

# FREQUENCY OF RETAINED PRODUCTS OF CONCEPTION ON ULTRASOUND AMONG WOMEN PRESENTING WITH SPONTANEOUS ABORTION

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## ABSTRACT

**Background:** Spontaneous abortion or miscarriage is an early loss of pregnancy before or within 24th gestation weeks. In many cases, it usually happened into 12 weeks recorded as early abortion and, in some cases, its interval lies into 13-24 weeks. Global statistics reflect that every year 44 billion abortion is performed and half of them performed un-safely. From this ratio 26 million abortion cases are legal and 20 million illegal abortion cases performed with 70,000 maternal deaths every year.

**Objective:** To determine the frequency of retained products of conception on ultrasound among women with spontaneous abortion

**Settings:** Department of Obstetrics and Gynecology, Hayatabad Medical Complex, Peshawar.

**Study Design:** Descriptive, Cross-sectional study.

**Duration:** 6 months, From 24/9/2018 to 24/3/2019.

**Material and Methods:** In this study, 132 patients were observed. All women were subjected to a detailed history and clinical examination regarding Spontaneous abortion. All the patients were subjected to abdominal greyscale ultrasound to detect Retained Products of Conception. All the observations were analyzed through SPSS 20.0. Chi-square test was performed on the results.

**Results:** Obesity is the leading factor of spontaneous abortion in our research. Female who entered into mature adulthood have more chances of miscarriage than the younger ones. Cross marriages are found insignificant in our research. Only 41% of cases have RPOC.

**Conclusion:** Our study concluded that in mature adulthood frequency of retained products of conception was highly (41%) observed on ultrasound machines.

**Key Words:** Retained products of conception, spontaneous abortion, obesity, cross marriages

## INTRODUCTION

Spontaneous abortion or miscarriage is an early loss of pregnancy before or within 24th gestation weeks. In many cases, it usually happened into 12 weeks recorded as early abortion and, in some cases, its interval lies into 13-24 weeks. Ectopic pregnancy Gestational trophoblastic disease (GTD) is not currently categories into spontaneous abortion. The physician reported bleeding after 24 weeks as an antepartum hemorrhage<sup>1</sup>. After these symptoms and gathered information miscarriage is defined as a complete miscarriage if no pregnancy tissue in the uterine cavity with the help of an ultrasound machine with intrauterine pregnancy history, heavy bleeding, and clots. In some researches,

it is also defined as a pregnancy of unknown location after confirmation of no signs of Intrauterine pregnancy<sup>2</sup>.

In some researches, early miscarriage was clinically diagnosed when the POC (products of conceptions) expelled, contracted uterus, and cervical os of women is closed. Researcher observed abortion in 12 or above gestational period including expelled POC retained fetal membrane, and placental tissues inside the vagina which results in incomplete abortion after the clinical diagnosis of the condition<sup>3</sup>. Some studies demonstrate the clinical signs of miscarriage as vaginal bleeding, worsen pain that differentiate the condition from the menstruation pain, internal complexities that threatened women for future miscarriage<sup>4</sup>. Many studies observed that most of the women passed through the period where their predictable miscarriage converted into complete abortion. In some other cases, the physician reported heavy bleeding and clots as compared to the bleeding in the menstruation cycle. Researchers demonstrate that in an early pregnancy, woman having a history of continued pregnancy, along with vomiting had decreased 30% risk of miscarriage as compared to the women having bleeding in her early pregnancy

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interval<sup>5</sup>.

In all around the world, every miscarriage case needs to be examined under the transvaginal ultrasound (TVS). In many countries 98% of complete miscarriage cases were diagnosed under transvaginal ultrasound according to statistics. But some studies explored the resistance of women for the transvaginal scan after this resistance diagnosis takes place under the supervision of physicians with the help of a transabdominal ultrasound machine. Physicians should be aware of the limitations of transabdominal ultrasound. A visible heartbeat can be easily shown via this ultrasound. In the first trial, if a heartbeat is not visible then the physician should move on to other trials. Ultrasound can be performed for the period of 7 to 14 days. This duration depends on the mean measurements of the gestational sac and length of crown-rump length. Physicians must be aware of the women's body structure because unknown location pregnancy might be an ectopic pregnancy<sup>7</sup>.

According to multiple research reports almost 20% of pregnancies go through the miscarriage stage which causes psychological distress among female population. Another significant research observed the relationship between psychological morbidity and the miscarriage rate. Researchers Friedman and Gath found out that almost 50% of miscarriages are the result of women's depressive disorders and this has been increasing with time<sup>8</sup>.

Other studies demonstrate the 18.6% ratio of depression among women after spontaneous abortion. Whereas some statistics reflect 26% of cases of depression with grief. This ratio was found higher among childless women, or women with poor social support, relationship complexities, further reasons are under observation<sup>9</sup>.

Global statistics reflect that every year around 44 million abortions are performed and half of them are performed unsafely. 26 million abortion cases are legal and 20 million illegal abortion cases are performed with 70,000 maternal deaths every year. Similarly, only 30 to 50% pregnancies pass the first trimester whereas 80% spontaneous abortions noticed where in the first trimester women lost their babies before physicians detect the embryo<sup>10</sup>. Psychological distress, excessive usage of alcohol, vascular diseases, diabetes, hormonal problems, infection, double uterus, age, accidental trauma are the leading reasons for spontaneous abortion. In a study researcher demonstrate that 30% cases of spontaneous abortion were due to the retained POC (RPOC) in the first trimester<sup>11</sup>. Early symptoms of RPOC include fever, abdominal pain, and vaginal bleeding which cause hemorrhage, endometritis, and even Asherman's syndrome. RPOC can easily be treated after diagnosis through expectant management, use of uterotonic medications such as prostaglandin E1 analogs, and surgical interventions such as dilation

and curettage or hysteroscopic removal<sup>12</sup>. Esmaellou H observed in his study that 67.4% of cases have RPOC after spontaneous abortion<sup>13</sup>.

A large number of studies have already been conducted on this topic in our population for the last five years thus the present study is designed to determine the frequency of RPOC on ultrasound among women presenting with first-trimester spontaneous abortion. Spontaneous abortion is not uncommon in our population owing to the high burden of most of its risk factors. This study will be an attempt to highlight the magnitude of RPOC among women with spontaneous abortion as mentioned above, failure to diagnose in time, this can lead to life-threatening complications. The results of this study provide us the latest and updated information about retained products of conception on ultrasound which will be shared with other obstetricians to make aware the gravity of the problem and for future research recommendations.

## **OBJECTIVE**

The objective of this study was to determine the frequency of retained products of conception on ultrasound among women with spontaneous abortion.

## **METHODOLOGY**

This descriptive cross-sectional research was conducted in Department of Obstetrics and Gynecology, Hayatabad Medical Complex, Peshawar. Research was conducted within 6-months' time period. Data was collected during 24/9/2018 to 24/3/2019. The study was conducted after approval from the hospital's ethical and CPSP research committee. All women meeting the inclusion criteria (as per operational definition) were included in the study through OPD or ER department. Written informed consent was taken from the patient. All women were subjected to a detailed history and clinical examination regarding Spontaneous abortion. All patients were subjected to abdominal greyscale ultrasound to detect Retained Products of Conception. All observations were recorded in the presence of expert obstetrician fellow of CPSP and the ultrasound was done by an expert radiologist having a minimum experience of five years. Women from 15-45 years of age group with spontaneous abortion before 24 completed weeks of gestation; and suffering from any parity was selected for this research. On the other hand, those women who have a history of trauma, bleeding disorders, diabetes, hypothyroidism, or any immune system disorder before and during pregnancy were excluded from this research. All basic information of selected participants was recorded on pre-designed Performa by the trainee herself. Confounders and other biases were controlled by strictly following exclusion criteria. Data were analyzed using SPSS 20.0. Quantitative variables like age, BMI was be described as mean  $\pm$  SD. Categorical variables like the previous history of miscarriage,

obesity, RPOC was described in terms of frequencies and percentages. RPOC was stratified with age, previous history of miscarriage, obesity, cousin marriage, previous or family history of abnormal babies to see the effect modifiers. A post-stratification chi-square test was applied for this study. P-value  $\leq 0.05$  was considered a significant value for this research. Actual statistics were presented in the form of tables and diagrams.

## RESULTS

A total of 132 females was selected for this study. All cases of spontaneous abortion were critically diagnosed. Each and every lab report was analyzed, factors and reasons were discussed and presented in the form of tables. In this study age distribution was analyzed as 48(36%) patients were in age range 15-30 years while 84(64%) patients were in age range of 31-45 years. Mean age was 32 years with standard deviation  $\pm 11.98$ . (as shown in Table 1). History of miscarriage was analyzed as 36(27%) patients had positive history of miscarriage while 95(72%) patients had no history of miscarriage. (as shown in Table 2). Status of obesity was examined as 57(43%) patients were non-obese while 75(57%) patients were obese. (as shown in Table 3). Status of cousin marriage was analyzed as 16(12%) patients were in a cousin marriage while 116(88%) patients didn't have cousin marriage. (as shown in Table 4).

Previous or family history of abnormal babies was analyzed as 11(8%) patients had a family history of abnormal babies while 121(92%) patients didn't. (as shown in Table 5). The frequency of retained products of conception was analyzed as 54(41%) patients had retained products of conception while 78(59%) patients didn't. (as shown in Table 6). Stratification of retained products of conception with respect to age, previous history of miscarriage is given in tables 5,6,7. Further information was discussed under the given tables.

From the selected population 27% (36) of females already had a miscarriage whereas the majority of the population 72% (95) in our studies were first timers. Psychological distress after miscarriage was much higher among the group having first experience of miscarriage.

Our research demonstrates that obesity is one of the leading reasons for spontaneous miscarriage. Women beyond the ideal BMI have more chance of spontaneous abortion. 57% (75) cases were reported due to obesity in pregnancy. Some of them having a bulky body before pregnancy and some reported gaining weight due to unhygienic food during pregnancy. Mean BMI was 27 Kg/m<sup>2</sup> with SD  $\pm 3.64$

Cross marriages are one of the common practices in our culture. It has adverse effects on the offspring and the couple. But in our studies 88% (116) miscarriage cases were not family marriages whereas only 12% (16) cases of cousin marriages were reported.

**Table 1: Age Distribution (n=132)**

| Age         | Frequency | Percentage |
|-------------|-----------|------------|
| 15-30 years | 48        | 36%        |
| 31-45 years | 84        | 64%        |
| Total       | 132       | 100%       |

**Table 2: History Of Miscarriage (n=132)**

| History | Frequency | Percentage |
|---------|-----------|------------|
| Yes     | 36        | 27%        |
| No      | 95        | 72%        |
| Total   | 132       | 100%       |

**Table 3: Status of Obesity (n=132)**

| Obesity  | Frequency | Percentage |
|----------|-----------|------------|
| Nonobese | 57        | 43%        |
| Obese    | 75        | 57%        |
| Total    | 132       | 100%       |

**Table 4: Cousin Marriage (n=132)**

| Cousin marriage | Frequency | Percentage |
|-----------------|-----------|------------|
| Yes             | 16        | 12%        |
| No              | 116       | 88%        |
| Total           | 132       | 100%       |

**Table 5: Previous or Family History of Abnormal Babies (n=132)**

| Abnormal babies | Frequency | Percentage |
|-----------------|-----------|------------|
| Yes             | 11        | 8%         |
| No              | 121       | 92%        |
| Total           | 132       | 100%       |

**Table 6: Retained Products of Conception (n=132)**

| Retained products of conception | Frequency | Percentage |
|---------------------------------|-----------|------------|
| Yes                             | 54        | 41%        |
| No                              | 78        | 59%        |
| Total                           | 132       | 100%       |

From 132 selected females, only 8% (11) females came from families with the history of abnormal babies. Rest 92% (121) cases identify with normal and healthy childbirth.

We explored cases of retained products of conception 41% (54) in the uterus after spontaneous abortion in most cases. These cases were handled

**Table 7: Stratification of Retained Products Of Conception W.R.T Age Distribution (n=132)**

| Retained Products Of Conception | 15-30 years | 31-45 years | Total |
|---------------------------------|-------------|-------------|-------|
| Yes                             | 19          | 35          | 54    |
| No                              | 29          | 49          | 78    |
| Total                           | 48          | 84          | 132   |

**Table 8: Stratification of Retained Products Of Conception W.R.T History of Miscarriage (n=132)**

| Retained Products of Conception | Yes | No | Total |
|---------------------------------|-----|----|-------|
| Yes                             | 15  | 39 | 54    |
| No                              | 21  | 56 | 78    |
| Total                           | 36  | 95 | 132   |

by unprofessional nurses which threatened the life of females. From these statistics, we explored that unprofessional ways of abortions are still practiced in our country. People use remedies even for legal abortion procedures. The socio-economic status of families forced females to use tablets for abortion. Unplanned pregnancy was also the major reason for RPOC in our research.

In our study ultrasound demonstrated that after 30 years, the heavy chance of RPOC occurs among females. Obesity, socio-economic pressure, unplanned pregnancies are one of the major reasons that leaves retained products of conceptions in the uterus. But in some cases, we also found fewer cases of RPOC among females. A chi-square test was applied in which P-value was 0.8148.

Among 54 cases of RPOC, we found 15 cases that describe the association of retained products of conception with a history of miscarriage. Whereas 39 cases had no previous occurrence of miscarriages. From the non-RPOC cases, we observed that the ratio of no previous miscarriage experience is still high, only 21 cases were reported with previous miscarriage experience. Chi-square test was applied in which P-value was 0.9491.

## DISCUSSION

Spontaneous abortion or miscarriage is an early loss of pregnancy before or within 24th gestation weeks. In many cases, it usually happened into 12 weeks recorded as early abortion and, in some cases, its interval comes into 13-24 weeks. Ectopic pregnancy Gestational trophoblastic disease (GTD) is not currently categorized into spontaneous abortion. The physician reported bleeding after 24 weeks as an antepartum hemorrhage<sup>1</sup>. After these symptoms and gathered information miscarriage is defined as a complete miscarriage if no pregnancy tissue in the uterine cavity with the help of an ultrasound machine with intrauterine pregnancy history, heavy bleeding, and clots. In some researches, it is also defined as a pregnancy of unknown location

after confirmation of no signs of Intrauterine pregnancy<sup>2</sup>. Researchers demonstrate that in an early pregnancy, women having a history of continued pregnancy, along with vomiting had decreased 30% risk of miscarriage as compared to the women having bleeding in early pregnancy interval<sup>5</sup>.

Our study shows that the mean age was 32 years with standard deviation  $\pm 11.98$ . Twenty seven percent patients had positive history of miscarriage while 72% patients had history of miscarriage. Forty three percent patients were non obese while 57% patients were obese. Moreover 41% patients had retained products of conception while 59% patients didn't have retained products of conception.

Studies demonstrate that pregnancy after 26 years increased the risk of abortions in 57% cases<sup>14</sup> whereas our statistics also revealed high percentage of spontaneous abortion (64%) among the age group > 30 years.

Obesity is one of the leading causes of infertility in women. In our study, we found 58% obese cases of spontaneous abortion. These results are consistent with previous studies conducted by Boots et al<sup>15</sup> (58%) and Broughton<sup>16</sup> (59%). But we did not find consistency for BMI rate in previous studies. Almost all previous studies observed BMI rate greater than 30 but our study found an opposite BMI rate. A retrospective study conducted by Matjila et al<sup>17</sup> somehow reflects consistency in which he found 29 BMI with 6.96 kg/m<sup>2</sup> standard deviations whereas we found 27 BMI with SD  $\pm 3.64$ .

Marriage is considered a basic institution through which the breed extends in different Asian and Arab countries. consanguineous is defined as the same gene locus of both mother and father which sometimes creates complications in their breed<sup>18</sup>. Still 20% population of world practice consanguineous<sup>19</sup>. Studies conducted by Bachir predicts that the abortion risk is high among the consanguinity than the non-consanguineous couples<sup>20</sup>. Similar findings were observed in other studies conducted in Iraq and Turkey where researchers found

two times the risk of early and late abortion in consanguineous communities<sup>21,22</sup>. But our studies reflect no correlation between these two variables. We observed a high risk of miscarriage into a non-consanguineous group (88%). Only 12% of females suffering from spontaneous abortion who belong to the cousin marriage group. These statistics are quite near to the Turkish study<sup>23</sup> conducted in 2016. They found 18% abortion cases of cousin marriages and we found only 12%.

In 1-5% of pregnancy cases, retained products of conception caused severe complications. Women who faced miscarriage in their second trimester are at high risk of RPOC<sup>24</sup>. Studies explored that the median time of RPOC from delivery was 11 days in which women suffer from heavy vaginal bleeding, fever, and pelvic pain<sup>25</sup>. In a study conducted by Esmaïllou H13, he observed 46 cases underwent dilation and curettage where 61% of cases of the retained product of conception in the first-second trimester. Kamya et al found vascularity as a major reason for RPOC in 96% cases.

Studies conducted by Smorgick N7 examined 19.3% of cases of spontaneous abortion. From this ratio, he further examined 15.5% recurrent retained products of conception while in 44 cases he found the third stage of labor placental problem. In other studies, retained products of conception found in 40% first trimester cases and 45% of cases of RPOC belong to spontaneous abortion<sup>27,28</sup>. These results are consistent with our studies. Mature adulthood increases the risk of spontaneous abortion along with the retained products of conception.

## CONCLUSION

Legal abortions need proper care but an unprofessional way of abortions is still practiced in Pakistan that causes retained products of conception and threatens female health. People use tablets without their physicians advise in order to prevent unplanned pregnancies. Obesity and socioeconomic factors also trigger spontaneous abortion. Cross marriages are a major practice in our region but we did not find any relationship between cousin marriages and spontaneous abortion. Hormonal imbalance in mature adulthood was also one of the major causes of spontaneous abortion. Our study concluded that in mature adulthood frequency of retained products of conception was high (41%), observed on ultrasound machines. It is highly recommended that the sensitivity of these processes should be known to people so that they can find physicians in time, in order to prevent abortion complications.

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