



Association of placenta previa with repeat cesarean section in Sudan and Saudi Arabia 2014-2015

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ABSTRACT:- This is a descriptive cross-sectional study conducted in Alshikh Mohamed Ali Fadul hospital in Omdurman City-Sudan during September 2014 - September 2015. The main aim was to identify the association of placenta previa with number of previous cesarean section done in pregnant women. In antenatal clinic as per protocol 400 pregnant women were scanned in their third trimester for foetal wellbeing and placental localization after taking a detailed obstetrical history and clinical examination. All women with or without symptoms of placenta previa showing placental implantation in lower uterine segment on ultrasound scan were documented. After completion of the one year data regarding the detailed obstetrical and surgical history were recorded in a questionnaire and analyzed using SPSS Software. 125 women were diagnosed as cases of placenta previa. The overall incidence of placenta previa was found to be 31.3% (125 women). Out of these 11 were primigravidas, 41 were vaginal delivery. It was clearly evident from the study that placenta previa is associated with previous cesarean section. Placenta previa was highly significantly associated with increased number of previous cesarean section ($P = 0.000 < 0.05$).

Keywords:- Cesarean Section, Repeat Cesarean Section, Development, Placenta previa, Ultrasound.

I. INTRODUCTION

Placenta previa (PP) is a rare pregnancy complication where a placenta partially or completely covers the internal cervical os thereby preventing normal vaginal delivery [1]. The higher incidence of cesarean delivery today is strongly associated with the greater frequency of PP from 1/10,000 pregnancies in 1950 to 1/200 frequencies [2]. The frequency of placenta previa increased with increasing number of previous CS, and was associated with adverse fetomaternal outcome [3]. Association of placenta previa with prior CS had been investigated long time ago, however, it remains unclear whether these rates increase with the number of CS or not [4]. There is an association between previous cesarean sections and subsequent development of placenta previa, which is reported between 3 and 10% or even higher [5-7]. Most of the studies show increasing in the frequency of placenta previa with increasing number of cesarean section [6,7,8].

Some studies, however, show no increased risk of placenta previa with previous cesarean deliveries [9,10]. Women who have one previous CS face a markedly increased risk of repeat cesarean sections and fetomaternal complications in subsequent pregnancies [11]. Repeat multiple CS are associated with an increase in the risk of placenta previa [12,13,14] with other operative complications such as abdominal wall adhesions, bladder and bowel adhesions and injuries, ureteric injuries, hemorrhage, uterine dehiscence and rupture of the uterus. Previous one CS did not increase the frequency of PP. Increasing number of scars, increasing maternal age beyond 25 years and increasing parity beyond 4, were associated with PP [15].

A study of over 18,000 deliveries from Jordan found that previous CS increased the risk of PP from 0.25% to 1.87%. The greater the number of previous cesareans, the more the risk increased - 1.78% for one section, 2.4% for two and 2.8% for three or more [16]. A study from Saudi Arabia of 23,000 deliveries 100 women had placenta previa and 12 of them had placenta accreta. The percentage of PP which were embedded increased from 4.1% in women with no previous section, to 60% in women who had three or more cesareans [17].

Serious maternal morbidity progressively increased as the number of previous cesarean deliveries increased. The rate of hysterectomy, blood transfusions, adhesions, and surgical injury all increased with increasing number of cesarean deliveries. The incidence of PP increased from 10/1000 deliveries with 1 previous cesarean delivery to 28/1000 with 3 cesarean deliveries. Compared with women with (PP) and no previous cesarean delivery, women with PP and 3 cesarean deliveries had a statistically significant increased risk of accreta (3.3-4% vs 50-67%), hysterectomy (0.7-4% vs 50-67%), and composite maternal morbidity (15% vs 83%; odds ratio, 33.6; 95% confidence interval, 14.6 –77.4) [18].The reported rate of cesarean delivery CD in the United States increased dramatically from 4.5% in 1965, to the current rate, 26.1%, reported for 2002 [19,20].

II. MATERIALS AND METHODS

This is a descriptive cross-sectional study conducted at the department of obstetrics and gynaecology in Alshikh Mohamed Ali Fadul hospital in Omdurman City-Khartoum State in Sudan and in Najran University hospital department of Obstetrics & Gynecology at Najran city in Kingdom Saudi Arabia (KSA). It was conducted during the period of September 2014-2015. In the antenatal clinic as per protocol 400 pregnant women were selected for the study. The inclusion criterion was a pregnant lady in her third trimester of pregnancy. The doctor and staff nurse on duty were trained to enter the data in a questionnaire. Then ultrasound scan was done for all selected women for foetal wellbeing and placental localization. All women with or without symptoms of PP showing placental implantation in lower uterine segment on ultrasound were documented. Then women with PP were further examined for their detailed obstetrical history-especially the history of previous CS, parity and - maternal age and socioeconomic status. After completion of the one year, data regarding the detailed obstetrical and surgical history were recorded in a questionnaire and analyzed using SPSS software. Out of all examined women (125) were found to have PP. This percentage 31.2% (n = 400) was analyzed statistically by Chi square test to examine our hypothesis.

III. STATISTICAL METHODS

The data were analyzed using (SPSS software version 20, Chicago, Illinois USA). Descriptive statistics were calculated for every measured variable, in order to evaluate the studied sample. All analyses were performed using descriptive frequency and crosstabs probabilities and a P value of $P < 0.05$ was considered statistically significant.

IV. STUDY SAMPLE CHARACTERISTICS

Data collected from september 2014-2015 at the department of obstetrics and gynaecology in Alshikh Mohamed Ali Fadul Hospital(AMAFH) in Sudan and in Najran University Hospital(NUH) department of Obstetrics & Gynecology at Najran city in Kingdom Saudi Arabia (KSA) was analyzed. The percent of frequencies were calculated to examine the relationship between number of previous caesarean section and PP. 125 women were found to have PP out of the 400 studied pregnant women, 31.3% (n = 400) were identified through descriptive frequency (Table-1).

Table (1) Shows the distribution of placenta previa type in Omdurman city- Sudan and Najran city-KSA

Placenta previa	Country Frequency		Total frequency %
	Sudan	Saudi Arabia	
Normal	135(33.8%)	140(35%)	275(68.8%)
Previa	65(16.2%)	60(15%)	125(31.3%)
Total	200 (50%)	200 (50%)	400(100 %)

V. RESULTS

Figure (1) showed the total number of deliveries in hospitals at Omdurman city in Sudan during the study period was 200 pregnant women. Out of them 87(43.5%) delivered vaginally, 66 (33.0%) delivered by CS subdivided into four groups, one CS 22(11%), two CS 29(14.5%) three CS 13(6.5%) more than three CS 2(1%) and 47(23.5%) were prime gravida, compare with 200 pregnant women in hospitals at Najran city in KSA 108(54%) delivered vaginally, 64 (32.0%) delivered by CS, one CS 26(13%), two CS 23(11.5%) three CS 12(6%) more ore than three CS 3(1.5%) and 28(14%) were prime gravida see figure (2) .

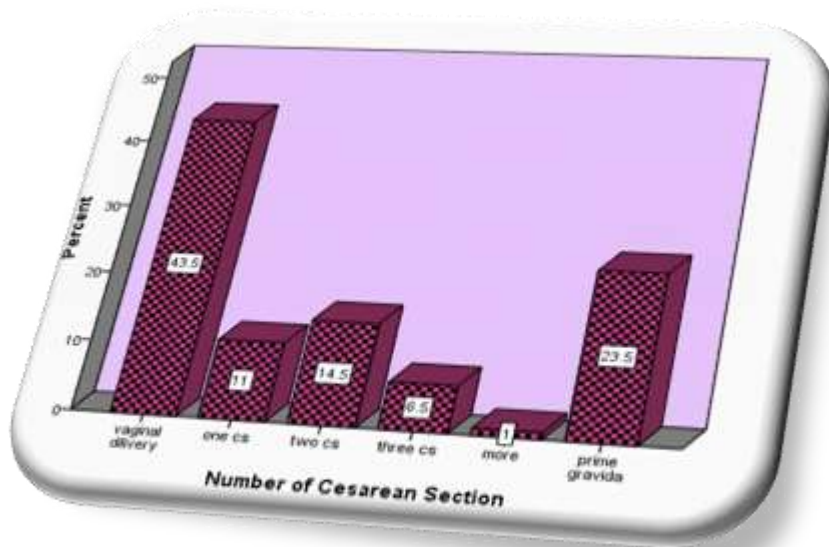


Figure (1) Shows the distribution number of the cesarean section at Omdurman city in Sudan (n = 200)

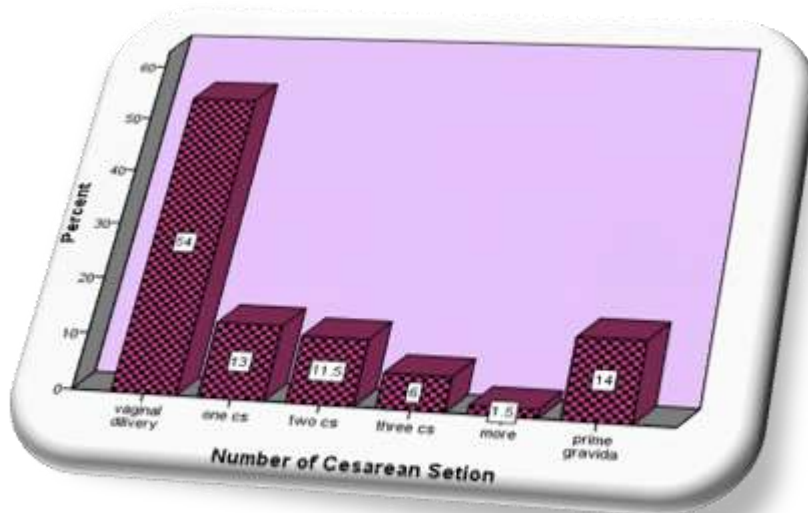


Figure (2) Shows the distribution number of the cesarean section in KSA(n = 200)

There were 400 cases of pregnant women during the period study at Omdurman city in Sudan and Najran city in KSA. The incidence of PP was directly related to the number of previous cesarean sections showed in table(2), 25(6.25%) women with placenta previa had at least one previous cesarean section and 47(11.75%) more than one CS. The rest of cases 41(10.25%) vaginal delivery and 11(2.75%) prime gravida. Using Pearson Chi-Square showed a significantly high association between PP and multiple cesarean section ($p < 0.000$).

Table (2) Shows the number of the cesarean section of women with and without placenta previa in Omdurman City- Sudan and Najran City-KSA*

Number of the cesarean section	Women with placenta previa	Women without placenta previa	Total %
Vaginal delivery	41(10.25%)	154(38.5%)	195(48.75%)
One CS	25(6.25%)	23(5.75%)	48(12%)
More than one CS	47(11.75%)	35(8.75%)	82(20.5%)
Prime gravida	11(2.75%)	64(16%)	75(18.75%)
Total	124(31 %)	276(69%)	400(100%)

The association between placenta previa and number of Cesarean Section is ($p < 0.000$) Sig. (2-sided).

VI. DISCUSSION

Placenta previa is a major public health problem due to the high prevalence in all regions of the world and the greatest influence on people's life. Determining the prevalence of placenta is a necessary step for health care planners to identify resources needed for obstetrics and gynecology services in the community and to provide preventive and curative services to combat obstetrics and gynecology health problems. Placenta praevia is a major cause of obstetric haemorrhage in the third trimester. It is associated with significant mortality and morbidity to both mother and the fetus. This study showed that, the overall incidence of placenta praevia among patients seen in (AMAFH) and (NUH) 31.3%; it is high among patients with scarred uterus. From the findings of this study, showed a significantly high association between PP and multiple cesarean section, similar studies done by Singh and et al (1981) and Gilliam and et al. (2001) reported there is an association between previous caesarean sections and subsequent development of PP and showed increase in the frequency of PP with increasing number of cesarean section. Iyoke et al. (2014) argued that women who have one previous CS face a markedly increased risk of repeat CS similar to our finding which recorded multiple PP resulting to mode CS deliveries from one to more than it. In the current study from Sudan and Saudi Arabia of 400 deliveries 125 women had PP the percentage of placenta previa which were embedded increased from 10.25% in women with no previous cesarean section, to 14.5% in women who had two or more caesarean sections the same findings of the percentage of PP which were increased from 4.1% in women with no previous section, to 60% in women who had three or more caesarean section was reported by Zaki et al. (1998) in their study that done in Saudi Arabia and Ziadeh (1998) from Jordan. Current study showed relation between the PP after one CS and risk of PP increased with repeat CS disagreed with Adele et al. (2012) who recorded the previous one caesarean section did not increase the frequency of placenta previa. Increasing number of scars, was associated with placenta previa.

VII. CONCLUSION AND RECOMMENDATIONS

The prevalence of PP in this study increased with increasing number of previous CS, and was associated with adverse foeto-maternal outcome. This study provides a reason to reduce elective CS and encouraging vaginal birth after CS (VBAC). To enhance patient safety, it is important that the delivery be performed in an operating room by an experienced obstetric team that includes an obstetric surgeon, with other surgical specialists, such as urologists, general surgeons, and gynecologic oncologists, available if necessary. Improved outcomes have been demonstrated when women with PP give birth in specialized tertiary centers.

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