The association of placenta previa in patients with history of cesarean delivery

Research submitted for partial fulfillment for the award of M.Sc degree in diagnostic medical ultrasound

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Ph.D in medical diagnostic ultrasound

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Quran

اللَّهُ يَعْلَمُ مَا تَحْمِلُ كُلُّ أُنثىٰ وَمَا تَغِيضُ الَْْرْحَامُ وَمَا تَزْدَادُ ۖ وَكُلُّ شَيْءٍ عِندَهُ بِمِقْدَارٍ

(عَالِمُ الْغَيْبِ وَالشَّهَادَةِ الْكَبِيرُ المُتَعَالِ(9) الرَّمَيْب

حمد لله العظيم
Dedication

I dedicate this project to my dear father may God bless him, great mother, lovely husband, dear sisters and my soul kiddies.
Always you are supporting me courage me to do the best in my life.
Best regard for all.
Acknowledgement

Acknowledgement I would like to take this opportunity to express my profound gratitude and deep regard to Dr. Alsir Ali Saied for his exemplary guidance, valuable feedback and constant encouragement throughout the duration of the project. His valuable suggestions were of immense help throughout my project work. Working under him was an extremely knowledgeable experience for me. I greatly thank my best friends who supported and helped me to complete this project.
Abstract

This analytic, descriptive study was performed obstetrics and gynecology Unit of Maternity Hospital (Omdurman). The duration of study was 5 months from first November 2015 to April 2016.48 pregnancies with history of the previous cesarean section included in study for ultrasound scan. Study was conducted to confirm the association of placenta previa in patients with previous history of caesarean section, by determine the incidence of placenta previa in the time of scanning based on the frequency the age and number of cesarean deliveries, and to correlate the incidence of the placenta previa with the risk factor.

Obstetrical ultrasound was done using 3.5MHz convex transducer on Mindary ultrasound scanner, Criteria have been identified in Details including age, parity, number of sections, duration of pregnancy and the sonographic exam has been performed to determine the location of placenta. Vaginal examination not performed. From the total of 48 pregnancies with history of cesarean section, 12 had one cesarean section, 14 had two cesarean section, 20 had three cesarean section, 10 had four cesarean section, and 2 had five cesarean section. The incidence of placenta previa(60.5%) was significantly than the incidence of normal placenta location(39.5%)which confirm the association of previous cesarean section with placenta previa.
ملخص الدراسة

هذه الدراسة تحليلية وصفية أجريت بمستشفى الدايات (امدرمان) بقسم النساء والتوليد في الفترة ما بين نوفمبر 2015 إلى إبريل 2016.

أجريت هذه الدراسة لتأكيد تقدم المشيمة في النساء الاتي أجريت لهن عمليات قيصرية سابقة , وذلك على اساس عدد الحالات وعمر الأم وعدد مرات العمليات القيصرية ومن ثم مقارنتها مع نسبة حدوث تقدم المشيمة . تم فحص جميع النساء باستخدام جهاز الموجات فوق صوتية باستخدام تردد 3.5 ميغا هيرتز.

تم فحص 48 حاملًا خضعت لعملية قيصرية سابقة بالمنشار البطني ولم تتم أي فحصات بالمسبار المهبلي , وتم تسجيل بيانات العمر وعدد مرات الولادة القيصرية السابقة وفترة الحمل وعدد مرات الحمل.

كان عدد النساء الاتي خضعن لعمليات قيصرية سابقة 48, 12 خضعن لعملية قيصرية واحدة , 14 أجريت لهن عمليات قيصرية سبعة و10 أجريت لهن أربع عمليات و2 أجريت لهن خمسة عمليات قيصرية سابقة .

وجدت الدراسة ان نسبة حدوث تقدم المشيمة التي تحدث نتيجة للعملية القيصرية بنسبة (60.5%) المشيمة الطبيعية بنسبة (39.5%) وهذا الاختلاف يؤكد ارتباط العملية القيصرية السابقة مع المشيمة المتقدمة.
### List of abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AFV</td>
<td>Amniotic Fluid Volume</td>
</tr>
<tr>
<td>EVS</td>
<td>Endovaginal Sonography</td>
</tr>
<tr>
<td>FMC</td>
<td>Focal Myometrial Contraction</td>
</tr>
<tr>
<td>LMP</td>
<td>Last Menstrual Period</td>
</tr>
<tr>
<td>PROM</td>
<td>Premature rupture of membrane</td>
</tr>
<tr>
<td>SCH</td>
<td>Subchorionic Hematoma</td>
</tr>
<tr>
<td>TAS</td>
<td>Transabdominal Sonography</td>
</tr>
<tr>
<td>TPs</td>
<td>Transperineal Sonography</td>
</tr>
<tr>
<td>MA</td>
<td>Maternal Age</td>
</tr>
<tr>
<td>HCG-</td>
<td>Human Chorionic Gonadotripin</td>
</tr>
<tr>
<td>HM</td>
<td>Hydatidiform Mole</td>
</tr>
</tbody>
</table>
## List of figures and graphs

<table>
<thead>
<tr>
<th>Figure</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-1</td>
<td>Relationship of the Title and surrounding Gestational sac and surrounding deciduas</td>
</tr>
<tr>
<td>2-2</td>
<td>Fetal and maternal circulation</td>
</tr>
<tr>
<td>2-3</td>
<td>Normal Early Placenta</td>
</tr>
<tr>
<td>2-4</td>
<td>Normal Cord Insertion</td>
</tr>
<tr>
<td>2-5</td>
<td>Posterior Placenta</td>
</tr>
<tr>
<td>2-6</td>
<td>Retroplacental Complex</td>
</tr>
<tr>
<td>2-7</td>
<td>Central Complete Placenta Previa</td>
</tr>
<tr>
<td>2-8</td>
<td>complete and marginal placenta</td>
</tr>
<tr>
<td>2-9</td>
<td>Posterior Marginal Placenta Previa</td>
</tr>
<tr>
<td>4-1</td>
<td>Parity distribution in cases</td>
</tr>
<tr>
<td>4-2</td>
<td>Association of placenta previa with mate mal age</td>
</tr>
<tr>
<td>4-3</td>
<td>Association of placenta previa with number of cesarean delivery</td>
</tr>
<tr>
<td>4-4</td>
<td>Distribution of the placenta location in the cases</td>
</tr>
</tbody>
</table>
### List of tables

<table>
<thead>
<tr>
<th>Table</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>4-1</td>
<td>Parity distribution in cases</td>
</tr>
<tr>
<td>4-2</td>
<td>Association of placenta previa with maternal age</td>
</tr>
<tr>
<td>4-3</td>
<td>Association of placenta previa with number of cesarean delivery</td>
</tr>
<tr>
<td>4-4</td>
<td>Distribution of the placenta location in the cases</td>
</tr>
</tbody>
</table>
List of Content

<table>
<thead>
<tr>
<th>Title</th>
<th>Page Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quran</td>
<td>I</td>
</tr>
<tr>
<td>Dedication</td>
<td>II</td>
</tr>
<tr>
<td>Acknowledgement</td>
<td>III</td>
</tr>
<tr>
<td>Abstract</td>
<td>IV</td>
</tr>
<tr>
<td>ملخص البحث</td>
<td>V</td>
</tr>
<tr>
<td>List of abbreviations</td>
<td>VI</td>
</tr>
<tr>
<td>List of figures and graphs</td>
<td>VII</td>
</tr>
<tr>
<td>List of table</td>
<td>VIII</td>
</tr>
<tr>
<td>List of content</td>
<td>IX</td>
</tr>
</tbody>
</table>

**Chapter one**

| Introduction                  | 1           |
| Problem of the study          | 3           |
| Objectives                    | 3           |
| Ethical Issue                 | 3           |
| Overview of the study         | 4           |
### Chapter two

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anatomy of Placenta</td>
<td>5</td>
</tr>
<tr>
<td>Physiology</td>
<td>7</td>
</tr>
<tr>
<td>Ultrasound Evaluation of placenta</td>
<td>10</td>
</tr>
<tr>
<td>Placenta Previa</td>
<td>15</td>
</tr>
<tr>
<td>Role of Ultrasound in diagnosis of placenta previa</td>
<td>19</td>
</tr>
<tr>
<td>Previous study</td>
<td>20</td>
</tr>
</tbody>
</table>

### Chapter three

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methodology</td>
<td>21</td>
</tr>
</tbody>
</table>

### Chapter four

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Results</td>
<td>24</td>
</tr>
</tbody>
</table>

### Chapter five

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discussion</td>
<td>27</td>
</tr>
<tr>
<td>Conclusion</td>
<td>30</td>
</tr>
<tr>
<td>Recommendations</td>
<td>31</td>
</tr>
<tr>
<td>References</td>
<td>32</td>
</tr>
<tr>
<td>Appendices</td>
<td></td>
</tr>
</tbody>
</table>
Chapter One
1-1: Introduction

When placenta is partly or completely implanted in lower segment, it is called placenta previa. (1)

The risk of having placenta previa is increased with high gravidity, high parity, and previous caesarean sections, it is associated with antepartum, intrapartum, postpartum complication as well as the risks of massive blood transfusions, septicaemia and hysterectomy. (1)

The neonatal complication due to placenta previa includes preterm birth, low apgar score, anaemia, neonatal death. (2)

This study was done to look for risk factor for placenta previa particularly, the increasing frequency of placenta previa in patients with multiple caesarean sections; early diagnosis of placenta previa, identification of risk factor such as previous caesarean section, D&C, smoking, multiparity, malpresentation, expectant management and adequate availability of blood may help in better outcome by reducing the fetomaternal complications.

Therefore the aim of this study to assess the relationship between previous cesarean section and subsequent development of placenta previa.

Several studies, based on ultrasonography findings, have shown that the incidence of placenta previa is about 3% to 5% in a normal obstetric population during midtrimester. (3)

However, this frequency falls dramatically to almost 0.3% to 0.7% among term pregnancies as a result of the so-called placental migration.”

Almost four decades ago Bender first observed an increased frequency of placenta previa among women with uterine scarring (because of cesarean delivery or abortions) in prior pregnancies. (4)
An association between placenta previa and prior cesarean delivery is biologically plausible; damage to the endometrial and myometrial uterine lining (during cesarean delivery) can predispose to a low implantation of the placenta in the uterus. Likewise, curettage of the uterus during a spontaneous or induced abortion may significantly damage the endometrium and uterine cavity so as to increase the risk for placenta previa: Unfortunately, we were unable to evaluate the association between curettage and subsequent development of placenta previa because of insufficient information from published studies.\(^{(5)}\)
1-2: Problem of the study

Increasing frequency of placenta previa in patients with previous history of caesarean sections.

1-3: Objectives

1-3-1: Main Objective

To confirm the association of placenta previa in patients with previous history of caesarean sections.

1-3-2: Specific Objectives

- To determine the placenta previa in the time of scanning based on the frequency, the age and number of cesarean deliveries.
- To correlate the incidence of the placenta previa with the risk factor.

1-4: Ethical Issue

The procedures of the scanning with ultrasound will be explained to the women included in study and the purpose of incorporating data in the study, where verbal consent acquired in case of agreement. Permission from the hospital and the department granted; no patient’s information disclosed.
1-5: Overview of the study

This study is concerned with association of placenta previa in patients with history of cesarean delivery, it’s falls into five chapters.

Chapter one is an introduction, which include introductory notes on pregnancy, as well as statement of the problem and study objectives. While Chapter two a comprehensive scholarly literature reviews concerning the previous studies .

Chapter three deals with the methodology, where it provides an outline of material and methods used to acquire the data in this study as well as the method of analysis approach .

While the results were presented in chapter four, and finally Chapter five include discussion of results, conclusion and recommendations followed by references and appendices.
Chapter Two
Chapter Two Literature review

2-1: The placenta anatomy

The placenta and fetus both arise from the same single cell - the zygote, which is the fertilized ovum; hence, the placenta and the umbilical cord and the blood flowing in them are of embryonic or fetal origin.\(^6\)

After the blastocyst attaches to the endometrial surface, it begins the process of implantation. In the early stages of implantation, the trophoblast begins to differentiate into two cell layers - the outer syncytiotrophoblast and the inner cytotrophoblast. As the trophoblast invades the decidua, it breaks down decidual blood vessels and creates a network of blood-filled spaces known as lacunae; the lacunar network evolves into the inter villous spaces of the mature placenta.\(^7\)

As the syncytiotrophoblast becomes embedded in the decidua, the inner cytotrophoblast proliferates forming a complicated system of tiny projections that push into the syncytiotrophoblast and the lacunae. The cytotrophoblastic projections, called the primary chorionic villi, eventually become branched and vascularized by fetal blood vessels originating from the arteries in the umbilical cord. Initially, the entire surface of the developing gestational sac is covered with chorionic villi. As the chorionic sac grows, the villi underneath the decidua capsularis are compressed and their blood supply reduced; subsequently, these villi degenerate, resulting in an avillous portion of the chorionic sac known as the smooth chorion or chorion laeve. Meanwhile, the chorionic villi associated with the deeper decidua basalis proliferate, branch profusely and hypertrophy to form the chorion frondosum or villous chorion (future placenta).\(^{14}\)
Fig 2.1 Demonstrate the relationship of the gestational sac and surrounding deciduas: 1- decidue, 2- uterine cavity, 3- chorion leave, 4- amnion, 5- decidue capsularis, 6- chorion frondosum, 7- decidue basalis, 8- youlk sac\(^{(14)}\).
2-2: physiology

In order to grow and to differentiate into the various tissues that form the placenta, the placenta must be able to metabolize raw materials from the maternal blood pumped into the intervillous spaces; the metabolism of protein in the placenta is largely governed by the demands of fetal and placental growth. (8)

Large amounts of progesterone are produced during the first months of pregnancy by the corpus luteum but the placenta takes over this activity after the third month of pregnancy, the processes influenced by estrogen and progesterone include the synthesis of protein and the metabolism of cholesterol, the functioning of specific organs such as the maternal uterus and breast and the regulation of many aspects of fetal development, another hormone produced by the placenta is human chorionic somatomammotropin (hCS) or human placental lactogen; HCS can be detected in maternal serum as early as the sixth week of pregnancy, it rises steadily during the first functional representation of the placenta featuring fetal and maternal circulation. (9)

Among the physiological processes in pregnancy that call for particular precise coordination are those concerned with protecting the embryo from immunological rejection by maternal tissue. One of the many mechanisms that seem to play a part in this task is the non-specific suppression of lymphocytes, the cells that would normally mediate the rejection of a foreign tissue to the host tissue. Another highly specific immunological function of the placenta is to supply the fetus at the end of pregnancy with maternal antibodies of the type known as immunoglobulins. (9)
These antibodies summarize the mother's experience of and resistance to various infections and provide the newborn infant with a ready-made prophylaxis against infection until its own immune system can begin to function. (14).

2-2-1: Structure of placenta

The placenta has two functional components:
1- A fetal portion that develops from the chorion.
2- A maternal portion formed by the decidua.

![Placenta Diagram](image)

**Fig 2.2:** Fetal and maternal circulation. (14)
**2-2-2: Placental Maternal-Fetal Circulation**

Maternal blood propelled under maternal blood pressure and heart rate enters the intervillous spaces of the placenta via numerous spiral arterioles and to the maternal circulation via the basal veins.$^{(14)}$

Oxygenated and nutrient-rich fetal blood passes from the fetal capillary bed in the villi to an enlarging system of veins that eventually converge to form a single umbilical vein in the umbilical cord, in the fetal abdomen, the umbilical vein courses cranially towards the liver where it joins the portal sinus (umbilical portion of the left portal vein) to supply the liver.$^{(14)}$

Most of the fetal blood bypasses the liver via the ductus venosus which originates at the portal sinus and terminates in the inferior vena cava or left hepatic vein, while Deoxygenated blood returns from the fetus to the placenta via two umbilical arteries which originate at the right and left internal iliac arteries in the fetal pelvis, finally the two umbilical arteries divide into numerous radiating branches as the cord inserts in the placenta.$^{(14)}$

Fetal and maternal blood does not normally come into direct contact. CD/PD is helpful technologies to demonstrate the normal and deranged anatomic vascular relationships of the maternal and fetal circulations.$^{(14)}$
2-3: Ultrasound Evaluation of placenta

General evaluation of the placenta should be a routine part of every second and third trimester ultrasound study as indicated in the American Institute of Ultrasound in Medicine Antepartum Obstetrical Ultrasound Examination Guidelines; The placental location, appearance, and its relationship to the internal cervical os should be recorded).

2-3-1: Location

Placental location is described with respect to its relative position on the uterine wall and its relationship to the internal os, the placenta may be described as predominantly anterior, posterior, fundal, right or left lateral. \(^{(14)}\)

A placenta that is distant from the internal os may be described as being in a normal location, central, or non previa. \(^{(14)}\)

A low-lying placenta describes a placenta which appears to extend into the lower uterine segment and is within 1-2 cm of the internal os. \(^{(14)}\)

A placenta previa describes a placenta which appears to partly or completely cover the internal os. \(^{(14)}\)

Documentation should include an image showing placental location and the relationship to the internal os. \(^{(14)}\)
Fig 2.3: Normal Early Placenta

Longitudinal TAS image of the uterus (bladder is empty) shows a normal anterior placenta (1) and a retroplacental FMC (2). (14)

2.3.2 Cord Insertion:

The placental cord insertion site should be sought and documented; According to the literature, the placental cord insertion site may be visualized with real-time ultrasound between 50-60% of pregnancies in routine clinical practice and over 95% of cases with colour Doppler. (14)

Not surprisingly, the placental cord insertion site is most difficult to assess when the placenta is posterior and in the presence of oligohydramnios. (14)

The umbilical cord normally inserts near the center of the placenta, a cord which appears to insert near the edge of the placenta is called a marginal insertion or battledore placenta and is generally thought to be of no concern. (14)
A cord which fails to reach the placenta and inserts in the membranes is known as a velamentous insertion and may complicate the pregnancy especially if the intramembranous umbilical vessels are close to or cross the internal os (a condition known as vasa previa). \(^{(14)}\)

**Fig:2.4 Normal Cord Insertion** Sonogram of the uterus shows a posterior placenta with a central umbilical cord insertion. \(^{(15)}\)

### 2.3.3 : placenta Echo Texture:

The normal placenta appears as a sonographically uniform structure with mid amplitude echoes (in contrast, the adjacent uterine wall (decidua and myometrium) appear less echogenic or hypoechoic), in the third trimester, the placenta generally appears less homogeneous and may have small anechoic or hypoechoic areas of different pathological etiologies. Calcium
deposits are seen in the majority of placentas in the third trimester and appear as high amplitude linear echoes.

The fetal or amniochorionic surface of the placenta (generally referred to by authors as the chorionic plate) forms a strong interface with the amniotic fluid. This surface is very angle dependent (specular reflector) and appears as a bright (white) echo when the sound beam strikes at normal incidence (perpendicular to the interface). \(^{(14)}\).

![Image of posterior placenta](image)

**Fig 2.5 Posterior Placenta** Transverse TAS image of a posterior placenta shows the normal hypoechoic uterine wall behind the placenta. \(^{(15)}\)

**2-3-4: Retroplacental Uterine Wall:**

The retroplacental uterine wall consists of the richly vascular myometrium and decidua basalis. These tissues are distinctly hypoechoic in comparison to the placenta. After 18 weeks gestation, the normal anterior retroplacental uterine wall (sometimes referred to as the subplacental complex or the retroplacental space) has an average thickness of 9.5 mm, the sonographic diagnosis of placental creta depends on this normal hypoechoic zone being invaded by more echogenic villi and appearing thinner or not seen, the
endometrial veins in the decidua basalis may be quite dilated and appear as irregular, tubular spaces especially when the placenta is posterior (probably due to diminished venous drainage when the patient is supine and the weight of the uterus on the posterior uterine wall impedes venous flow). (14)

Other retroplacental abnormalities include hematomas associated with abruption of the placenta and fibroids which must be distinguished from focal myometrial contractions. (14)

**Fig2.6** Retroplacental Complex Sagittal TAS image of a posterior placenta (1) shows a prominent retroplacental complex and the "end" of a FMC(3). (15)
2-4: Placenta Previa

Placenta previa describes a placenta that partially or completely covers the internal os. Three degrees of placenta previa are generally described:

2-4-1 Complete or Total Previa

The internal os is completely covered by the placenta. Complete placenta previa may be either symmetric or asymmetric. A symmetric placenta previa is indicated when the central portion of the placenta is over the os and equal portions of the placenta appears to be attached to the anterior and posterior walls of the lower uterine segment. With asymmetric, complete placenta previa, the placenta is predominantly anterior or posterior in relation to the internal os. (14)

Fig 2.7 Central Complete Placenta Previa

A) Midline EVS image at 14 weeks. B) Midline B) TAS image at 22 weeks. The arrow indicates the approximate location of the internal os. (15)


**Fig 2.8** complete and marginal placenta. (14)

**2-4-2: Marginal Previa**

The internal os is only partially covered by placenta.

**Fig 2.9** Posterior Marginal Placenta Previa A) Midline TAS image with a partially distended bladder shows a posterior placenta that is overlying the
area of the internal os. B) Midline EVS image shows the placenta covering the os by a distance of 0 mm. Follow up at 32 weeks showed complete resolution.  

2-4-3: Low-Lying Placenta

The placenta is close to the edge of the internal os but does not extend over it. Low lying placentas generally convert to higher positions by 34 weeks gestation.

![Diagram of placenta](image)

**Fig 2.9** low-lying posterior placenta.  

The incidence of placenta previa at the time of delivery is reported to be about 1%. Three factors which increase the relative risk of placenta previa are advanced maternal age, parity, and smoking. Multiparous women are twice as likely to have placenta previa than women delivering for the first time.
A possible reason for this association is endometrial scarring which occurs with increasing age or repeated pregnancies. The scarring is thought to cause inadequate placental blood supply, for which the placenta compensates by becoming thinner and occupying a greater surface area of the endometrium.\textsuperscript{(14)}

A consequence of greater placental surface area attachment is an increased chance for encroachment over the internal os.

The majority of patients with placenta previa present with painless vaginal bleeding near the end of the second trimester or early in the third trimester (antepartum hemorrhaging or APH) however placenta previa may remain asymptomatic until the onset of labour.\textsuperscript{(14)}

The clinical course and management of placenta previa depends on several factors including the onset and severity of APH, the maturity of the fetus, and the degree of placenta previa.\textsuperscript{(14)}
2-5: Role of Ultrasound in diagnosis of placenta previa

Ultrasound is the imaging modality of choice for the prenatal diagnosis of placenta previa however the sonographer must be aware of technical limitations and common interpretation pitfalls leading to false positive and false negative diagnosis.

The false negative rate for the detection of placenta previa is very low (U/S misses the diagnosis of placenta previa), and makes ultrasound a good screening tool to rule out the diagnosis.

The most significant factors contributing to a relatively high false positive rate (U/S falsely indicates the diagnosis of placenta previa) include distortion of the lower segment by an overdistended bladder and focal myometrial contractions, and early diagnosis. \(^{(14)}\)

The decreasing incidence of placenta previa with increasing gestational age is attributable to the concept of “placental migration or placental retraction”. The placenta does not truly migrate; the apparent upward movement of the placenta is due to the development of the lower uterine segment. At 16 weeks gestation, the placenta occupies approximately one-half of the internal surface area of the uterus; however, because the placenta grows more slowly than the uterus, at term it occupies only one quarter to one-third of the uterine surface area.

The majority of apparent placenta previas and low-lying placentas diagnosed with ultrasound in the first and second trimester will resolve.
2-9: Previous studies

   Placenta previa and previous cesarean section. OBJECTIVE: To assess the relationship between previous cesarean section and subsequent development of placenta previa and placenta previa with acrrete, result showed (0.83%) had placenta previa, (10.2%) of whom had a history of previous cesarean section. The incidence of placenta previa was significantly increased in those with a previous cesarean section (1.31%) compared with those with an unscarred uterus (0.75%)

2. Bellala Swetha (May. 2016), Study on Association of Placenta Previa with Previous Cesarean Section Pregnancy his result found 24 cases of placenta previa were found in the study group and incidence is 6% compared to incidence of only 1.75% (7 cases) in control group (p< 0.05). Adherent placenta is also increased in study group (4 cases) compared to control group.
Chapter Three
Chapter Three Methodology

3.1: Type of research
This is descriptive study carried in obstetrics & gynaecology department of the military hospital - Omdurman.

3.2: Population of the study
Forty eight pregnancies with history of the previous cesarean section have been included in study for ultrasound scan.

3.3: Inclusion and exclusion criteria
3.3.1: Inclusion Criteria
Pregnant patients with history of cesarean section.

3.3.2: Exclusion Criteria
Patient with Placental abruption.
Patient with Multiple gestations.

3-4: Study area and duration
Study carried in obstetrics & gynaecology department of the military hospital – Omdurman, The duration of study was 5 months from first November 2015 to April 2016, to look for association of placenta previa in patients with previous history of caesarean sections.
3-5 Methods and material:
Patients fulfilling the inclusion criteria have been identified in details including age, parity, number of sections, duration of pregnancy and the sonographic exam has been performed to determine the location of placenta, Vaginal examination not performed.

3.5.1 Instrumentation:
Major Ultrasound machine mindray DC -8 with 3.5- 5MHZ convex probe with facility of computerized reporting system used.

3.5.2: Technique
Pregnant Women scanned in supine position, curivlinear probe and factory preset for obstetrical scan was determined for best resolution and image detailed.
Routine obstetrical scan done with patient in supine position, placenta location is determined and traced to the end lower edge.
The lower edge of placenta measured from internal os, and then examination repeated for three time then average is register.

3.5.3: Data collecting
The data collected by:
- Daily referred patient
- Websites.
- Textbook.
- Data collecting sheet.
3.6: Data analysis

The data arranged in tables, and analyzed by computerized statistical programs (Microsoft Excel).

3.7: Data storage

All data collecting during the study have been stored in:
- Personal computer.
- Data collecting sheet.
- Ultrasound Images.

3.8: Ethical consideration

- No patient details will be published.
- Verbal permission from patient and department.
Chapter Four
Chapter Four Results

The following figures and tables represent the results of this study, the data of forty eight pregnant women collected by master data sheet from first November 2015 to April 2016, using ultrasound machine Mindray DC-8 and 3.5 MHZ curved transducer and hard copy print for documentation the relation between different variables are represented by using scatter plot diagram, bar graph, and ANOVA test, t-test

Graph4.1: Parity distribution according to cases.

<table>
<thead>
<tr>
<th>Parity</th>
<th>No of cases</th>
<th>percentage%</th>
<th>percentage of previa</th>
</tr>
</thead>
<tbody>
<tr>
<td>1*4</td>
<td>24</td>
<td>50%</td>
<td>38%</td>
</tr>
<tr>
<td>p5</td>
<td>14</td>
<td>29.20%</td>
<td>31%</td>
</tr>
<tr>
<td>above P5</td>
<td>10</td>
<td>20.80%</td>
<td>31%</td>
</tr>
</tbody>
</table>

Table4.1 Parity distribution in cases
Table 4.2 Association of placenta previa with maternal age

<table>
<thead>
<tr>
<th>Age group</th>
<th>No of cases</th>
<th>Percentage of previa in MA</th>
<th>Frequency of previa</th>
<th>Percentage of previa in total</th>
</tr>
</thead>
<tbody>
<tr>
<td>23-28</td>
<td>10</td>
<td>20</td>
<td>2</td>
<td>6.9</td>
</tr>
<tr>
<td>29-34</td>
<td>16</td>
<td>62.5</td>
<td>10</td>
<td>34.5</td>
</tr>
<tr>
<td>35-40</td>
<td>19</td>
<td>73.7</td>
<td>14</td>
<td>48.2</td>
</tr>
<tr>
<td>41-43</td>
<td>3</td>
<td>100</td>
<td>3</td>
<td>10.4</td>
</tr>
<tr>
<td>Total</td>
<td>48</td>
<td></td>
<td>29</td>
<td>100</td>
</tr>
</tbody>
</table>

**Fig 4.2** Association of placenta previa with maternal age
Graph 4.3 Association of placenta previa with number of cesarean delivery

Graph 4.4: Distribution of the placenta location in the case
Chapter Five
Chapter Five

5.1: Discussion

Placenta previa is a common obstetrical problem associated with considerable maternal & fetal morbidity and mortality. From the total of 48 pregnancies with history of cesarean section, 12(25%) had one cesarean section, 14(29.2%) had two cesarean section, 10(20.8%) had three cesarean section, 10(20.8%) had four cesarean section, and 2(4.2%) had five cesarean section. The percentage of the placenta previa associated with the number of cesarean section was 0%, 78%, 100%, 70% and 50% respectively. Linear equation shows that there is increased incidence of placenta previa as the number of cesarean section increased. Majority of the pregnancies had parity ranged from (1- 4) which represent 24(50%), 14(29.2%) had 5 parity, and 10(20.8%) had parity above five. The location of the placenta in the studied cases was normal in the 19(39.5%), placenta previa major degree in 13(27.2%), and placenta previa manor degree in 16(33.3%) of all cases. The incidence of placenta previa (60.5%) was significantly higher than the incidence of normal placenta location (39.5%) which confirms the association of previous cesarean section with placenta previa. The main maternal age was 33 year old, ranged from 23 to 42 years, the incidence of placenta previa for each age group were 20% for group ranged from 23-28, 62% for group ranged from 29-34, 73% for group ranged from 35-40 and 100% for group ranged from 41-43. There is strong association
maternal age and the incidence of placenta previa in which the incidence increase as maternal age increased.

The record agree with To WW Leung WC 1995 Oct found from a total of 50,485 deliveries, 421 (0.83%) had placenta previa, 43 (10.2%) of whom had a history of previous cesarean section. The incidence of placenta previa was significantly increased in those with a previous cesarean section (1.31%) compared with those with an unscarred uterus (0.75%).

In Bellala Swetha (May. 2016), his result found 24 cases of placenta previa were found in the study group and incidence is 6% compared to incidence of only 1.75% (7 cases) in control group (p< 0.05). Adherent placenta is also increased in study group (4 cases) compared to control group.

Incidence of placenta previa in large scale studies done abroad was found to be 0.2-0.5%, 3.87% patients had placenta previa.
5.2: Conclusion

In conclusion, this study demonstrates an elevated risk of placenta previa among women with prior cesarean delivery. Moreover, this risk increases dramatically with increasing number of prior cesarean deliveries and maternal age. This study provides yet another reason for reducing the primary cesarean delivery rate and for advocating vaginal birth for women with prior cesarean delivery.

Early diagnosis of placenta previa, and identification of risk factors such as previous caesarean section, may help in better outcome by reducing the fetomaternal complications.
5.3: Recommendation

Pregnant women with a history of cesarean delivery or abortion regarded as being at increased risk for the subsequent development of placenta previa.

The rates of primary cesarean delivery have been steadily increasing in the past decade. Although this increase has probably improved fetal and neonatal morbidities and other adverse reproductive outcomes as well, the public health implications for the rise in cesarean delivery rates have been poorly addressed.

By reducing the primary and repeat cesarean delivery rates the risk for placenta previa could be reduced.
References


14. Burwin Institute

15. Ultrasound-images.com
The National Ribat University
Faculty of graduate studies and scientific research
The association of placenta previa in patients with history of cesarean delivery
Data collection sheet

<table>
<thead>
<tr>
<th>Patient ID:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Age:</td>
<td></td>
</tr>
<tr>
<td>Number of Parity:</td>
<td></td>
</tr>
<tr>
<td>Number of cesarean section:</td>
<td></td>
</tr>
<tr>
<td>GA W + D</td>
<td></td>
</tr>
<tr>
<td>Placenta location:</td>
<td>High</td>
</tr>
<tr>
<td></td>
<td>partial previa</td>
</tr>
<tr>
<td></td>
<td>complete previa</td>
</tr>
</tbody>
</table>
Appendices:

Ultrasound images of placenta

Case NO (1)

Age: 36  GA: 36 week  Parity: 5  NO of C/S: 3

Placenta location: Partial previa
Case NO (2)

Age: 43  GA: 37 week  Parity: 10  NO of C/S: 2
Placenta location: marginal placenta

Case No (3):

Age: 35  GA: 33 week  Parity: 5  No of C/S: 3
Placenta location: Partial previa
Case No (4):

Age: 37  GA: 35 week  Parity: 4  No of C/S: 2

Placenta location: anterior high

Case No (5):

Age: 36  GA: 24 week  Parity: 6  No of C/S: 5

Placenta location: fundal placenta
Case No (6):

Age: 30              GA: 25 week                Parity: 3              No of C/S: 2

Placenta location: anterior upper

Case No (7):

Age: 33              GA: 38 week                Parity: 4              No of C/S: 3

Placenta location: complete previa
Case No (8):

Age: 30  GA: 41 week  Parity: 5  No of C/S: 4
Placenta location: fundal placenta

Case No (9)

Age: 30  GA: 41 week  Parity: 5  No of C/S: 4
Placenta location: fundal placenta
Case No (10)

Age: 34  GA: 31 week  Parity: 5  No of C/S: 1
Placenta location: posterior upper

Case No (11):

Age: 42  GA: 36 week  Parity: 4  No of C/S: 2
Placenta location: complete previa
Case No (12):

Age: 31                GA: 36 week                Parity: 5                No of C/S: 3

Placenta location: marginal placenta

Case No (13):

Age: 28                GA: 34 week                Parity: 2                No of C/S: 1

Placenta location: anterior upper
Case No (14)

Age: 30  
GA: 25 week  
Parity: 3  
No of C/S: 2  
Placenta location: anterior upper

Case No (15)

Age: 38  
GA: 29 week  
Parity: 3  
No of C/S: 2  
Placenta location: posterior high