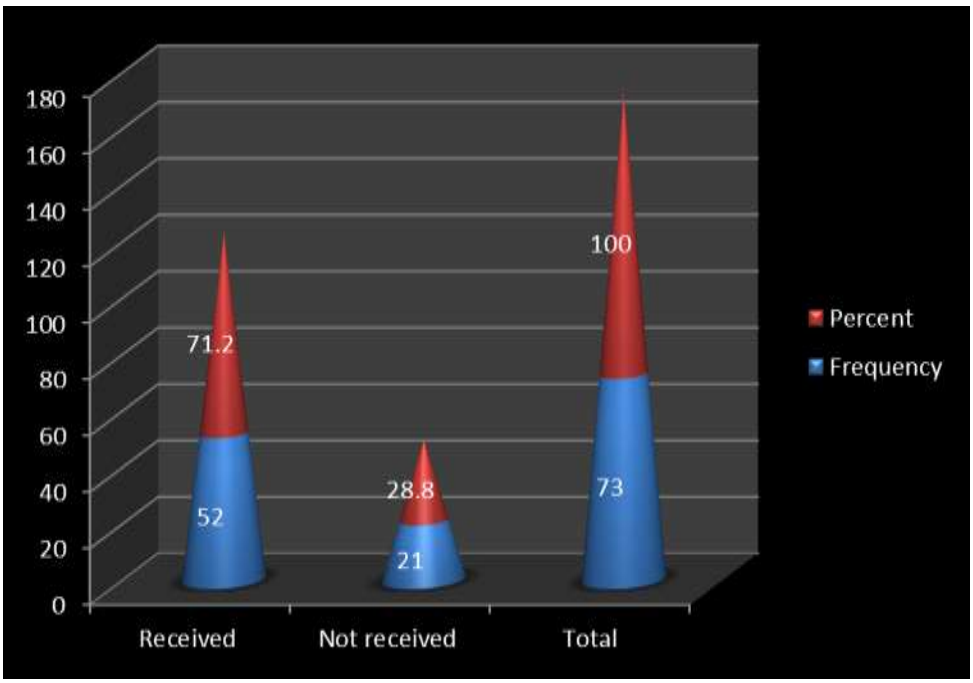
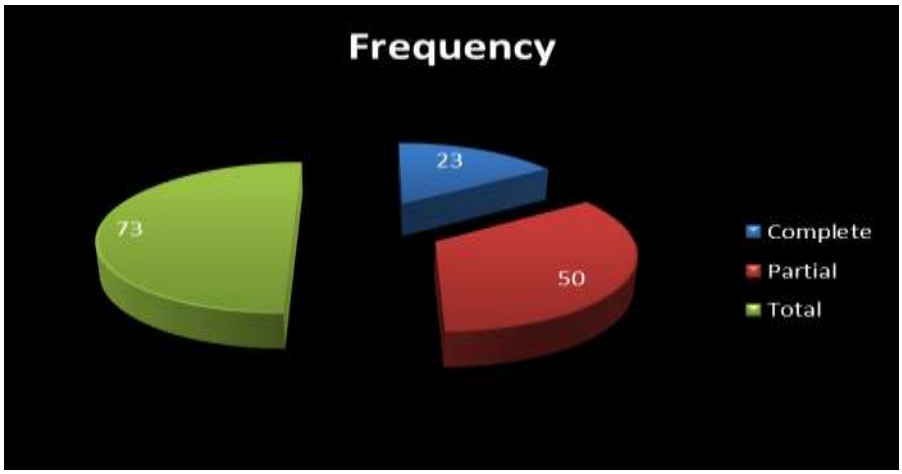


Figure (4) show distribution of women according to dexamethasone receiving

Figure (5): Frequency distribution of Types of placenta previa.



The above diagram shows that 50 patient (68.5%) have partial placenta previa and 23 patient (31.5%) have complete placenta previa

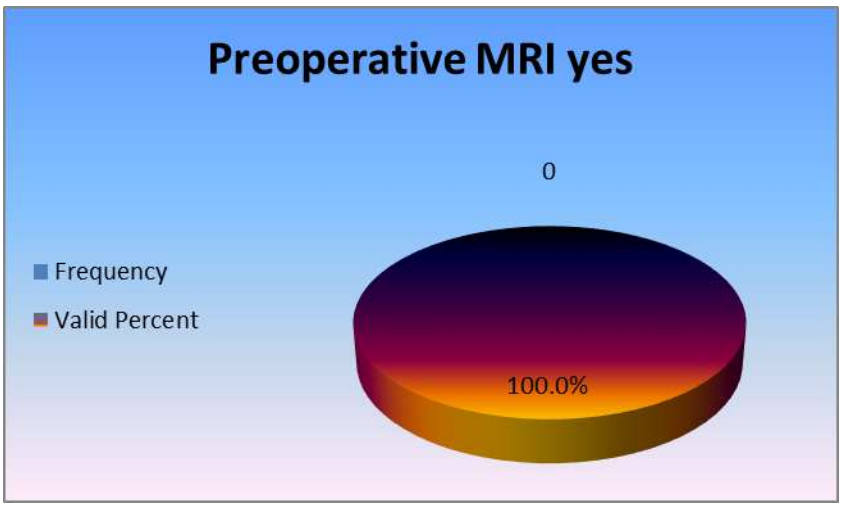


Figure (6) shows the frequency distribution of preoperative MRI

Table (6): Frequency of pre-op hemoglobin and post –op hemoglobin.

Pre-op Hemoglobin	Frequency	Percent
11 g/dl	11	15.1
10 g/dl	**47**	**64.4**
9 g/dl	10	13.7
less than 9 g/dl	**5**	**6.8**
Total	73	100

Post-op Hemoglobin	Frequency	Percent
11 g/dl	12	16.4
10 g/dl	31	42.5
9 g/dl	20	27.4
less than 9 g/dl	10	13.7
Total	73	100

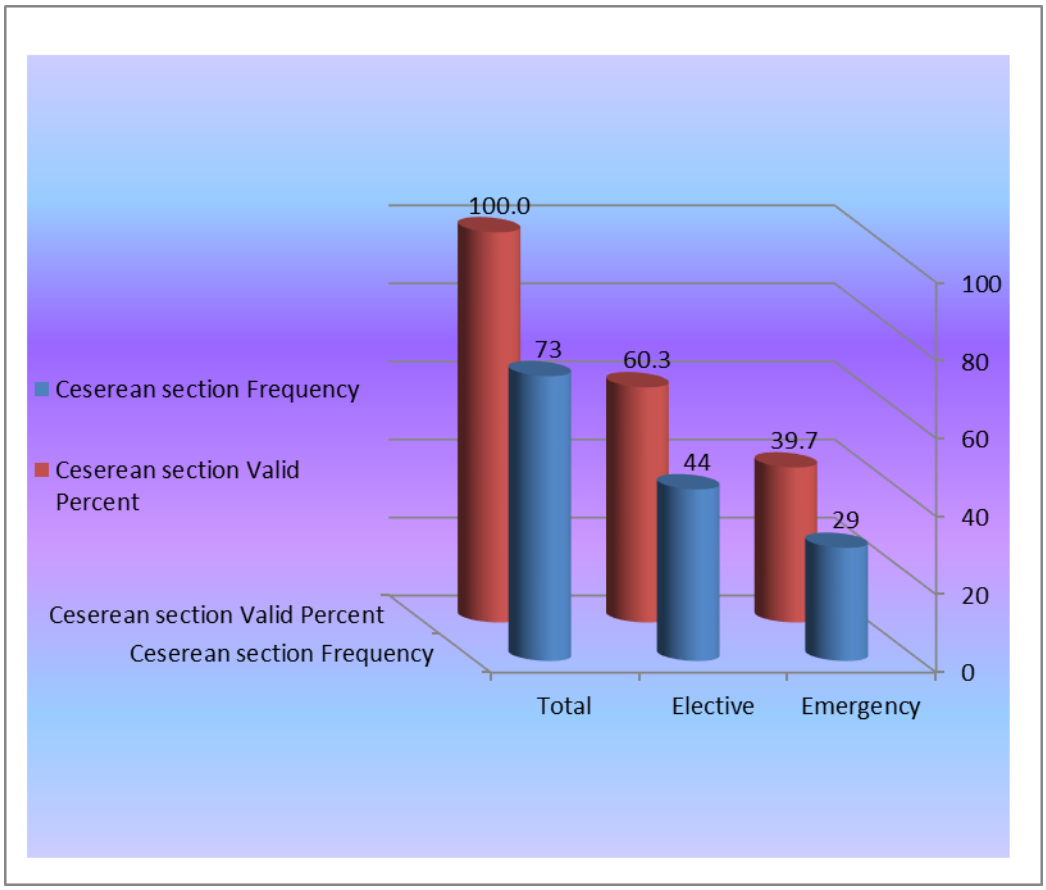


Figure (7) shows frequency distribution of caesarean section done

Table (7,8): Frequency of intra-operative complication and intervention:.

Table (7)

Intraoperative Intervention	Frequency	Percent
B-lynch	3	4.1%
Hystrectomy	7	9.6%

Intrauterine pack	9	12.3%
No Intervention	54	74%
Total	73	100%

Table (8)

Introperative complication	Frequency	Percent
Bladder Injury	5	6.8%
Blood Transfusion	12	16.4%
Maternal Death	0	0
No Complication	56	76.8%
Total	73	100%

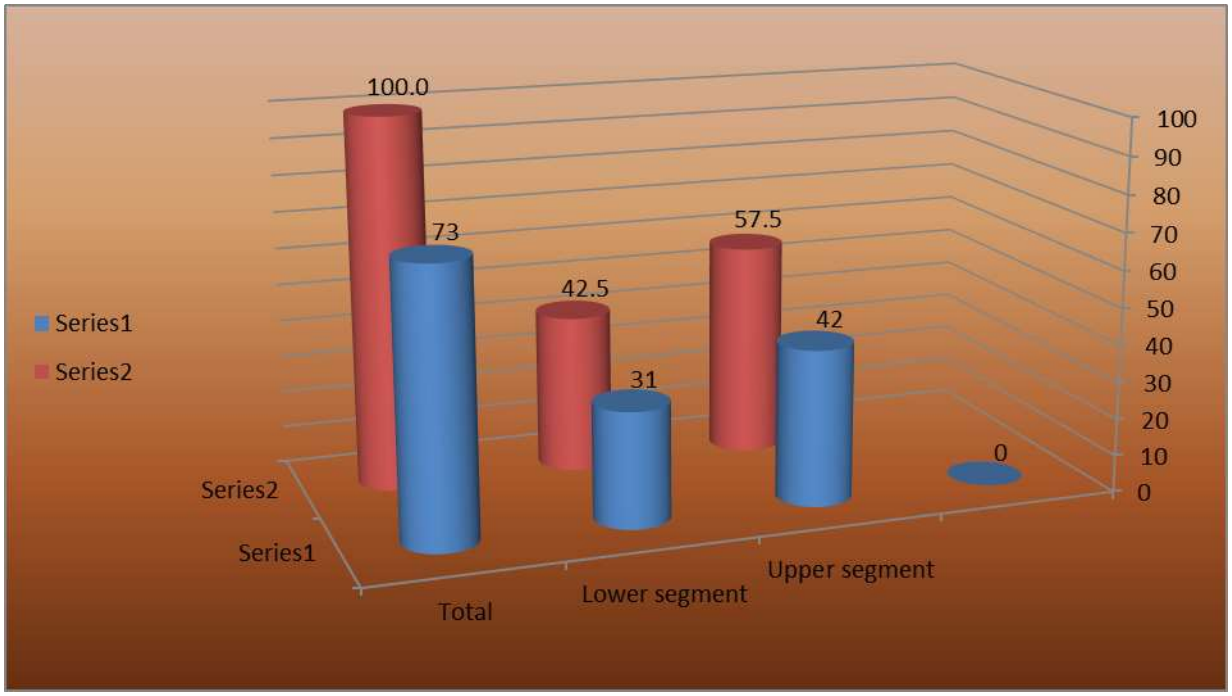


Figure (8) shows the frequency distribution of the type of uterine incision

Table (9): Frequency distribution according to Post-Operative Complications:

Postoperative complication	Frequency	Percent
Bladder Injury	1	1.4%
Blood Transfusion	21	28.8%
Postpartum Hemorrhage	13	17.8%
Hematoma	5	6.8%
DIC	3	4.1%
No Complication	33	41.1%
Total	73	100%

Table (10): show relationship between the gestational age at operation and preoperative &postoperative hemoglobin level:

		Gestational age at operation	Preoperative HB	Postoperative HB
Gestational age at operation	Pearson Correlation	1	-.667-**	-.865-**
	Sig. (1-tailed)		.000	.000
	N	73	73	73
Preoperative HB	Pearson Correlation	-.667-**	1	.861**
	Sig. (1-tailed)	.000		.000
	N	73	73	73
Postoperative HB	Pearson Correlation	-.865-**	.861**	1
	Sig. (1-tailed)	.000	.000	
	N	73	73	73

**. Correlation is significant at the 0.01 level (1-tailed).

Discussion

Placenta previa is a major cause of maternal morbidity and mortality, women with placenta previa were at increased risk for PPH, APH, need for blood transfusion, delivery by cesarean section,and long hospital stay. Placeta previa also increased the likelihood of certain adverse pregnancy outcomes. Globally, Placenta previa is a serious concern in the developing world and its consequences remain a challenging problem for obstetricians.

This study was conducted to identify the predsiopsing factors and maternal outcome of placenta previa in non-scared uterus enrolling 73 patients.

In our study, out of 73 cases, majority of the women were aged between 31-35 years 47.9% , 24.7% were between 36-40 years, age 25-30 years old were 19.2% , and only 8.2% were aged more than 40 years old ,and this is consistent with finding in many other studies e,g Jun Zhang, David A Savitz (20) , . GUL BASHIR, SAMIEA PARVEEN, SAMINA MUMTAZ (19) study , this is proved by many other studies, where the patho-physiology of placenta previa was found to be increased with age due atherosclerotic changes in the uterus and infarction causing under perfusion of the placenta, this pathology also explained increased incidence of placenta previa with increased parity.(21)

The study revealed the parity,34% para(1-4),21% para(5-7), 13.7% primagravida ,and 8% more than para8.and this is consistent with SAIMA GUL BASHIR, SAMIEA PARVEEN, SAMINA MUMTAZ (19) They have concluded that the frequency of placenta previa in unscarred uterus 40.5% which is slightly higher than other studies and this problem may be estimated for further planning and management of placenta previa..

According to gestational age the results reveal that 50.7% of them were between 35-37 weeks while 42.5% were between week 32-34 and only 6.8% were more than week 37, this is correspond with the study Rajshree, Dayanand ,Katke(15) . ,. In conclusion Early diagnosis by Ultrasound and planned delivery should be the goal [15].

Study has highlighted that all pregnancies were ended by Cesarean sections (39.7% emergency C/S, 60.3% Elective C/S).Correspondingly, women with placenta previa had tenfold higher odds of Cesarean delivery (22) that can be explained by the fact that the placenta in the lower segment obstructs engagement of the head especially for major placenta previa.

Placenta previa can have serious adverse consequences, including intra-operative and post-operative complications,. Study have revealed that 23.2% of them had intraoperative complication (6.8% bladder injury, 16.4% blood transfusion) while 76.8% had no complication as showed in table (8).

According to Post-Operative Complications results study revealed 58.9% had complications (28.8% had blood transfusions, 17.8% had PPH, 1.4% had undiagnosed bladder injury, 6.8% had rectus sheath hematoma,

4.1% DIC) . 41.1% had no complications. This is comparable to the findings in the study by Salah Roshdy (17).

Conclusion

The results of the study have concluded that the risk of Placenta previa increased with increasing maternal age, parity, history of D & C .Placenta previa remains a risk factor for maternal complications and early recognition is beneficial.

Recommendation

- Raise the awareness among the obstertrian on the possible risk factors of placenta previa in order to decrees the incidence especially among the vulnerable groups.
- Early recognition gives a chance to plan a multidisciplinary attempt to reduce potential maternal morbidity and mortality.
- Raise the awareness among all women in reproductive age through mass media education in hospitals through posters to enhance the antenatal care visit during pregnancy and emphasis on the role its play in prevents the complications.

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