



Original Article

Frequency of Uterine Anomalies Associated with Persistent Miscarriages in Pregnancy on Ultrasound

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ABSTRACT

Miscarriages is when an embryo/foetus expires before the tenth week of gestation. It occurs most commonly early during pregnancy. Women who had a miscarriage looked to be more likely to die before the age of 70 than those who had any other pregnancy outcomes. **Objective:** To determine the frequency of uterine abnormalities related with persistent miscarriages in pregnancy on ultrasound. **Methods:** It was a cross-sectional study conducted over a period of 4 months from February 2022 to May 2022. A sample size of 70 patients was collected using purposive sampling technique. Data was collected from Memorial Christian Hospital Sialkot. Patients with multiple miscarriages due to uterine abnormalities were included in the current study. Patients with less than two miscarriages, self-induced miscarriages and miscarriages due to foetal anomalies were excluded. Data was analysed using SPSS version 20.0. **Results:** The study showed that the mean age of affected women experiencing miscarriage is 28.72. The highest rate of miscarriage was found in 38 (54.3%) of females and least in 4 (5.7%). The common cause of miscarriage was fibroids. Out of 70 females, 34 (48.6%) had fibroids, 14 (20%) had cervical incompetence, 9 (12.9%) had uterine adhesions, 6 (8.6%) had abnormal uterine size, 4 (5.7%) had uterine polyp and remaining 3 (4.3%) had congenital anomalies. **Conclusion:** The study concluded that miscarriages and uterine factors are closely linked. Uterine fibroids have shown the highest percentage of patients that had undergone miscarriage.

INTRODUCTION

A miscarriage, also called as a spontaneous abortion is described as the premature loss of pregnancy in less than 20 weeks of gestation. According to the American College of Obstetricians and Gynaecologists (ACOG), miscarriage is the most frequent type of pregnancy loss. Based on various studies, as much as 26% of pregnancies worldwide, end in miscarriage [1]. Furthermore, more than 80% of early pregnancy loss has been reported to occur in the first trimester of the pregnancy while the total risk of miscarriage mitigates after 12 weeks of gestation [2]. The most common sign of a miscarriage is vaginal bleeding, which is often accompanied by cramping and pain in the lower abdomen [3]. In humans, the process of reproduction

is inefficient [4]. Early pregnancy loss is the most common obstetric complication, affecting more than two-thirds of all human conceptions [5]. Both etiological and uterine problems lead to miscarriage. Genetics, anatomical, endocrine, placental malformations, hormonal issues, infection, smoking, alcohol intake, exposure to environmental variables, psychological trauma, and stressful life events contribute to the etiological factors [6]. Women who have had past miscarriages are at a substantially increased risk of miscarriage [7]. It is expected that 1 out of every 8 pregnancies will result in a miscarriage [8]. According to a new study, women who had a miscarriage looked to be more likely to die before the age

of 70 than those who had any other pregnancy outcomes [9]. The uterus is a muscular, hollow, pear-shaped organ located in the lower part of the pelvis. It lies posterior to the bladder and in front of the rectum, with its base positioned cranially [10]. The size of the uterus varies with age, the profile of hormones, and history of obstetrics. In parous and nulliparous women, the length, width, and anterior-posterior diameter of uterus are 9.07x5.19x4.14 and 7.10x4.52x3.27, respectively [11]. Anatomic abnormalities like mullerian duct and Diethylstilbestrol (DES)-related anomalies can be inherited or acquired. Attained abnormalities include Intrauterine Adhesions (IA) and leiomyoma [12]. Mullerian duct anomalies are found in 8 to 10% of women who have had three or more spontaneous miscarriages in a row and have been evaluated by hysterosalpingography or hysteroscopic examination, whereas hyperprolactinemia has been identified in 30% to 40% of infertile and 15% to 20% of women having menstrual complications [13]. Many pregnancies are genetically defective, resulting in miscarriage, the most common pregnancy problem. Inherited abnormalities (unicornuate, bicornuate, septate, and double uterus), adhesions, cervical incompetence, fibroids/polyps, intrauterine, and endometriosis lead to recurrent second trimester loss [14]. Anatomic abnormalities, which make up 10% to 15% of the incidences of repeated miscarriage by blocking the endometrium's vasculature, resulting in aberrant and inadequate placentation, are the final cause and most widely accepted aetiology [15]. A lower incidence of recurrent pregnancy loss has been linked to malformations such as unicornuate, didelphis, and bicornuate uteruses [16]. Surgical correction of a uterine septum, bicornuate uterus, intrauterine adhesions, fibroids, and cervical incompetence may also result in recurrent pregnancy losses. A preventative cervical cerclage can be beneficial for women who have a Mullerian abnormality and a history of second-trimester pregnancy losses [17]. However, most miscarriages are caused by defects in the viable ovum [18]. Studies have shown that uterine hypoplasia can also cause miscarriage [19]. For three decades, researchers have looked into the cause of recurrent miscarriages, which is linked to polycystic ovarian syndrome [20]. Women with polycystic ovaries are more likely to have numerous miscarriages than women with normal reproductive histories [21]. Uterine fibroids affect up to 40% of women, but their impact on reproductive success is debatable. Incompetence of the cervix is frequently reported as a reason for mid-trimester recurrent losses based on a history of late losses proceeded by spontaneous rupture of membranes and painless cervical dilatation [22]. An accurate diagnosis can be made using a combination of radiologic imaging modalities, ultrasound, trans-vaginal

ultrasonography, hysteroscopy, and laparoscopy [23]. The introduction of high-resolution Trans-Vaginal Ultrasonography (TVS) has completely changed our knowledge of the pathogenesis and management of early pregnancy failure [24]. For the diagnosis and management of early pregnancy failure, recognizing the ultrasonography appearances of normal early pregnancy development and their hazards is critical. The study highlighted the significance of ultrasound in diagnosing the uterine abnormalities that lead to miscarriages. Moreover, the study will also help to determine the frequency of uterine abnormalities that affect women's mental health leading to anxiety, depression, and grief associated with habitual miscarriages.

METHODS

It was a cross-sectional study conducted over a period of four months. A sample size of 70 patients was taken using a purposive sampling technique. Data were collected from Memorial Christian Hospital, Sialkot. A consent form was signed by the patients. The gynaecological examination of the patients was performed in a supine position using a Toshiba Famio 5 ultrasound machine. Patients with multiple miscarriages due to uterine abnormalities were included in the current study. Patients with less than two miscarriages, self-induced miscarriages, and miscarriages due to foetal anomalies were excluded. Data was analysed using SPSS 20.

RESULTS

The study highlighted significance of ultrasound in evaluating the uterine abnormalities that leads to miscarriages. In the present study 70 patients were selected. Table 1 shows the age distribution among females. The mean age of affected females is 28.72.

Patient Age Distribution	N	Minimum	Maximum	Mean±SD
Age of female patients	70	19.00	36.00	28.73±3.89

Table 1: Age distribution of patients

Table 2 shows number of pregnancies in females related with miscarriage. The highest pregnancy number was 3 which was found in 23 (32.9%) females and the least number was 6 found in 5 (7.1%) of females.

Total Pregnancies	Frequency	Percent
Two	10	14.3
Three	19	27.1
Four	23	32.9
Five	13	18.6
Six	5	7.
Total	70	100.0

Table 2: Number of pregnancies

Table 3 shows the frequency of miscarriages in females. The highest rate of miscarriage was found in 38 (54.3%) of females and least in 4 (5.7%).

Table 4 shows the frequency of uterine abnormality

Number of miscarriages	Frequency	Percent
Two	38	54.3
Three	28	40.0
Four	4	5.7
Total	70	100.0

Table 3: Number of miscarriages that leads to miscarriage. The most common among them is fibroids. Out of 70 patients, 34 (48.6%) had fibroids, 14 (20%) had cervical incompetence, 9 (12.9%) had uterine adhesions, 6 (8.6%) had abnormal uterine size, 4 (5.7%) had uterine polyp and remaining 3 (4.3%) had congenital anomalies.

Ultrasound diagnosis of uterine abnormalities	Frequency	Percent
cervical incompetence	14	20.0
uterine adhesions	9	12.9
uterine fibroids	34	48.6
congenital anomalies	3	4.3
abnormal uterus size	6	8.6
uterine polyps	4	5.7
Total	70	100.0

Table 4: Ultrasound diagnosis of uterine abnormalities

DISCUSSION

A miscarriage occurs when an embryo or foetus expires before the tenth week of gestation. It is most prevalent early in pregnancy. Uterine causes account for 8 out of 10 miscarriages. However anatomic abnormalities make up 10% to 15% of the incidences of repeated miscarriage. The current study was conducted on 70 female patients with a history of uterine abnormalities leading to miscarriage. The most frequent neoplasm in the reproductive tract of females is fibroids. The number of women who have or will have fibroids is alarming. It is estimated that 30% of women by the age of 30 will have a fibroid or fibroids, with this percentage rising over time to a total of 50% of females of reproductive age, with racial differences. Subfertility, late conception complications, for example, preterm birth, complications during labour, malpresentation, obstructed labour, dysfunction in contractions of the uterus, and postpartum complications (haemorrhage, sepsis, and uterine involution failure) are all caused by fibroids. The current study found that in 34 (48.6%) patients, fibroids were the leading cause of miscarriages followed by cervical incompetence which contributes 14% to miscarriage. Similarly, according to Hartmann et al, (2017) fibroids are also a major cause of miscarriages, both studies have similar findings having fibroids a leading cause of miscarriage [25]. Kongathi SA et al, discovered in 2013 that uterine abnormalities were responsible for 11.8% of RPL cases. In three out of 35 RPL patients, the uterus account for 10% of our cases of repeated loss of pregnancy [26]. The current study proved that cervical incompatibility is thus linked to miscarriages and found that 14 (20%) of

women miscarried as a result of this issue. Among 23.8 percent of females who had repeated miscarriage, congenital uterine abnormalities were discovered. The arcuate uterus, on the other hand, was the most prevalent aberration, with serious malformations seen in 6.9% of women. Congenital uterine defects were found to be prevalent in women with a history of recurrent early pregnancy loss in previous research. Based on another study, it was also reported that the increased risk of second trimester miscarriage was mostly found in women with arcuate uterus [27]. According to the findings of certain research, the prevalence of significant congenital uterine defects is three times higher in patients with a past of repeated miscarriage than in the general population. This shows that in a tiny percentage of women who have recurrent miscarriages, congenital uterine defects may be the cause of pregnancy loss.

CONCLUSION

The study concluded that miscarriages and uterine factors are closely linked. Uterine fibroids have shown the highest percentage of patients that have undergone miscarriage. Such studies that identify the major factor responsible for recurrent miscarriages can aid in raising awareness and combating the causes in a timely and effective manner.

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